FIFTH EDITION

ACSM's Health/Fitness Facility Standards and Guidelines

AMERICAN COLLEGE of SPORTS MEDICINE®

Fifth Edition

ACSM's Health/Fitness Facility Standards and Guidelines

American College of Sports Medicine

Senior Editor

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This book is dedicated to the professionals whose efforts in the health/fitness club industry help ensure that participants in the activities and programs of the organizations they serve receive the positive experience that they expect, deserve, and need. These professionals make a difference. They are men and women who work hard, train smart, and help others turn their fitness- and wellness-related dreams into reality.

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Preface

Time and place. The time: the late 1980s. The place: ACSM national headquarters in Indianapolis, Indiana. Lyle Micheli, MD, FACSM, president of ACSM at the time, spearheads an effort to have ACSM establish a blueprint that specifies what health/fitness facilities must do to establish and maintain the standards of care that they offer members and users, as well as what health/fitness facilities should do in order to enhance the experience that members and users can achieve by engaging in the activities and programs offered by a particular facility.

Before the call to action by ACSM, no such blueprint existed to help ensure that the experiences of members and users in health/fitness facilities (e.g., commercial health or fitness clubs, corporate fitness centers, Jewish community centers, medical fitness centers, YMCAs) were safe, efficient, and effective. In response to the leadership of Dr. Micheli, ACSM initiated the process of assembling a team of experts in the academic, club industry, health/wellness, and medical fields to develop and write a manual on facility standards and guidelines for delivering quality physical activity programs and activities to consumers.

The result. In 1992, the first edition of *ACSM's Health/Fitness Facility Standards and Guidelines* was published. Over the intervening 25 years, three additional editions of this one-of-a-kind resource have been published—in 1997, 2004, and 2012, respectively. Each subsequent edition was designed to reflect changing market forces, relevant developments, and new factors brought to light in the health/fitness facility industry.

This fifth edition of *ACSM's Health/Fitness Facility Standards and Guidelines* continues to ensure that the latest edition of this exceptional resource offers the most up-to-date information, ideas, and insights available on the standard of care for health/fitness facilities, wherever and in whatever format they might exist. As with previous editions, the fifth edition features a team of professionals who provided their expertise in a variety of subject areas, including architecture, health and wellness, law, safety-related practices and policies, and the health/fitness club industry. Arguably, this group of well-respected individuals has produced a very helpful and authoritative book on the standard of care for health/fitness facilities.

There is an old African proverb that states, it takes a village to raise a child. To put this saying into the context of the fifth edition of *ACSM's Health/Fitness Facility Standards and Guidelines*, it took a team to make this extraordinary book a reality. Collectively, their energy, efforts, passion, and expertise made it happen.

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Acknowledgments

The American College of Sports Medicine (ACSM) and the editors of this fifth edition of *ACSM's Health/Fitness Facility Standards and Guidelines* would like to extend their thanks to the members of the editorial board who committed their time and expertise to the writing of this book. Additional thanks are extended to the editors of the four previous editions of this book for their foresight in helping establish the legacy of this publication:

- First edition—Carl Foster, PhD, FACSM, and Neil Sol, PhD
- Second edition—James A. Peterson, PhD, FACSM, and Stephen J. Tharrett, MS
- Third edition—Stephen J. Tharrett, MS; Kyle McInnis, ScD, FACSM; and James A. Peterson, PhD
- Fourth edition—Stephen J. Tharrett, MS, and James A. Peterson, PhD

The editors would also like to extend a special thanks to the ACSM board of trustees for their contributions to and involvement in the establishment of this book and its predecessors. For more than 50 years, ACSM has played a leading role in the growth in the level of professionalism exhibited by the industry.

Finally, special thanks are extended to Darren Warburton, PhD, and JoAnn Eickhoff-Shemek, PhD, FACSM, for their contributions and to all the organizations and professionals who reviewed the draft manuscript for this book and provided the editors with feedback on its content.

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Notice and Disclaimer

ACSM developed the previous and current editions of this book to enhance the safety and effectiveness of physical activity conducted in health/fitness facilities, with the goal of increasing global participation rates in physical activity. To this end, the book will address pre-activity screening practices; orientation, education, and supervision issues; risk management and emergency-procedure practices; staffing issues; operational practices; design issues; equipment issues; and signage issues that affect the safety and effectiveness of physical activity, as engaged in by the general population in health/fitness facilities.

ACSM and its senior co-editors and editorial board, in setting forth standards and guidelines in this book, have done so based on the following definitions for standards and guidelines:

- **Standards.** These are base performance criteria or minimum requirements that ACSM believes each health/fitness facility must meet to provide a relatively safe environment in which physical activities and programs can be conducted. These standards are not intended to create or confirm a legal duty or standard of care for purposes of litigation; rather, they are performance criteria derived from a consensus of both ACSM leaders and leaders from the health/fitness facility industry. The standards are not intended to be restrictive or to supersede international, national, regional, or local laws and regulations. They are intended to be qualitative in nature. Finally, as base performance criteria, these standards are steps designed to promote quality. They are intended to accommodate reasonable variations based on local conditions and circumstances.

- **Guidelines.** These are recommendations that ACSM believes health/fitness operators should consider using to improve the quality of the experience they provide to users. Such guidelines are not standards, nor are they applicable in every situation or circumstance; rather, they are tools that ACSM believes should be considered for adoption by health/fitness operators.

ACSM and its senior co-editors and editorial board have designed this book as a resource for those who operate all types of health/fitness facilities, whether they be fully staffed facilities or unstaffed and unsupervised facilities, such as some hotel fitness centers, worksite centers, and commercial 24-hour facilities. Some of the standards and guidelines detailed in this book, in particular those that apply to issues of staffing and supervision or the execution of a practice requiring staffing, may not be applicable to those facilities whose operational model does not include facility staffing.

Despite the development and publication of this book, the responsibility for the design and delivery of services and procedures remains with the facility operator and with others who are providing services. Individual circumstances may necessitate deviation from these standards and guidelines, such as for an unstaffed facility. Facility personnel must exercise professionally derived decisions concerning what is appropriate for individuals or groups under particular circumstances. These standards and guidelines represent ACSM's opinion regarding best practices. Responsibility for service provision is a matter of personal and professional experience.

Any activity, including those undertaken within a health/fitness facility, carries with it some risk of harm, no matter how prudently and carefully services may be provided. Health/fitness facilities are not insurers against all risks of untoward events; rather, their mission should be directed at providing facilities and services in accordance with applicable standards. The

standard of care that is owed by facilities is ever changing and emerging. As a consequence, facilities must stay abreast of relevant professional developments in this regard.

By reason of authorship and publication of this document, neither the editors, the contributors, nor the publisher are or shall be deemed to be engaged in the practice of medicine or any allied health field, the practice of delivering fitness training services, or the practice of law or risk management. Rather, facilities and professionals must engage the services of appropriately trained and/or licensed individuals to obtain those services.

The words *safe* and *safety* are frequently used throughout this publication. Readers should recognize that the use of these terms is relative and that no activity is completely safe.

Definitions

This section of the text provides readers with definitions for the most frequently used words, phrases, and acronyms found throughout the book.

ADA—The Americans With Disabilities Act (ADA) prohibits discrimination against people with disabilities, including in the areas of employment, transportation, public accommodations, communications, and access to state and local government programs and services. While many of the ADA issues in health/fitness facilities are equipment- or facility-related, the ADA is quite comprehensive and covers several other areas that affect health/fitness facilities, including employment.

AED—An acronym for automated external defibrillator, an automated device that can detect the presence and absence of certain cardiac rhythms and deliver a potentially lifesaving electrical shock that may restore a normal heart rhythm.

ASTM International—Originally known as the American Society for Testing and Materials (ASTM), this term refers to a worldwide voluntary standards development organization for technical standards for materials, products, systems, and services.

barrier protection apparel—Gowns, protective clothing, gloves, masks, and eye shields worn to help protect the staff person from bodily fluids and chemicals.

cardio equipment—Machines that allow an individual to perform whole or partial body movements intended to stimulate the cardiorespiratory system of the individual engaged in using the equipment. Examples of this equipment include treadmills, elliptical machines, mechanical stair climbers, and indoor cycles.

CPR—An acronym that stands for cardiopulmonary resuscitation, which involves the process of applying chest compressions and, if needed, breaths to assist an individual who is experiencing cardiac arrest.

health care professional—Refers to a professional who has education, training, and experience in the provision of health care services. In the context of this book, it refers primarily to physicians, nurse practitioners, physician assistants, registered nurses, emergency medical technicians, or others who have received the proper licensing to deliver health care services in their respective fields of expertise.

health/fitness facility—A facility that offers exercise-based health and fitness programs and services. May include government-based facilities, commercial facilities, corporate-based facilities, hospital-based facilities, and private facilities.

health/fitness facility member—A health/fitness facility user who pays for the regular privilege of engaging in the activities, programs, and services of the facility.

health/fitness facility operator—The owner or management group responsible for the financial and operating activities of a health/fitness facility.

health/fitness facility user—An individual (who is not a member) who accesses a facility on one or more than one occasion without purchasing a membership to the facility.

HHQ—An acronym for health history questionnaire, which is a pre-activity screening instrument that is used to collect general health and medical history information about an individual.

HIPAA—An acronym for the U.S. government Health Insurance Portability and Accountability Act of 1996, which provides certain privacy protections for health information of individuals, including the dissemination of personal health

information without the written permission of the individual.

independent contractor—An individual working at a health/fitness facility but not employed by the operator of the facility.

MSDS—An acronym for material safety data sheets. These sheets specify data about products and materials, per U.S. Occupational Safety and Health Administration laws.

OSHA—An acronym for the Occupational Safety and Health Administration of the U.S. government. It oversees the implementation of health and safety regulations required by the government, as well as the adherence to these regulations by businesses.

PAD—An acronym for public access defibrillation; a system involving giving the public at large access to AEDs in public and private settings in an effort to bring lifesaving defibrillation to as large a segment of the public as possible.

PAR-Q+—An acronym for Physical Activity Readiness Questionnaire for Everyone, which is a self-guided pre-activity screening instrument that helps an individual identify certain health conditions and risk factors that might affect the ability to exercise safely.

PASQ—An acronym for the Pre-Activity Screening Questionnaire, a questionnaire that should be reviewed by a qualified health/fitness professional prior to initiating an exercise program.

personal trainer—An employee or independent contractor of a health/fitness facility whose primary responsibilities are to prescribe exercise for members and users as well as to coach, guide, and supervise members and users while they engage in exercise at a health/fitness facility.

professional staff—Refers to staff who are educated and trained in a professional field, such as fitness or health care.

selectorized resistance equipment—Resistance training equipment composed of stacks of weight plates that are attached to a cable and moved over a pulley, allowing users to adjust the amount of weight lifted by selecting the number of plates they desire to lift.

staff—The employees of a health/fitness facility.

staffed health/fitness facility—A health/fitness facility that has employees or independent contractors who work in the facility during all operating hours.

unstaffed health/fitness facility—A health/fitness facility that does not have employees or independent contractors working in the facility during operating hours. This situation can apply for all operating hours or a portion of the facility's operating hours.

variable-resistance equipment—Often the same as selectorized resistance equipment, with the only difference being that instead of a cable run over a standard circular pulley, the pulley is run over a cam-shaped pulley that varies the torque (and hence the level of resistance) of the weight lifted, without requiring the actual weight to be changed.

CHAPTER 1

Exercise Preparticipation Health Screening

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The promotion of physical activity is an important focus of both the public health agenda in America and the global health agenda for many nations. The time and resources that are devoted to encouraging people to be physically active are supported by an ever-accumulating and impressive body of scientific literature that documents the innumerable health benefits of a physically active lifestyle and the potential detrimental effects of sedentary living. As a result of the public health message and social awareness that individuals should regularly engage in moderate to vigorous physical activity, an increased level of interest and participation in fitness activities and facilities has occurred, including the involvement of adults with diverse health and medical conditions and relatively low levels of cardiorespiratory fitness.

Other factors, such as an aging population in many Western nations, a twin epidemic of obesity and type 2 diabetes in children and adults around the globe, and efforts to promote physical activity to the beginner fitness population have heightened the need for careful safety policies and procedures that are put into practice at all health/fitness facilities. The primary intent of such policies and procedures is to minimize cardiovascular and/or medical risk for all members and users, including those with greatest potential for cardiovascular risk during exercise due to age, presence of existing cardiovascular disease, and any other medical or health concern that might be exacerbated during exercise participation.

Although most individuals have a very low risk for an exercise-related cardiovascular event such as sudden cardiac death or acute myocardial infarction, scientific evidence suggests that the risk of adverse cardiac events is higher during or immediately after vigorous exercise, especially for habitually sedentary individuals who have underlying cardiovascular disease. The growing popularity of high-intensity interval training (HIIT), fitness boot camp-style classes, sport-specific performance training, and race preparation training programs (e.g., for marathons or triathlons) means that more individuals are engaging in challenging, intense exercise. Individuals with unrevealed cardiovascular disease may be difficult to identify, since some persons who experience exercise-related cardiovascular emergencies have no previous warning signs. In addition, cardiovascular events are often preceded by signs and symptoms indicative of underlying disease, but those signs have been ignored by the individual.

An important challenge facing health/fitness facility operators is to provide the proper environment for stimulating interest and motivation toward exercise participation while simultaneously minimizing the potential risk of an adverse medical event occurring during or soon after exercise. A vitally important procedure involved in optimizing safe exercise participation is to identify those individuals who may be at an increased level of risk for such events. The primary step in achieving that objective is to routinely administer an exercise preparticipation health screening to all new members and prospective users. Accordingly, individuals deemed to be at an increased cardiovascular and/or medical risk can be properly evaluated by qualified health care providers and steered toward activities that are consistent with their health needs and receive specific recommendations about exercising safely and their potential activity limitations.

Exercise preparticipation health screening is the method by which health/fitness facility operators can properly identify those members and users who pose an increased risk of experiencing exercise-related cardiovascular incidents. This is applicable not only to large health clubs and multipurpose fitness facilities but also to boutique clubs, such as yoga and Pilates studios, cycling studios, or dedicated sports performance gyms—basically any facility that engages in structured exercise delivery. Depending on the setting, a self-guided or professionally guided method utilizing ACSM's preparticipation screening algorithm may be used. ACSM's algorithm or approach to the preparticipation screening process, updated in a Roundtable Consensus Statement and the 10th edition of the *ACSM Guidelines for Exercise Testing and Prescription*, is based on three factors: (a) the person's current level of physical activity; (b) the presence of known cardiovascular (CV), metabolic, or renal disease, or signs and symptoms suggestive of these diseases; and (c) the intended exercise intensity. This procedure provides would-be exercisers with appropriate guidelines and recommendations for safe and effective exercise participation. This chapter presents standards (see box 1.1) and guidelines (see box 1.2) pertaining to the use of exercise preparticipation health screening tools to help identify those individuals who may be exposed to a greater risk of a cardiovascular event upon engaging in a program of physical activity.

BOX 1.1 Standards for Exercise Preparticipation Health Screening

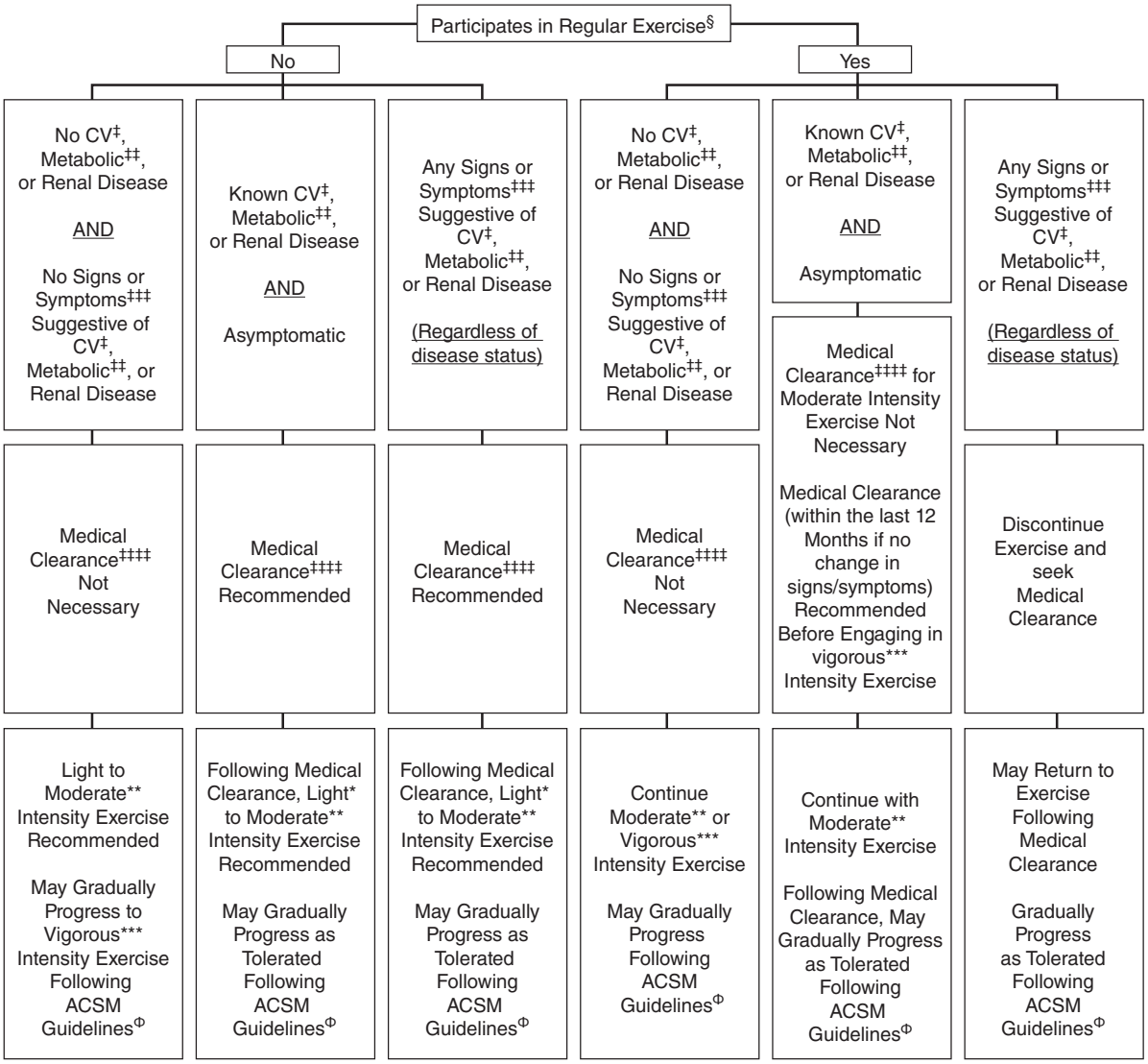
1. Facility operators shall offer a self-guided or professionally guided exercise preparticipation health screening tool (e.g., pre-activity screening questionnaire [PASQ], the Physical Activity Readiness Questionnaire for Everyone [PAR-Q+], and/or health history questionnaire [HHQ]) to all new members and prospective users.
2. Exercise preparticipation health screening tools shall provide an authenticated means for new members and/or users to identify whether a level of risk exists that indicates that they should seek consultation from a qualified health care professional prior to engaging in a program of physical activity.
3. Exercise preparticipation health screening tools shall be reviewed by qualified staff (e.g., a qualified health/fitness professional or health care professional), and the results of the review shall be retained on file by the facility for a period of at least one year from the time the tool was reviewed. All health data and related communications shall be kept in such a manner that it is private, confidential, and secure.
4. If a facility operator is told that a member, user, or prospective user has known cardiovascular, metabolic, or renal disease, or any other self-disclosed medical concern that may affect the individual's ability to exercise safely, medical clearance is recommended before beginning a physical activity program.
5. Facilities shall provide a means for communicating to existing members the value of completing an exercise preparticipation health screening tool on a regular basis (e.g., preferably once annually) during the course of membership, or if they experience a significant change in health status. Such communication can be done through a variety of mechanisms, including, but not limited to, the facility membership agreement, online communications, personal correspondence, and/or signage.

Exercise preparticipation health screening standard 1. Facility operators shall offer a self-guided or professionally guided exercise preparticipation health screening tool (e.g., pre-activity screening questionnaire [PASQ], the Physical Activity Readiness Questionnaire for Everyone [PAR-Q+], and/or health history questionnaire [HHQ]) to all new members and prospective users.

The primary purpose of preparticipation health screening is to identify those individuals considered to be at risk for an adverse event during exercise, as well as those people who would benefit from obtaining medical clearance before starting an exercise program. This objective involves identifying persons with known cardiovascular disease or symptoms of cardiovascular disease, metabolic disease (including diabetes), or renal disease or other major health concerns that may affect safe exercise participation. Screening also identifies persons with known cardiovascular disease or other special medical needs who should ideally participate, at least initially, in a medically supervised program. Self-guided screening forms are completed and scored by the participant, whereas professionally guided screening tools are completed with the guidance of a fitness professional. According to a joint position statement entitled "Exercise and Acute Cardiovascular Events: Placing the Risks into Perspective" by the American Heart Association (AHA) and ACSM, published in *Medicine and Science in Sports and Exercise*, released in 2007, as well as a joint position statement released in 2010 entitled "Exercise and Type II Diabetes" by ACSM and the American Diabe-

tes Association, preparticipation health screening represents a prudent approach to identifying those individuals who may be at high risk for an acute cardiovascular event during or immediately after vigorous physical activity.

In the 10th edition of *ACSM's Guidelines for Exercise Testing and Prescription*, a new preparticipation screening algorithm called the preparticipation screening algorithm was introduced. This algorithm was developed to more accurately assess risk and minimize the number of unnecessary physician referrals, thereby reducing barriers to exercise participation (figure 1.1). The previous prescreening procedure included



§Exercise participation, performing planned, structured physical activity at least 30 min at moderate intensity on at least 3 d·wk for at least the last 3 months.
*Light-intensity exercise, 30% to <40% HRR or V˙O2R, 2 to <3 METs, 9–11 RPE, an intensity that causes slight increases in HR and breathing.
**Moderate-intensity exercise, 40% to <60% HRR or V˙O2R, 3 to <6 METs, 12–13 RPE, an intensity that causes noticeable increases in HR and breathing.
***Vigorous-intensity exercise ≥60% HRR or V˙O2R, ≥6 METs, ≥14 RPE, an intensity that causes substantial increases in HR and breathing.
‡CVD, cardiac, peripheral vascular, or cerebrovascular disease.
‡‡Metabolic disease, type 1 and 2 diabetes mellitus.
‡‡‡Signs and symptoms, at rest or during activity; includes pain, discomfort in the chest, neck, jaw, arms, or other areas that may result from ischemia; shortness of breath at rest or with mild exertion; dizziness or syncope; orthopnea or paroxysmal nocturnal dyspnea; ankle edema; palpitations or tachycardia; intermittent claudication; known heart murmur; or unusual fatigue or shortness of breath with usual activities.
‡‡‡‡Medical clearance, approval from a health care professional to engage in exercise.
$^{\Phi}$ACSM Guidelines, see ACSM's Guidelines for Exercise Testing and Prescription, 10th edition, 2018.

Figure 1.1 The American College of Sports Medicine preparticipation screening algorithm.

Reprinted by permission from D. Riebe et al., "Updating ACSM's Recommendations for Exercise Preparticipation Health Screening," *Medicine and Science in Sports and Exercise* 47, no. 11 (2015): 2473-249.

an assessment of cardiovascular disease risk factors. However, risk factor identification has not been found to help predict the risk of a cardiac incident during exercise training. Furthermore, it delays the initiation of a much-needed exercise program by requiring more individuals to obtain medical clearance.

The new ACSM algorithm, which is the foundation for the PASQ, and the Exercise Preparticipation Health Screening Questionnaire for Exercise Professionals (figures 1.2 and 1.3) can serve as a foundation for developing health history questionnaires These screening forms incorporate the individual's recent history of physical activity and the desired exercise intensity into the decision-making process. With the rise in popularity of high-intensity classes and training protocols, properly guiding individuals toward activity choices that best suit their current fitness levels, movement capabilities, and health statuses will be important. The PASQ and related forms are available for download at www.fitnesslawacademy.com.

Instructions: ***First, save this form to your computer.*** Then, please complete this form by clicking the respective boxes in sections 1-3 and sign/date electronically in section 4. Upon completion, save it again to your computer and return as instructed.

Section 1: Current Physical Activity

When answering the questions in this section, please note the following definitions:
Moderate Intensity: An activity that causes noticeable increases in heart rate and breathing (e.g., brisk walking)
Vigorous Intensity: An activity that causes substantial increases in heart rate and breathing (e.g., jogging)
Over the last three months, have you regularly participated in physical activity for at least 30 minutes, three days/week at a moderate intensity?

☐ No

☐ Yes

If yes, which of the following best describes any vigorous intensity activity in your regular routine in the last 3 months?

☐ I participate in some or all vigorous intensity activity

☐ None, but I want to begin some vigorous intensity activity

☐ None, and I want to continue moderate intensity activity

Section 2: Medical Conditions

Please select any of the following medical conditions that you currently have or have had.

☐ Heart attack

☐ Heart surgery

☐ Cardiac catheterization

☐ Coronary angioplasty (PTCA)

☐ Heart valve disease

☐ Heart failure

☐ Heart transplantation

☐ Congenital heart disease

☐ Abnormal heart rhythm

☐ Pacemaker/implantable cardiac defibrillator

☐ Peripheral vascular disease (PVD or PAD): disease affecting blood vessels in arms, hands, legs, and feet

☐ Cerebrovascular disease—stroke or TIA (transient ischemic attack)

☐ Type 1 or Type 2 diabetes

☐ Renal (kidney) disease

(continued)

Figure 1.2 Preactivity activity screening questionnaire (PASQ).

Reprinted by permission from J. Eickoff-Shemek & A. Craig, "Putting the New ACSM's Pre-Activity Health Screening Guidelines into Practice," *ACSM's Health & Fitness Journal* 21, no. 3 (2017): 11-21.

Section 3: Signs or Symptoms

Please select any of the signs or symptoms that you have recently experienced.

- ☐ Pain, discomfort in the chest, neck, jaw, or arms at rest or upon exertion
- ☐ Shortness of breath at rest or with mild exertion
- ☐ Dizziness or loss of consciousness during or shortly after exercise
- ☐ Shortness of breath occurring at rest or 2-5 hours after the onset of sleep
- ☐ Edema (swelling) in both ankles that is most evident at night or swelling in a limb
- ☐ An unpleasant awareness of forceful or rapid beating of the heart
- ☐ Pain in the legs or elsewhere while walking; often more severe when walking upstairs/uphill
- ☐ Known heart murmur
- ☐ Unusual fatigue or shortness of breath with usual activities

Section 4: Acknowledgment, Follow-Up, and Signature

I acknowledge that I have read this questionnaire in its entirety and have responded accurately, completely, and to the best of my knowledge. Any questions regarding the items on this questionnaire were answered to my satisfaction. Also, if my health status changes at any time, I understand that I am responsible to inform a staff member at this facility of any such changes.

Name: _____ Date: _____

Signature: _____

Figure 1.2 *(continued)*

Exercise Preparticipation Health Screening Questionnaire for Exercise Professionals

Assess your client's health needs by marking all *true* statements.

Step 1

Signs and Symptoms

Does your client experience:

_____ chest discomfort with exertion
_____ dizziness, fainting, blackouts
_____ unpleasant awareness of a forceful, rapid; or irregular heart rate
_____ known heart murmur
_____ unreasonable breathlessness
_____ ankle swelling
_____ burning or cramping sensations in your lower legs when walking short distance

If you **did** mark any of these statements under the symptoms, **STOP**; your client should seek medical clearance before engaging in or resuming exercise. Your client may need to use a facility with a **medically qualified staff.**

If you **did not** mark any symptoms, continue to steps 2 and 3.

Step 2

Current Activity

Has your client performed planned, structured physical activity for at least 30 minutes at moderate intensity on at least 3 days per week for at least the last 3 months?

_____ yes _____ no

Continue to Step 3.

Step 3

Medical Conditions

Has your client had or do they currently have:

_____ a heart attack
_____ heart surgery, cardiac catheterization, or coronary angioplasty
_____ heart failure
_____ heart transplantation
_____ diabetes
_____ heart valve disease
_____ pacemaker/implantable cardiac defibrillator/rhythm disturbance
_____ congenital heart disease
_____ renal disease

Evaluating Steps 2 and 3:

- If you **did not mark any of the statements in Step 3,** medical clearance is not necessary.
- If you marked Step 2 **"yes"** and **marked any of the statements in Step 3,** your client may continue to exercise at light to moderate intensity without medical clearance. Medical clearance is recommended before engaging in vigorous exercise.
- If you marked Step 2 **"no"** and **marked any of the statements in Step 3,** medical clearance is recommended. Your client may need to use a facility with a **medically qualified staff.**

Figure 1.3 Exercise preparticipation health screening questionnaire for exercise professionals.

Reprinted by permission from M. Magal and D. Riebe, "New Participation Health Screening Recommendations: What Exercise Professionals Need to Know," *ACSM's Health Fitness Journal* 20, no. 3 (2016): 22-27.

An HHQ (figure 1.4) may also be used to determine whether an individual has cardiovascular, metabolic, or renal disease, or signs and symptoms of it, or other medical conditions that should be medically evaluated. Each individual facility may opt to develop its own HHQ, incorporating questions from the PASQ or the PAR-Q, as well as additional questions that target specific health concerns or member groups. Because of the greater detail generally associated with these questionnaires, they can provide a more comprehensive evaluation of an individual's risk for an adverse event during exercise. For example, an HHQ could include a question about the sickle cell trait, which is associated with a higher risk of exertional rhabdomyolysis (severe muscle breakdown leading to kidney failure), which is related to high-intensity exercise. Recent cases of exertional rhabdomyolysis that have occurred in both fit and unfit populations (e.g., athletes, active-duty soldiers, and the general population) underscore the need for appropriate screening and exercise guidance regarding high-intensity exercise.

Health History Questionnaire

General Information

Today's Date _____

Member's Full Name _____ Date of Birth _____

Physician's Name _____ Physician's Phone Number _____

Section 1 Check all that apply:

_____ Heart attack
_____ Heart surgery
_____ Pacemaker/implantable cardiac defibrillator
_____ Heart valve disease
_____ Heart failure
_____ Heart disease
_____ Any other cardiovascular problems not listed on this medical history?
Please specify: _____
_____ Diabetes
_____ Asthma or lung disease Identify: _____
_____ Currently being treated for cancer
If so, what type: _____
_____ History of cancer
If so, what type: _____
_____ Stroke
_____ Currently pregnant

Medications

Please list any medications you are currently taking:

_____

_____

Exercise History

On average, **how many days per week** do you exercise or do physical activity?

Days per week: _____

On average, **how many minutes of physical activity** or exercise do you perform each of those days?

Minutes per day: _____

Section 2 Check all that apply:

_____ Male ≥ 45 years
_____ Female ≥ 55 years, have had a hysterectomy, or are postmenopausal

(continued)

Figure 1.4 Health history questionnaire.

Adapted by permission from TriHealth Fitness and Health Pavilion.

_____ Exercise less than 3 times per week, or get less than a total of 90 minutes per week
_____ Current smoker or quit smoking within the previous 6 months or exposure to environmental smoke
_____ Have high cholesterol or on medication for (level is ≥ 200 mg/dl)
_____ High blood pressure
_____ Currently taking medication for blood pressure or heart condition
_____ Pain in your chest when you do physical activity
_____ Burning, cramping sensation in your legs when walking short distances
_____ Close blood relative who had a heart attack, heart surgery, or stroke before age 55 (father or brother) or age 65 (mother or sister)
_____ Autoimmune disease Please specify: _____
_____ Vertigo
_____ Balance issues
_____ Prone to fainting or seizures (e.g., epilepsy)
_____ Brain injury Date: _____
_____ Osteoporosis/osteopenia
_____ Bone or joint problem that could be made worse by a change in your physical activity
Please specify: _____
_____ Concerns about the safety of exercise

Please list any additional comments on your medical history: _____
_____
_____

Informed Health Risk

This section to be completed with a fitness staff member.

Staff initials: _____ Participant signature: _____

_____ Yes, I have been made aware of the above health-risk factors and have been advised to see my physician prior to engaging in activity.
_____ Yes, I have been made aware of my level of health risk:
_____ Low _____ Moderate _____ High

Privacy Statement Data collected using this form is considered confidential and will be used exclusively in support of the program and associated research. It will not be sold or distributed to any outside companies, individuals, or agencies for sales or marketing purposes.

Fitness Assessment Process

Fitness Assessment

The purpose of a fitness assessment is to establish a fitness program based on your unique ability and needs. You will be guided through a series of tests that will assess your aerobic capacity, muscular strength, endurance, flexibility, blood pressure, heart rate, and body composition. You may stop at any time because of signs of fatigue or discomfort.

Figure 1.4 *(continued)*

Responsibilities of the Participant

Information you have about your current health status or previous experiences of unusual feelings with effort or during the test is important. It is your responsibility to fully communicate any and all such information when completing the required forms and when meeting with the fitness testing staff.

Expected Benefits

The fitness test is performed solely for the purposes of determining safe levels of exercise and to establish a baseline to measure progress in your fitness program. The test is not a medical stress test and does not take the place of regular appointments with your physician.

Risks and Discomforts

The possibility exists of certain changes occurring during the fitness assessment. This may include changes in blood pressure, dizziness, faintness, irregular heart beat, shortness of breath, muscular strain, and in rare instances, heart attack, stroke, or death. Every effort will be made to minimize these risks by reviewing the health history information and by close observation during the assessment.

Please select the appropriate box:

_____ I have read this form and I understand the assessment is voluntary, the potential risks and discomforts, and consent to the herein described fitness assessment.

OR

_____ I have been made aware of the assessment offering. I have been informed of the risk factors to my health and for participating in regular physical activity at the center. I waive my participation in the fitness assessment at this time.

I give permission to provide the information obtained during the assessment to my physician/health care provider as indicated on my health intake information.

I understand the information obtained may be used for statistical analysis or scientific purposes with my identity being kept private. _____(Facility name) respects your privacy and agrees not to use your personally identifiable information by taking measures to protect your information through password protections and secured hosting. You are responsible for maintaining your password to gain access to the system and not share your password with others.

I hereby release and forever discharge and hold harmless _____ and its successors, assigns, and third party agents from any and all liability, claims, and demands of whatever kind of nature either in law or in equity, which may arise or hereafter arise from the testing described herein.

Member's name (printed) _____

Member's signature _____ Date _____

Employee signature _____ Date _____

Figure 1.4 *(continued)*

Rhabdomyolysis (as well as other untoward events, such as a heart attack and musculoskeletal injuries) can occur when exercise is performed at high-intensity levels, especially from sustained high-intensity exercise (i.e., with little/no rest periods, such as indoor cycling, running, weight lifting, boot camp–style classes, extreme conditioning programs, etc.). The following statement is suggested as a warning for those individuals who may be at risk and can be included either as part of a PASQ or HHQ or addressed during the member intake process: If you have any medical conditions or are unable to safely tolerate or perform vigorous exercise (activities that create a substantial to uncomfortable increase in heart rate and blood pressure), you should not participate in a high-intensity program of any kind unless you have been cleared by your physician to perform such activity.

Screening questionnaires can be used by a fitness professional during an initial fitness consultation to determine whether it is prudent for a new member to seek medical guidance prior to the initiation of an exercise program, as well as to guide recommendations regarding exercise goals, type, and intensity. Preparticipation health screenings facilitated by a fitness or health care professional are most suitable for health/fitness facilities that are staffed and focused on providing additional physical activity guidance to users.

The most commonly used self-guided preparticipation health screening tool has been the Physical Activity Readiness Questionnaire (PAR-Q), which was originally developed by the Canadian Society for Exercise Physiology. This instrument, which has been updated into the PAR-Q+, asks questions that allow the user, or a facilitator, to easily identify major health conditions, signs or symptoms suggestive of coronary heart disease, or other major medical conditions that may elevate the participant's risk of medical complications during exercise (figure 1.5). If the participant answers no to all seven questions on page 1, he or she can simply sign the form and proceed to engage in exercise. However, if the person answers yes to any one of those seven questions, he or she will be asked to complete an additional two pages of questions to determine whether medical clearance is necessary prior to initiating an exercise program. Completing the additional pages may require some assistance from a qualified exercise or health care professional, although the instrument was designed to be self-guided. The latest version of the PAR-Q+, including online and digital options, can be accessed at www.eparmedx.com. A digital version can be integrated into the electronic member registration process to create a smooth, secure, and documented preparticipation health screening. When using electronic agreements with electronic (digital) signatures, the PAR-Q+ could be incorporated into that process to create a complete digital record in the file. DocuSign, WaiverKing, or other solutions are available for this, or possibly a facility's member management system provider can be used in this situation.

The PAR-Q+ was designed to be a self-guided questionnaire and is most appropriate for health/fitness facilities that are unstaffed during all or part of their operating hours, such as hotel fitness centers, apartment fitness centers, and the ever-growing number of 24-hour unstaffed commercial health/fitness facilities. It may also be appropriate when an individual chooses to exercise independently, which may occur if the member declines an initial fitness orientation appointment; plans to exercise without the guidance of a personal trainer; or decides to enter a group fitness class without first consulting with the group exercise instructor. A self-guided exercise preparticipation health screening protocol can range from requiring all facility users to complete the PAR-Q+ on their first visit to the facility to posting the first page of the PAR-Q+, with accompanying signage, at the entry to a health/fitness facility. Ideally, an electronic version of the PAR-Q+ would be integrated into the membership software so that it is automatically completed and scored prior to facility usage.

2018 PAR-Q+

The Physical Activity Readiness Questionnaire for Everyone

The health benefits of regular physical activity are clear; more people should engage in physical activity every day of the week. Participating in physical activity is very safe for MOST people. This questionnaire will tell you whether it is necessary for you to seek further advice from your doctor OR a qualified exercise professional before becoming more physically active.

GENERAL HEALTH QUESTIONS

Please read the 7 questions below carefully and answer each one honestly: check YES or NO.	**YES**	**NO**
1) Has your doctor ever said that you have a heart condition ☐ OR high blood pressure ☐?	☐	☐
2) Do you feel pain in your chest at rest, during your daily activities of living, **OR** when you do physical activity?	☐	☐
3) Do you lose balance because of dizziness **OR** have you lost consciousness in the last 12 months? Please answer **NO** if your dizziness was associated with over-breathing (including during vigorous exercise).	☐	☐
4) Have you ever been diagnosed with another chronic medical condition (other than heart disease or high blood pressure)? **PLEASE LIST CONDITION(S) HERE:** _____	☐	☐
5) Are you currently taking prescribed medications for a chronic medical condition? **PLEASE LIST CONDITION(S) AND MEDICATIONS HERE:** _____	☐	☐
6) Do you currently have (or have had within the past 12 months) a bone, joint, or soft tissue (muscle, ligament, or tendon) problem that could be made worse by becoming more physically active? Please answer **NO** if you had a problem in the past, but it ***does not limit your current ability*** to be physically active. **PLEASE LIST CONDITION(S) HERE:** _____	☐	☐
7) Has your doctor ever said that you should only do medically supervised physical activity?	☐	☐

If you answered NO to all of the questions above, you are cleared for physical activity.
Please sign the PARTICIPANT DECLARATION. You do not need to complete Pages 2 and 3.

- Start becoming much more physically active – start slowly and build up gradually.
- Follow International Physical Activity Guidelines for your age (www.who.int/dietphysicalactivity/en/).
- You may take part in a health and fitness appraisal.
- If you are over the age of 45 yr and NOT accustomed to regular vigorous to maximal effort exercise, consult a qualified exercise professional before engaging in this intensity of exercise.
- If you have any further questions, contact a qualified exercise professional.

PARTICIPANT DECLARATION
If you are less than the legal age required for consent or require the assent of a care provider, your parent, guardian or care provider must also sign this form.

I, the undersigned, have read, understood to my full satisfaction and completed this questionnaire. I acknowledge that this physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if my condition changes. I also acknowledge that the community/fitness centre may retain a copy of this form for records. In these instances, it will maintain the confidentiality of the same, complying with applicable law.

NAME _____ DATE _____

SIGNATURE _____ WITNESS _____

SIGNATURE OF PARENT/GUARDIAN/CARE PROVIDER _____

If you answered YES to one or more of the questions above, COMPLETE PAGES 2 AND 3.

Delay becoming more active if:

- You have a temporary illness such as a cold or fever; it is best to wait until you feel better.
- You are pregnant - talk to your health care practitioner, your physician, a qualified exercise professional, and/or complete the ePARmed-X+ at **www.eparmedx.com** before becoming more physically active.
- Your health changes - answer the questions on Pages 2 and 3 of this document and/or talk to your doctor or a qualified exercise professional before continuing with any physical activity program.

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(continued)

Figure 1.5 The Physical Activity Readiness Questionnaire for Everyone (PAR-Q+).

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2018 PAR-Q+

FOLLOW-UP QUESTIONS ABOUT YOUR MEDICAL CONDITION(S)

1. Do you have Arthritis, Osteoporosis, or Back Problems?

If the above condition(s) is/are present, answer questions 1a-1c — If **NO** ☐ go to question 2

1a.	Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer **NO** if you are not currently taking medications or other treatments)	**YES** ☐ **NO** ☐
1b.	Do you have joint problems causing pain, a recent fracture or fracture caused by osteoporosis or cancer, displaced vertebra (e.g., spondylolisthesis), and/or spondylolysis/pars defect (a crack in the bony ring on the back of the spinal column)?	**YES** ☐ **NO** ☐
1c.	Have you had steroid injections or taken steroid tablets regularly for more than 3 months?	**YES** ☐ **NO** ☐

2. Do you currently have Cancer of any kind?

If the above condition(s) is/are present, answer questions 2a-2b — If **NO** ☐ go to question 3

2a.	Does your cancer diagnosis include any of the following types: lung/bronchogenic, multiple myeloma (cancer of plasma cells), head, and/or neck?	**YES** ☐ **NO** ☐
2b.	Are you currently receiving cancer therapy (such as chemotheraphy or radiotherapy)?	**YES** ☐ **NO** ☐

3. Do you have a Heart or Cardiovascular Condition? *This includes Coronary Artery Disease, Heart Failure, Diagnosed Abnormality of Heart Rhythm*

If the above condition(s) is/are present, answer questions 3a-3d — If **NO** ☐ go to question 4

3a.	Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer **NO** if you are not currently taking medications or other treatments)	**YES** ☐ **NO** ☐
3b.	Do you have an irregular heart beat that requires medical management? (e.g., atrial fibrillation, premature ventricular contraction)	**YES** ☐ **NO** ☐
3c.	Do you have chronic heart failure?	**YES** ☐ **NO** ☐
3d.	Do you have diagnosed coronary artery (cardiovascular) disease and have not participated in regular physical activity in the last 2 months?	**YES** ☐ **NO** ☐

4. Do you have High Blood Pressure?

If the above condition(s) is/are present, answer questions 4a-4b — If **NO** ☐ go to question 5

4a.	Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer **NO** if you are not currently taking medications or other treatments)	**YES** ☐ **NO** ☐
4b.	Do you have a resting blood pressure equal to or greater than 160/90 mmHg with or without medication? (Answer **YES** if you do not know your resting blood pressure)	**YES** ☐ **NO** ☐

5. Do you have any Metabolic Conditions? *This includes Type 1 Diabetes, Type 2 Diabetes, Pre-Diabetes*

If the above condition(s) is/are present, answer questions 5a-5e — If **NO** ☐ go to question 6

5a.	Do you often have difficulty controlling your blood sugar levels with foods, medications, or other physician-prescribed therapies?	**YES** ☐ **NO** ☐
5b.	Do you often suffer from signs and symptoms of low blood sugar (hypoglycemia) following exercise and/or during activities of daily living? Signs of hypoglycemia may include shakiness, nervousness, unusual irritability, abnormal sweating, dizziness or light-headedness, mental confusion, difficulty speaking, weakness, or sleepiness.	**YES** ☐ **NO** ☐
5c.	Do you have any signs or symptoms of diabetes complications such as heart or vascular disease and/or complications affecting your eyes, kidneys, **OR** the sensation in your toes and feet?	**YES** ☐ **NO** ☐
5d.	Do you have other metabolic conditions (such as current pregnancy-related diabetes, chronic kidney disease, or liver problems)?	**YES** ☐ **NO** ☐
5e.	Are you planning to engage in what for you is unusually high (or vigorous) intensity exercise in the near future?	**YES** ☐ **NO** ☐

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Figure 1.5 *(continued)*

2018 PAR-Q+

6. **Do you have any Mental Health Problems or Learning Difficulties?** *This includes Alzheimer's, Dementia, Depression, Anxiety Disorder, Eating Disorder, Psychotic Disorder, Intellectual Disability, Down Syndrome*

If the above condition(s) is/are present, answer questions 6a-6b — If **NO** ☐ go to question 7

6a.	Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer **NO** if you are not currently taking medications or other treatments)	**YES** ☐ **NO** ☐
6b.	Do you have Down Syndrome **AND** back problems affecting nerves or muscles?	**YES** ☐ **NO** ☐

7. **Do you have a Respiratory Disease?** *This includes Chronic Obstructive Pulmonary Disease, Asthma, Pulmonary High Blood Pressure*

If the above condition(s) is/are present, answer questions 7a-7d — If **NO** ☐ go to question 8

7a.	Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer **NO** if you are not currently taking medications or other treatments)	**YES** ☐ **NO** ☐
7b.	Has your doctor ever said your blood oxygen level is low at rest or during exercise and/or that you require supplemental oxygen therapy?	**YES** ☐ **NO** ☐
7c.	If asthmatic, do you currently have symptoms of chest tightness, wheezing, laboured breathing, consistent cough (more than 2 days/week), or have you used your rescue medication more than twice in the last week?	**YES** ☐ **NO** ☐
7d.	Has your doctor ever said you have high blood pressure in the blood vessels of your lungs?	**YES** ☐ **NO** ☐

8. **Do you have a Spinal Cord Injury?** *This includes Tetraplegia and Paraplegia*

If the above condition(s) is/are present, answer questions 8a-8c — If **NO** ☐ go to question 9

8a.	Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer **NO** if you are not currently taking medications or other treatments)	**YES** ☐ **NO** ☐
8b.	Do you commonly exhibit low resting blood pressure significant enough to cause dizziness, light-headedness, and/or fainting?	**YES** ☐ **NO** ☐
8c.	Has your physician indicated that you exhibit sudden bouts of high blood pressure (known as Autonomic Dysreflexia)?	**YES** ☐ **NO** ☐

9. **Have you had a Stroke?** *This includes Transient Ischemic Attack (TIA) or Cerebrovascular Event*

If the above condition(s) is/are present, answer questions 9a-9c — If **NO** ☐ go to question 10

9a.	Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer **NO** if you are not currently taking medications or other treatments)	**YES** ☐ **NO** ☐
9b.	Do you have any impairment in walking or mobility?	**YES** ☐ **NO** ☐
9c.	Have you experienced a stroke or impairment in nerves or muscles in the past 6 months?	**YES** ☐ **NO** ☐

10. **Do you have any other medical condition not listed above or do you have two or more medical conditions?**

If you have other medical conditions, answer questions 10a-10c — If **NO** ☐ read the Page 4 recommendations

10a.	Have you experienced a blackout, fainted, or lost consciousness as a result of a head injury within the last 12 months **OR** have you had a diagnosed concussion within the last 12 months?	**YES** ☐ **NO** ☐
10b.	Do you have a medical condition that is not listed (such as epilepsy, neurological conditions, kidney problems)?	**YES** ☐ **NO** ☐
10c.	Do you currently live with two or more medical conditions?	**YES** ☐ **NO** ☐

PLEASE LIST YOUR MEDICAL CONDITION(S) AND ANY RELATED MEDICATIONS HERE: _____

_____

GO to Page 4 for recommendations about your current medical condition(s) and sign the PARTICIPANT DECLARATION.

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(continued)

Figure 1.5 *(continued)*

2018 PAR-Q+

If you answered NO to all of the FOLLOW-UP questions (pgs. 2-3) about your medical condition, you are ready to become more physically active - sign the PARTICIPANT DECLARATION below:

- It is advised that you consult a qualified exercise professional to help you develop a safe and effective physical activity plan to meet your health needs.
- You are encouraged to start slowly and build up gradually - 20 to 60 minutes of low to moderate intensity exercise, 3-5 days per week including aerobic and muscle strengthening exercises.
- As you progress, you should aim to accumulate 150 minutes or more of moderate intensity physical activity per week.
- If you are over the age of 45 yr and **NOT** accustomed to regular vigorous to maximal effort exercise, consult a qualified exercise professional before engaging in this intensity of exercise.

If you answered **YES** to **one or more of the follow-up questions** about your medical condition:

You should seek further information before becoming more physically active or engaging in a fitness appraisal. You should complete the specially designed online screening and exercise recommendations program - the **ePARmed-X+ at www.eparmedx.com** and/or visit a qualified exercise professional to work through the ePARmed-X+ and for further information.

Delay becoming more active if:

- You have a temporary illness such as a cold or fever; it is best to wait until you feel better.
- You are pregnant - talk to your health care practitioner, your physician, a qualified exercise professional, and/or complete the ePARmed-X+ **at www.eparmedx.com** before becoming more physically active.
- Your health changes - talk to your doctor or qualified exercise professional before continuing with any physical activity program.

- You are encouraged to photocopy the PAR-Q+. You must use the entire questionnaire and NO changes are permitted.
- The authors, the PAR-Q+ Collaboration, partner organizations, and their agents assume no liability for persons who undertake physical activity and/or make use of the PAR-Q+ or ePARmed-X+. If in doubt after completing the questionnaire, consult your doctor prior to physical activity.

PARTICIPANT DECLARATION

- All persons who have completed the PAR-Q+ please read and sign the declaration below.
- If you are less than the legal age required for consent or require the assent of a care provider, your parent, guardian or care provider must also sign this form.

I, the undersigned, have read, understood to my full satisfaction and completed this questionnaire. I acknowledge that this physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if my condition changes. I also acknowledge that the community/fitness center may retain a copy of this form for records. In these instances, it will maintain the confidentiality of the same, complying with applicable law.

NAME _____ DATE _____

SIGNATURE _____ WITNESS _____

SIGNATURE OF PARENT/GUARDIAN/CARE PROVIDER _____

For more information, please contact
www.eparmedx.com
Email: eparmedx@gmail.com

Citation for PAR-Q+
Warburton DER, Jamnik VK, Bredin SSD, and Gledhill N on behalf of the PAR-Q+ Collaboration.
The Physical Activity Readiness Questionnaire for Everyone (PAR-Q+) and Electronic Physical Activity Readiness Medical Examination (ePARmed-X+). Health & Fitness Journal of Canada 4(2):3-23, 2011.

The PAR-Q+ was created using the evidence-based AGREE process (1) by the PAR-Q+ Collaboration chaired by Dr. Darren E. R. Warburton with Dr. Norman Gledhill, Dr. Veronica Jamnik, and Dr. Donald C. McKenzie (2). Production of this document has been made possible through financial contributions from the Public Health Agency of Canada and the BC Ministry of Health Services. The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada or the BC Ministry of Health Services.

Key References

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Figure 1.5 *(continued)*

Exercise preparticipation health screening standard 2. Exercise preparticipation health screening tools shall provide an authenticated means for new members and/or users to identify whether a level of risk exists that indicates that they should seek consultation from a qualified health care professional prior to engaging in a program of physical activity.

The objective of this standard is to ensure that if a health/fitness facility operator uses a self-guided preparticipation health screening tool for the facility's new members and/or prospective users, upon completion, the members and users are easily able to determine if their responses indicate they are at risk for a potential life-threatening event and that they receive the proper guidance on how to proceed if they desire to reduce the likelihood of a potential life-threatening event based on the results of their preparticipation health screening. The preparticipation health screening tool will incorporate language that advises the member or user to seek additional professional health care advice if the screening results indicate that the person may be at risk for a potentially life-threatening event upon embarking on a program of physical activity.

Exercise preparticipation health screening standard 3. Exercise preparticipation health screening tools shall be reviewed by qualified staff (e.g., a qualified health/fitness professional or health care professional), and the results of the review shall be retained on file by the facility for a period of at least one year from the time the tool was reviewed. All health data and related communications shall be kept in such a manner that it is private, confidential, and secure.

Once a member or user has completed an exercise preparticipation health screening protocol, the facility operator must ensure that the responses are reviewed by a qualified member of the facility's staff. If the individual completes a self-guided questionnaire, such as the PAR-Q+, the answer is clear to a layperson or general staff member and can also easily be indicated or flagged within a software program. However, if the individual completes a questionnaire that is meant to be professionally guided, it should be reviewed by a qualified staff person, such as a professional who has received fitness professional certification in the health/fitness field with competency in the area of preparticipation health screening from a third-party accredited organization, such as the National Commission for Certifying Agencies (NCCA), and/or who has earned a four-year degree from an accredited academic institution in the health/fitness field that provides appropriate training. The ACSM preparticipation health screening algorithm and Exercise Preparticipation Health Screening Questionnaire for Exercise Professionals can then be used to identify individuals who should seek medical clearance before initiating an exercise program. This process can be used to provide recommendations for receiving further evaluation from a qualified health care provider.

Exercise preparticipation health screening standard 4. If a facility operator is told that a member, user, or prospective user has known cardiovascular, metabolic, or renal disease, or any other self-disclosed medical concern that may affect the individual's ability to exercise safely, medical clearance is recommended before beginning a physical activity program.

It is important for individuals with known cardiovascular disease, metabolic disease, or renal disease to receive medical consultation from a qualified health care provider before they engage in a moderate to vigorous exercise program. It should be thoroughly explained to these prospective members or users that a disease state could compromise their safety upon their engaging in a program of physical activity. In a clear, easy-to-understand manner, the explanation should address why it is in the best interests of such individuals to obtain appropriate health care or medical consultation before embarking on their exercise program. The necessity for health care or medical consultation is particularly critical for those individuals with predetermined medical conditions (such as coronary heart disease, diabetes, or chronic kidney disease) that involve special needs. In fact, those health/fitness facility operators who primarily (or exclusively) serve such populations should be particularly aware of the value of preparticipation health screening involving oversight by qualified personnel. The health/fitness facility may provide a physician's release or medical clearance form to the member or request that the member bring written instructions from his or her health care provider specifying what type of exercise is appropriate for that individual (type, intensity, etc.) and whether there are any special instructions or considerations. To increase the likelihood of receiving a medical clearance form back from the health care provider, the form should be as clear and easy to complete as possible (figures 1.6 and 1.7).

It is important to note that, according to the Health Insurance Portability and Accountability Act of 1996 (HIPAA), written authorization from the patient is required prior to disclosure of his or her personal health information. A summary of this legislation can be found at www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html. Most medical practices and health systems have their own forms for release of medical information that patients can sign. It may be prudent to offer education about HIPAA, particularly the rules around patient privacy and information sharing, to staff and fitness professionals at the facility.

Physician's Release for Activity Form

_____ has recently enrolled for membership at East Side/West Side Athletic Clubs. The club membership includes two complimentary orientation sessions with our qualified fitness professionals (degreed and/or certified in the field), as well as the opportunity to participate in numerous group fitness classes and individual programs.

On completion of the PAR-Q (Physical Activity Readiness Questionnaire), it has been determined that this new member is best served by additional or supplemental recommendations by his/her care provider.

Please take the time to review your client's medical history and the PAR-Q accompanied with this request. If he/she can be released for physical activity, please complete the information below and let us know if there are any modifications or special needs.

Member's signature for release of information _____

Date _____

Club staff faxing this information (print name) _____

As a physician, it is my understanding that the person listed above wishes to participate in physical activity at the Club and has been referred to myself (his/her physician) before beginning a regular program. **Here are my specific recommendations and/or comments regarding this new member and his/her involvement in an exercise program:**

Physician's printed name _____

Date _____

Physician's signature _____

Figure 1.6 Physician's release form.

Medical Clearance Form

Your patient _____ (Name of Participant) would like to participate in the exercise/fitness programs at _____ (Facility Name), a **non-clinical health/fitness facility** that provides a variety of exercise/fitness activities. To comply with pre-activity screening recommendations established by the American College of Sports Medicine, we have all participants complete a brief health history questionnaire (PASQ). Based on the responses to the PASQ (copy attached), your patient needs to obtain medical clearance prior to participating in our exercise/fitness programs. Once completed and signed by you, your patient can return this clearance form to me or you can fax it to me at _____ (secure fax number of fitness facility). If you have any questions, please feel free to contact me at _____ (phone number and e-mail address of exercise professional responsible for processing screening procedures).

Thank you,

Name, credentials, and title of exercise professional staff member (e.g., John Smith, BS, ACSM-EP, Fitness Director)

Please check (✓) one of the following:

☐ Not cleared to exercise at this facility—should be referred to a clinically supervised exercise program

☐ Cleared to exercise at this facility

Please check (✓) the highest exercise intensity level your patient is cleared for and provide any other restrictions/limitations

- ☐ Light (<57 to < 64% HR max)
- ☐ Moderate (64 to < 76% HR max)
- ☐ Vigorous (76 to < 96% HR max)
- ☐ Near Maximal to Maximal (> 96% HR max)

Restrictions/Limitations: _____

_____

_____

_____ _____

Physician's Name (printed) **Physician's Signature**

_____ _____

Phone number **Date**

Figure 1.7 Medical clearance form.

Reprinted by permission from J. Eickoff-Shemek and A. Craig, "Putting the New ACSM's Pre-Activity Health Screening Guidelines into Practice," *ACSM's Health & Fitness Journal* 21, no. 3 (2017): 11-21.

Exercise preparticipation health screening standard 5. Facilities shall provide a means for communicating to existing members the value of completing an exercise preparticipation health screening tool on a regular basis (e.g., preferably once annually) during the course of membership, or if they experience a significant change in health status. Such communication can be done through a variety of mechanisms, including, but not limited to, the facility membership agreement, online communications, personal correspondence, and/or signage.

As frequently is the case in the health/fitness facility industry, members will participate in the physical activity programs offered by their particular facility for time periods that can often extend for years. Since the health status of individuals can change during the course of their participation in the activities and services of a health/fitness facility, it is important that members undergo regular preparticipation screenings to ensure that no health conditions have arisen since they began exercising that could compromise their health statuses (e.g., sudden cardiac event, diabetic shock). As a result, it is essential that facility operators communicate to existing members the importance of receiving a preparticipation screening at least once annually. Facility operators can share this message with their members through a variety of mechanisms, including but not limited to email newsletters, an online member portal, a mobile application, a statement on the facility's Web site, blogs, club mobile applications, posters in the facility, personal correspondence, personal communication through personal trainers and other fitness staff, a statement incorporated into the membership agreement of the facility, and a statement on the new member pre-activity screening form.

BOX 1.2 Guidelines for Exercise Preparticipation Health Screening

1. Prospective members and/or users who fail to complete the preparticipation screening procedures on request should, if permitted by law, be asked to sign a waiver or release that allows them to participate in the program offerings of the facility. In those instances where such members and/or users refuse to sign a release or waiver, they should be excluded from participation to the extent permitted by law.
2. All members or users who have been identified (either through a preparticipation health screening or by self-disclosure to a qualified health care and/or health/fitness professional on staff) as having cardiovascular, metabolic, or renal disease or symptoms, or any other potentially serious medical concern, and who subsequently fail to get medical consultation should be permitted to sign a waiver or release (if permitted by law) that allows them to participate in the facility's program offerings. If a waiver or release is permitted by law, and such members or users refuse to sign, they should be excluded from participation to the extent permitted by law.

Exercise preparticipation health screening guideline 1. Prospective members and/or users who fail to complete the preparticipation screening procedures on request should, if permitted by law, be asked to sign a waiver or release that allows them to participate in the program offerings of the facility. In those instances where such members and/or users refuse to sign a release or waiver, they should be excluded from participation to the extent permitted by law.

On occasion, some members or users may not want to participate in the facility's preparticipation screening protocol. While research indicates that completing a preactivity screening protocol may be beneficial in identifying medical conditions that might expose a member or user to a heightened risk of experiencing a cardiovascular incident during or soon after physical activity, members have the freedom to determine if participating in preparticipation screening is in their best interests. To reduce the facility's potential liability, it is advisable that such a member or user be asked to sign a waiver or release, where permissible by law, that clearly indicates that the person has been offered a preparticipation screening and (a) this member or user has been informed of the risks of participation, (b) this member or user has chosen not to follow the guidance provided, (c) this person assumes personal responsibility for his or her actions, and (d) this individual releases the facility from any claims or lawsuits arising from participation. If the member or user signs the waiver or release, that person should be afforded the opportunity to participate in a physical activity program at the facility. If the member or user chooses not to sign the waiver or release, the facility has the option of denying that person the privilege to participate or access to the facility to the extent permitted by law.

Exercise preparticipation health screening guideline 2. All members or users who have been identified (either through a preparticipation health screening or by self-disclosure to a qualified health care and/or health/fitness professional on staff) as having cardiovascular, metabolic, or renal disease or symptoms, or any other potentially serious medical concern, and who subsequently fail to get medical consultation should be permitted to sign a waiver or release (if permitted by law) that allows them to participate in the facility's program offerings. If a waiver or release is permitted by law, and such members or users refuse to sign, they should be excluded from participation to the extent permitted by law.

When used properly, a pre-activity screening protocol will help determine when a person who may be at increased cardiovascular or medical risk during moderate to vigorous exercise participation could benefit from receiving consultation from a qualified health care provider. It is always in the member's or user's and facility operator's best interests to strongly encourage such an individual to obtain the proper medical consultation. It should be noted that instances may occur in which a member or user may not have any known or apparent medical risk factors or symptoms. The facility may still consider it in the best interest of that individual to receive medical consultation before participating in the facility's program offerings.

On occasion, members or users may refuse to obtain recommended medical clearance. When that situation occurs, where legally permissible, the facility should secure a waiver and release that clearly indicates that the member or user (a) has been informed of the risks of participation and has been instructed to obtain medical clearance, (b) has chosen not to follow the guidance provided, (c) assumes personal responsibility for his or her actions, and (d) releases the facility operator from any claims or lawsuits arising from participation. Because the laws regarding waivers differ from state to state, it's advised to consult with legal counsel to draft language that will be appropriate in whatever state the facility does business. If the member or user signs the waiver or release, that person should be afforded the opportunity to participate in physical activity program offerings at the facility. In the event the member or user chooses not to sign the waiver or release, the facility may choose to deny that individual the privilege of participating in the facility's program offerings or access to the facility, to the extent permitted by law.

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CHAPTER 2

Member Orientation, Education, and Supervision

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The orientation, education, and supervision of members and users in a health/fitness facility are some of the most important obligations a facility operator has to those individuals the facility serves. Orientation refers to the process of providing each facility member or user with the proper information and guidance to initiate and engage in a program of safe and effective physical activity. Education involves the practice of facility operators providing relevant, up-to-date information to their members and users so that they can make informed decisions about their physical activity and lifestyle practices. Supervision is the process of monitoring the physical activity practices of members and users so that the physical activity environment promotes safe participation.

Several studies have been conducted that indicate that although more than 80% of adults are aware of the benefits of being physically active, a vast majority do not engage in physical activity on a regular basis. Furthermore, research commissioned by the International Health, Racquet, and Sportsclub Association (IHRSA) and published in *IHRSA 2017 Profiles of Success* shows that, while club membership has reached 57.2 million members, just 44% of members use the club at least 100 days a year. This discrepancy between what Americans know about the benefits of physical activity and their actual behavior patterns, both with regard to exercise in general and participation in the services of health/fitness facilities, serves to reinforce the need for health/fitness facilities to engage in practices that help orient, educate, and supervise users. The emerging profession of health and wellness coaching speaks to the growing understanding of the importance of behavioral support and guidance in making sustainable lifestyle changes, including engaging in physical activity on a regular basis.

This chapter presents standards and guidelines on the orientation, education, and supervision of members and users. Box 2.1 lists the required standards for orientation, education, and supervision; box 2.2 details the recommended guidelines.

BOX 2.1 Standards for Member Orientation, Education, and Supervision

1. Once a new member or prospective user has completed a preparticipation health screening process, facility operators shall then offer the new member or prospective user a general orientation to the facility.
2. Facilities shall provide a means by which members and users who are engaged in a physical activity program within the facility can obtain assistance and/or guidance with their efforts.

Member orientation, education, and supervision standard 1. Once a new member or prospective user has completed a preparticipation health screening process, facility operators shall then offer the new member or prospective user a general orientation to the facility.

Once a member has completed a preparticipation health screening process, the health/fitness facility operator must then offer the member a general orientation to the facility. A general orientation can take many forms, including any of the following:

- **Personal orientation sessions.** The ideal situation for any member is to receive an in-person orientation from a qualified fitness professional. This offering allows the individual to receive advice and guidance firsthand from a qualified health/fitness professional. The orientation should include general guidelines on physical activity, a personalized exercise regimen that is based on the user's preparticipation health screening results, using the ACSM health screening algorithm, personal goals, and a hands-on walk-through of that individual's physical activity regimen. Ideally, this initial orientation session will be complimentary and presents an opportunity for the new member to appreciate the value of expert advice and learn about the benefits of personal training as well as other instructional or coaching services at the facility.
- **Electronic orientation resources.** A suitable alternative to group orientation classes or personal orientation sessions would be for the facility operator to provide general exercise instruction and facility orientations through electronic media, such as the facility's Web site and online member portal, smartphone applications, social media, in-house computer kiosks, or similar electronic resources. With the evolution of electronic media and the prevalence of today's members and/or users to access information via the Internet, using this approach to provide general orientations represents a viable alternative. This would allow individuals to view specific information on a number of pertinent topics, including how to navigate the facility, tips on properly beginning their exercise program, instruction on the use of the facility's equipment, and a description of the facility's programs and services.
- **Group orientation classes.** In facilities that have a low staff-to-user ratio or that have a high volume of member traffic, providing a schedule of orientation classes that members and users can select from can be a viable option. These orientation classes

should be offered at various times to allow members and users the opportunity to attend. Among the topics that these orientation classes could cover is basic instruction concerning how members and users should use the various pieces of physical activity equipment that are available in the facility. In addition, these classes could review what resources are available within the facility that can help members and users develop a suitable physical activity program (e.g., personal training services, special fitness classes, Web site and online resources, online personal training experts). Finally, these classes can also provide an introduction to a general physical activity regimen that members and users can follow.

- **Posters, placards, and printed material.** For the facility operator who may not have the resources to provide personalized orientations or group orientations or the ability to leverage electronic media, the use of posters, placards, or printed materials could serve to provide the type of information and guidance necessary to provide new members and/or users with a general orientation. These materials could provide directions on how to use the facility's equipment, instructions on accessing the facility's services, basic guidelines on setting up an exercise program, and so on.

Member orientation, education, and supervision standard 2. Facilities shall provide a means by which members and users who are engaged in a physical activity program within the facility can obtain assistance and/or guidance with their efforts.

While not always possible, the personal instruction and targeted guidance that a qualified health/fitness professional can provide to members will normally result in better safety and efficacy than would otherwise be achieved in a given physical activity program. On the other hand, the *2017 IHRSA Consumer Report* found that in 2016, just 13% of members and users of a facility received personalized exercise instruction (typically referred to in the industry as *personal training*) on a regular basis. This low level of individualized attention is due, at least in part, to the additional costs for the member in having a health/fitness professional experience that particular role. Facility operators can help create a greater level of personalized instruction by offering several options to engage users, including one-on-one, small group, or guided sessions online.

BOX 2.2 Guidelines for Member Orientation, Education, and Supervision

1. Facilities should provide new and existing members with the opportunity to receive personal instruction and guidance with regard to their physical activity programs.
2. Facilities should provide members with ongoing monitoring of their physical activity programs, including the opportunity to receive guidance on adjusting their physical activity programs.
3. Depending on their targeted audiences, facility operators should consider providing an array of physical activity options to accommodate the physical, emotional, and personal preferences of each user of the facility.
4. Staffed facilities should provide professional health/fitness staff to supervise the fitness floor, particularly during peak usage periods, or when there are a large number of older adults or members with special needs using the facility.

Member orientation, education, and supervision guideline 1. Facilities should provide new and existing members with the opportunity to receive personal instruction and guidance with regard to their physical activity programs.

A qualified health/fitness professional is always the preferred option for providing sound advice and individualized feedback on what constitutes an appropriate exercise regimen. Such assistance will typically enhance the effectiveness of the person's physical activity program as well as improve the program's level of safety. Unfortunately, the vast majority of individuals who engage in the services and programs offered by a health/fitness facility do not receive personalized exercise instruction on a regular basis. For example, individuals with disabilities or special needs may require additional instruction to utilize equipment safely. Among the ways that facility operators can address such a situation is to provide one or more of the following:

- **Complimentary follow-up orientations.** Facilities can offer new members and current members the opportunity for complimentary 30-minute personal sessions at predetermined intervals (e.g., at a 90-day membership anniversary and again at one-year intervals or when requested by the member).
- **Fee-based small-group sessions.** Facilities can offer members the opportunity to purchase, at low cost, the services of a qualified health/fitness professional who will provide them with initial and/or ongoing instruction in a semiprivate atmosphere as part of a small group (e.g., two or more members and/or users).
- **Fee-based private sessions.** Facilities can offer members the opportunity to purchase the services of a qualified health/fitness professional or health and wellness coach who can provide them with ongoing instruction and guidance.

- **Web-based personalized private instruction.** Facilities can align themselves (e.g., license, purchase) with one of the web-based or mobile application personal training systems that allow members to interact with a qualified fitness professional online or via email. Many of these programs allow a facility's staff to serve as qualified fitness professionals.

Member orientation, education, and supervision guideline 2. Facilities should provide members with ongoing monitoring of their physical activity programs, including the opportunity to receive guidance on adjusting their physical activity programs.

Once members and users begin their physical activity programs, their challenge becomes twofold: first, to adhere to the program for a sustained period of time and, second, to achieve their intended program-based health/fitness objectives. Facility operators can assist members with both of these challenges by providing a system of monitoring a person's physical activity and progress. Physical activity monitoring systems employed by the health/fitness industry involve the use of facility usage tracking software, online platforms or member portals, mobile applications, or exercise cards. Members can document their physical activity practices, the results of which can subsequently be reviewed by the facility's professional health/fitness staff. In the event the health/fitness professional sees a need for an adjustment in a member's exercise regimen or notes any unusual circumstances that merit further attention, the member can be contacted and appropriate recommendations can be made.

Online software-based monitoring systems allow members to record their physical activity efforts in electronic format, either through a computer or mobile handheld device (e.g., cell phone). These software-based monitoring systems leverage the accessibility of the Web, allowing individuals to record and track their performance online from anywhere in the world. The results are then reviewed, as needed, by the professional health/fitness staff, who can then follow up with the individual, either electronically or in person. In the event that a facility does not have sufficient staff to implement either of the aforementioned monitoring programs, it could provide its members with either semiannual or annual health screenings, the results of which could be used to help monitor members on a regular basis.

Member orientation, education, and supervision guideline 3. Depending on their targeted audiences, facility operators should consider providing an array of physical activity options to accommodate the physical, emotional, and personal preferences of each user of the facility.

For some individuals, it is not easy to start and stay with a program of physical activity, as evidenced by studies showing that a large number of new exercisers drop out within 90 days of beginning an exercise program. Research on physical activity attitudes and behavior, as well as market research conducted by the health/fitness industry, clearly shows that one approach does not fit all when it comes to physical activity programs. Adherence to an exercise program is improved when the activity also meets an individual's unique psychological needs (e.g., for social connection, a sense of achievement, competence in the activities, independence, recognition, or a new challenge/excitement), ultimately leading to enjoyment of the activity and sustained participation. Facility operators have a vested interest in getting and keeping their members (e.g., seniors, women, children, athletes, individuals with special medical conditions) involved in the activities the facility offers. Satisfied and involved members are more likely to recommend the facility to friends and family and achieve their desired fitness goals, as well as purchase additional training services or participate in other revenue-generating events. Accordingly, facility operators should provide a variety of programs to meet the needs of the marketplace, including the following:

- **Socially based programs.** Many new and existing members prefer to participate in socially based physical activity programs. (Note: This type of programming is in the top five preferences for women.) As a result, facilities should consider offering physical activity programs, such as group exercise classes; including a variety of formats, such as dance-related classes, cardio and body conditioning, barre classes, mind–body disciplines, fusion classes, adventure training programs, and suspension training classes; and providing group lessons, sports leagues and training clubs, small-group personal training, and social events that feature and foster a component of social interaction in exercise.

- **Competitive-based programs.** Many first-time members and existing members seek a challenge and a competitive outlet within their physical activity pursuits. (Note: This factor is among the top five reasons for men to be motivated to exercise.) As a result, facilities should consider including competitive-based activities, such as sport-related competitions and events (e.g., basketball, racquetball, squash, pickleball), fitness challenges (e.g., running events, strength contests, multiactivity and boot camp–style conditioning programs), and personal goal-oriented programs (e.g., weight loss) in their offerings. Note: Because many of these programs include high-intensity interval training, participants should complete a preparticipation health screening and be closely supervised.

- **Mind–body programs.** Over the past several years, there has been an escalating demand for program offerings that feature a mind–body approach to activity or an approach that focuses on achieving a balance between physical activity, relaxation, life balance, and self-awareness. According to market research, women are particularly interested in these types of activities, as are older adults. Among the examples of these types of physical activity programs are Pilates, tai chi, qigong, yoga, and mindfulness practice.

- **Health and wellness programs.** As stated by members and users, as well as by nonusers, among the top reasons for participating is the need for individuals to improve their level of health and well-being. As a result, a facility's offerings should include programs targeted toward health and well-being and the growing number of older clients, such as healthy back classes, arthritis exercise classes (land and

water-based), and balance training. With the advent of the ACSM Exercise is Medicine® initiative, health and wellness programs that serve a new group of members with special needs and concerns will continue to evolve in popularity.

- **Health and wellness coaching.** With the growing recognition that successfully adopting and maintaining a healthy lifestyle requires more than simple knowledge, wellness coaching has emerged as a new profession. Wellness coaches facilitate mindset and behavior change; empower individuals to clarify their goals, strengths, needs, and challenges; and support the client's journey of self-discovery and self-improvement. With their coaching expertise, the health and wellness coach works collaboratively with the client to help develop a personal road map for success in alignment with the client's values. Health and wellness coaching, as well as personal training services, add a level of accountability for the participant.

- **Weight loss and weight management programs.** Numerous studies indicate that losing weight is one of the primary reasons that many people join health/fitness facilities. This factor, combined with the alarming rise in obesity among Americans and the global community, is more than a sufficient reason for facility operators to consider incorporating such popular programs as weight loss, weight management, and nutrition education in their program offerings while collaborating with dietitians, nutritionists, and behavioral specialists. There are also online tools, such as healthy cooking classes, that can support this objective.

Facilities should also consider serving as a resource for their members with regard to the body of knowledge attendant to fitness, health, and wellness. As such, facilities can help keep their members informed about the current facts pertaining to fitness, health, and wellness. Unfortunately, health/fitness facility members, as well as individuals in our society, are constantly bombarded with misinformation about fitness, health, and wellness. As a result, an objective and credible source is needed to help individuals sort out the information on these topics as it directly applies to their personal needs. Facility operators can provide this information in several ways, including the following:

- **Communication media.** Facilities can provide their members and users with important information about fitness and health education through the use of various media. For example, newsletters that have a section devoted to the dissemination of fitness and health information are one means of communicating essential information. Mobile applications and Web sites that have educational content or link to an authoritative health/fitness content provider are additional ways to help members get the information that they need. Facility pages or accounts on social networking sites (e.g., Facebook, Twitter, YouTube) can include staff blogs, timely commentary on health/fitness news stories, or frequently updated original content. In addition, a health/fitness facility can use a bulletin board or similar display on which articles on fitness and health can be posted.

- **Classes, clinics, and workshops.** Facilities should consider offering members and users classes, clinics, and workshops on specific fitness and health topics. For example, a facility could offer a monthly health education seminar series featuring health/fitness professionals from the community who speak on topics such as cardiovascular health, exercise and osteoarthritis, diabetes prevention, sleep hygiene, brain fitness, athletic shoe selection, exercise and strong bones, and women's health issues. Inviting community experts on various topics to speak can be a way of providing valuable expertise to members while facilitating a relationship with local health care groups. Another example would be for a facility to have its own professional

staff offer a series of workshops on timely and important fitness and health topics, such as weight management, weight training technique tips, nutrition for training and recovery, mindfulness, and stress management.

Member orientation, education, and supervision guideline 4. Staffed facilities should provide professional health/fitness staff to supervise the fitness floor, particularly during peak usage periods, or when there are a large number of older adults or members with special needs using the facility.

During peak periods of usage within a facility (e.g., from 5:00 p.m. to 9:00 p.m.) or when there are large numbers of older adults or members with special needs using the facility, it is recommended that at least one qualified health/fitness professional be made available on the fitness floor to assist members and users with any questions they may have, provide guidance when needed, and respond to any potential emergency situations that might arise. While no precise ratio currently exists for the number of members and users to professional fitness staff, it is suggested that at least one dedicated fitness professional (i.e., an individual who is not engaged in providing users with personalized instruction) be on the fitness floor for every 100 facility users engaged in exercise in that area on the fitness floor.

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CHAPTER 3

Emergency Planning and Policies

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This chapter presents standards and guidelines for emergency planning and policies that health/fitness facilities need to consider in order to provide a reasonably safe environment for employees, members, and users. Some standards and guidelines that might otherwise be considered risk management practices, such as pre-activity screening and other operational practices, are addressed in other chapters of this book. Box 3.1 lists the eight required standards for emergency planning and policies, whereas box 3.2 details the two recommended guidelines for emergency planning and policies. Table 3.1 contains a listing of the states that have enacted automated external defibrillators (AED) legislation.

BOX 3.1 Standards for Emergency Planning and Policies

1. Facility operators must have written emergency response policies and procedures, which shall be reviewed regularly and physically rehearsed a minimum of twice annually. These policies shall enable staff to respond to basic first-aid situations and other emergency events in an appropriate and timely manner.
2. Facility operators shall ensure that a safety audit is conducted that routinely inspects all areas of the facility to reduce or eliminate unsafe hazards that may cause injury to employees and health/fitness facility members or users.
3. Facility operators shall have a written system for sharing information with members and users, employees, and independent contractors regarding the handling of potentially hazardous materials, including the handling of bodily fluids by the facility staff in accordance with the guidelines of the U.S. Occupational Safety and Health Administration (OSHA).
4. In addition to complying with all applicable federal, state, and local requirements relating to automated external defibrillators (AEDs), all facilities (staffed or unstaffed) shall have as part of their written emergency response policies and procedures a public access defibrillation (PAD) program in accordance with generally accepted practice.
5. AEDs in a facility shall be located to allow a time from collapse, caused by cardiac arrest, to defibrillation of three to five minutes or less. A three-minute response time can be used to help determine how many AEDs are needed and where to place them.
6. A skills review, practice sessions, and a practice drill with the AED shall be conducted a minimum of every six months, covering a variety of potential emergency situations (e.g., water, presence of a pacemaker, children).
7. A staffed facility shall assign at least one staff member to be on duty, during all facility operating hours, who is currently trained and certified in the delivery of cardiopulmonary resuscitation (CPR) and in the administration of an AED.
8. Unstaffed facilities must comply with all applicable federal, state, and local requirements relating to AEDs. Unstaffed facilities shall have as part of their written emergency response policies and procedures a PAD program as a means by which either members and users or an external emergency responder can respond from time of collapse to defibrillation in five minutes or less.

Emergency planning and policies standard 1. Facility operators must have written emergency response policies and procedures, which shall be reviewed regularly and physically rehearsed a minimum of twice annually. These policies shall enable staff to respond to basic first-aid situations and other emergency events in an appropriate and timely manner.

Having an emergency response system is critical to providing a reasonably safe environment for members, users, and staff, as well as being a sound risk management practice. For health/fitness facilities, emergency response systems must be developed in order to provide the highest reasonable level of safety for members and

users. Emergency policies, procedures, and practices for health/fitness facilities, as presented and discussed in this chapter, are derived from recommendations published jointly in 1998 and 2002 by ACSM and AHA. While many of these recommendations are identified and discussed in this chapter in the context of standards for health/fitness facilities, it is important to note that the types of health/fitness facilities vary markedly, from facilities that are completely unsupervised to medically supervised clinical exercise centers. These facilities often serve different aims and clientele, may or may not have organized program offerings, and may or may not have qualified staff. Accordingly, beyond the standards detailed in this chapter, facilities needing assistance in matters of preparing emergency policies, procedures, and practices relevant to their settings will find the contents of the 1998 and 2002 ACSM and AHA publications to be helpful resources. Among the more crucial elements attendant to incorporating emergency response systems in a facility are the following:

- Facility operators should use local health care or medical personnel to help them develop their emergency response programs. Most local emergency medical services (EMS) will assist a facility in developing its response program. Facilities can also pay for the services of a physician, registered nurse, or licensed emergency medical technician to guide the development of their emergency response programs.

- The emergency response system must address the major emergency situations that might occur. Among those situations that might arise are those medical emergencies that are reasonably foreseeable with the onset of moderate or more intense exercise, such as hypoglycemia, sudden cardiac arrest (SCA), heart attack, stroke, and heat illness, as well as those injuries that are orthopedic in nature. The response system must also address other reasonably foreseeable emergencies that are not necessarily associated with physical activity, such as fires, chemical accidents, active shooters, bomb threats, major power outages, severe weather, and natural disasters.

- The emergency response system must provide explicit steps or instructions for how each emergency situation should be handled by staff and the specific roles that should be played by first-, second-, and third-responders to an emergency. In addition, the emergency response system needs to provide locations for all emergency equipment (e.g., telephone for 911 or other contact information for EMS, the location for all emergency exits, and the most favorable access ways for EMS personnel) as well as the steps necessary for contacting the local EMS.

- The emergency response system must be fully documented (e.g., staff training or retraining, emergency instructions), and pertinent information must be kept in an area that can be easily accessed by the facility staff. In addition, the emergency response system needs to be reviewed with facility staff on a regular basis.

- The emergency response system must be physically rehearsed at least two times per year, with notations maintained in a log that indicate when the rehearsals were performed and who participated in them.

- The emergency response system must address the availability, inspection, and maintenance of first-aid kits and other medical equipment (e.g., AEDs, backboards) within the facility.

- The emergency response system should identify a local coordinator (e.g., a staff person) who is responsible for a facility's overall level of emergency readiness.

Emergency planning and policies standard 2. Facility operators shall ensure that a safety audit is conducted that routinely inspects all areas of the facility to reduce or eliminate unsafe hazards that may cause injury to employees and health/fitness facility members or users.

It is critical that facility operators remain aware of conditions within the facility that could pose an increased risk to their employees, members, and users. To this end, it is critical that facility operators develop an audit or inspection process that allows them to regularly check for safety-related issues in the facility. This audit process can be as simple as a checklist of the critical safety practices that must be in place, which allows the staff to verify that all the proper safety practices are being followed (see appendix B-9 for a sample safety program manual). The goal is for the operator to establish a schedule for inspecting the facility to determine adherence to the specific safety practices that the facility has put in place to protect the employees, members, and users. In all cases, the result of each inspection or audit should be maintained on file by the facility operator for at least the jurisdiction's statute of limitations.

Emergency planning and policies standard 3. Facility operators shall have a written system for sharing information with members and users, employees, and independent contractors regarding the handling of potentially hazardous materials, including the handling of bodily fluids by the facility staff in accordance with the guidelines of the U.S. Occupational Safety and Health Administration (OSHA).

The health/fitness industry often encounters situations that can expose facility members and users, employees, and independent contractors to materials that OSHA considers dangerous. For example, employees and independent contractors, such as custodial or maintenance staff, lifeguards, locker room and health/fitness staff, and others, may be exposed to chemicals and materials that are potentially hazardous, such as cleaning agents, paints, swimming pool or whirlpool chemicals, and lubricants. Those individuals who are in enclosed areas where air circulation is limited can be exposed to particle matter, such as debris resulting from sanding, drilling, or similar activity. To comply with OSHA guidelines and reduce the risk to members and users and to staff, facilities need to consider the following actions:

- Identify a staff member who has primary responsibility for coordinating the hazard communication program for the facility.
- Develop a written plan that indicates how hazard communication will be addressed in the facility. A list of all hazardous chemicals in the workplace must also be developed and maintained.
- Label all chemical containers, where required.

- Make sure that the material safety data sheet (MSDS) for every chemical and agent used in the facility is posted in a location for all staff to view (e.g., intranet site, posters).
- Provide an MSDS binder (hard copy or electronic) for each staff person to review and have each person sign appropriately to signify that they have reviewed and understand the information and issues.
- Store all chemicals and agents in proper locations. Ensure that these materials are stored off the floor and in an area that is off-limits to users. These areas should also have locks to prevent accidental or inappropriate entry.
- Provide initial and regular training to staff in the handling and storage of these items. OSHA requires employers to provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not been previously trained about is introduced into their work area.
- Post appropriate signage to warn members, users, and staff that they may be exposed to these hazardous agents.
- Periodically review, evaluate, and reassess the hazard communication program.

The health/fitness facility industry is often faced with circumstances that may expose its users and staff to various bodily fluids. Almost every human interaction associated with this industry has the potential to result in contact with bodily fluids. As such, the possibility exists that disease-producing organisms may be present in those fluids. Consequently, exposure carries a risk of infection. The OSHA standard on blood-borne pathogens addresses how such fluids must be handled to minimize risks of infection. Many facility operators fail to realize that even handling towels presents an increased risk of exposure to bodily fluids, such as blood or perspiration. Some key steps that every facility can take to minimize risk in this area include the following:

- Provide appropriate training, and retraining, for staff. Make sure that all staff are taught how to handle bodily fluids. OSHA provides training materials, as do other organizations.
- Provide literature to staff on the handling of bodily fluids.
- Make sure that the staff members who are handling towels, cleaning up body fluids (e.g., blood from an injury), and cleaning exercise equipment wear surgical-style latex gloves (note that for those individuals who are allergic to latex, gloves made of nonallergenic material should be provided). Staff that have to handle bar soap or razors also need to be provided with latex gloves or a similar type of gloves.
- Make sure that the facility has a system for disposing of items containing bodily fluids. If the facility has razors, then a biohazard container for disposing of them must be provided. If facility personnel are washing towels, bleach must be used, since it will kill most pathogens carried in bodily fluids.

If blood is visible, it must be cleaned off immediately with bleach or a similar agent. In those instances, staff should wear barrier protection apparel (e.g., impermeable gloves). All cleaning materials and all fluids must be disposed of in biohazard containers. Untrained staff should not be permitted to handle these materials or fluids. Full details on the OSHA Hazard Communication Standard are included in appendix

B-3. Specific questions regarding OSHA standards or training requirements should be directed to local or state OSHA offices. Additional information may be obtained at OSHA's Web site at www.osha.gov.

Emergency planning and policies standard 4. In addition to complying with all applicable federal, state, and local requirements relating to automated external defibrillators (AEDs), all facilities (staffed or unstaffed) shall have as part of their written emergency response policies and procedures a public access defibrillation (PAD) program in accordance with generally accepted practice.

A PAD program uses AEDs, which are sophisticated, computerized machines that are relatively easy to operate and enable a layperson with minimal training to administer this potentially lifesaving intervention to those individuals who are in sudden cardiac arrest. AEDs can detect certain life-threatening cardiac arrhythmias and then administer an electrical shock (i.e., defibrillation) that can restore the normal sinus rhythm. Rapid defibrillation (e.g., use of AEDs) is the third step in the AHA renowned Chain of Survival concept, after (a) prompt recognition and alerting EMS, and (b) immediate administration of CPR. Helpful suggestions concerning the important features of PAD programs and resources to assist facilities with integrating the PAD program in their emergency response protocols may be found at the AHA Web site, www.americanheart.org.

Research reviewed by the AHA shows that the delivery speed of defibrillation, as offered by an AED, is the major determinant of success in resuscitative attempts for ventricular fibrillation (VF) cardiac arrest (the most common type of cardiac arrest). Survival rates after VF decrease 7% to 10% with every minute of delay in initiating defibrillation. A survival rate as high as 90% has been reported when defibrillation is administered within the first minute of cardiac arrest, but in contrast, survival decreases to 50% at 5 minutes, 30% at 7 minutes, 10% at 9 to 11 minutes, and 2% to 5% after 12 minutes. To increase chance of survival, within moments of suffering SCA, rescuers must (a) activate the EMS system, (b) provide high-quality CPR, and (c) administer defibrillation with an AED.

Communities that have incorporated AED use in their emergency practices have shown significant improvements in survival rates for individuals who have experienced SCA. For example, in the state of Washington, the survival rate increased from 7% to 26%; in Iowa, the survival rate increased from 3% to 19%. Some public programs have reported survival rates as high as 49% when an AED is used promptly. The AHA is a strong proponent of having AEDs as accessible to the public as possible.

Among the key elements of an effective PAD program are the following:

- Every site with an AED should strive to get the response time from collapse caused by cardiac arrest to defibrillation to three (optimal) to five (acceptable) minutes or less. A three-minute response time can be used as a guideline to determine the number of AEDs needed and where to place them.
- A PAD program must comply with all relevant local, state, and federal regulations.

- The Food and Drug Administration (FDA) may require that a physician prescribe an AED before it can be purchased. The AHA strongly recommends that a physician, licensed to practice medicine in the community in which the health/fitness facility is located, provide oversight of the facility's emergency response system and AED program. In most cases, the company from which an AED is purchased will assist the facility with identifying a physician to provide these services. Physician oversight may include the following:
  - Prescribing and selecting the AED
  - Ensuring compliance with all relevant statutes and regulations
  - Reviewing and signing off on the emergency and AED plan
  - Making recommendations concerning the training or retraining plans and procedures
  - Witnessing at least one rehearsal of the emergency plan and indicating so in writing
  - Providing standing orders for use of the AED
  - Reviewing documentation and making recommendations after any instance in which the AED is used
- A club's emergency plan and AED plan should be coordinated with the local EMS provider, a prerequisite that some states require. (Note: Most AED product providers offer this assistance.) Coordinating with the local EMS provider refers to the following:
  - Informing the local EMS provider that the club has an AED or AEDs
  - Informing the local EMS provider of the location of each AED at the facility
  - Working with the local EMS provider to provide ongoing training of the facility's staff in the use of the AED
  - Working with the local EMS provider to provide monitoring and review of AED events
- All incidences involving the administration of an AED must be recorded and then reported to the physician who is providing AED oversight, as soon as possible, but no longer than one day. (Note: The Health Insurance Protection and Portability Act of 1996 [HIPPA] does not allow medically sensitive information to be released to anyone other than the medical director.)
- Each club should have an AED program coordinator who is responsible for all aspects of the emergency plan and the use of the AED, as detailed and explained in this book.
- All staff likely to be put in a situation in which they may have to administer an AED should be appropriately trained and certified by a course that incorporates the administration of the AED from an accredited training organization. The AHA and the American Red Cross (ARC) provide AED basic life support training and certification that involve a minimum of four hours of direct-contact training. AHA certification typically lasts two years, while the corresponding ARC program certification lasts for one year. However, given the decline in CPR and AED skills after training, along with the observed improvement in skills and confidence among those who train more frequently, retraining (skills review, practice sessions, and a practice drill with the AED) shall be conducted a minimum of every six months. Records of training and retraining should be maintained in staff personnel records or as part of the documentation of the

facility's emergency response system. Clubs should continually raise awareness of their AED programs. Newsletters, fliers, Web sites, posters, signage, and other means can be used to promote the AED program and identify where AEDs are located. Regularly raising awareness of the AED program reinforces to staff and facility members the club's commitment to, and the importance of, the AED program.

An effective PAD system actually depends on bystanders participating in rapid recognition of potential sudden cardiac arrest and the deployment of an AED for possible use. For this reason, health/fitness facilities are encouraged to work with their medical directors and EMS support systems to carefully define prudent and appropriate ways to include all staff, members, and users in the facility's emergency response system. This process may include consideration of how members and users might be involved, directly or indirectly, in accessing and deploying an AED and at what point during the emergency protocol that step may be required (e.g., sudden collapse of an individual, and no staff member is immediately present). Written instructions might be provided to every member or user concerning the approved PAD program in the facility, what the bystander or user response should be in an emergency, and where the AED is located.

Likewise, orientation of new facility members might include a simple printed information card indicating the location of pertinent emergency response postings in the facility, the locations of the emergency telephone and AED, which staff members may need to be employed to handle an emergency, and where their offices are located should EMS activation be needed. The orientation for new users could also include visits to locations in the facility to point out areas that are listed on the emergency response information card they have been given. To increase the number of people trained in CPR and AED, health/fitness facilities may also consider offering such training to facility members (i.e., lay rescuers). While it is recognized that developing an appropriate way to involve all users in a PAD program will need careful and thoughtful consideration, this process may help to reduce the time between cardiac arrest and defibrillation, when the cause of collapse is ventricular fibrillation, especially in medium to large facilities during those times when member, user, and staff presence is minimal.

The AED should be inspected (e.g., battery, electrode pads), maintained, updated (i.e., software), and repaired according to the manufacturer's specifications on a daily, weekly, monthly, or as-needed basis. Furthermore, all information in that regard should be carefully documented and maintained as part of the facility's emergency response system records.

The AHA and ACSM released a joint position statement in 2002 that recommended the implementation of AEDs in health/fitness facilities. (See the position stand at https://journals.lww.com/acsm-msse/Fulltext/2002/03000/Joint_Position_Statement_automated_external.27.aspx.) As of October 2017, only the District of Columbia and 14 states (Arkansas, California, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, New York, Oregon, Pennsylvania, and Rhode Island) have passed legislation that requires health/fitness facilities to have AEDs. Table 3.1 provides a summary of the various states with AED legislation and lists some of the general aspects of that legislation. It should be noted that in six states, legislation allows unstaffed facilities (e.g., 24-hour key-card access facilities) to use AEDs without having trained employees present. It should be expected that, in the future, additional states will pass legislation requiring health/fitness facilities to provide access to AEDs. In reality, most of the premier health/fitness facility operators in the United States have made AEDs an integral part of their emergency response systems.

Emergency planning and policies standard 5. AEDs in a facility shall be located to allow a time from collapse, caused by cardiac arrest, to defibrillation of three to five minutes or less. A three-minute response time can be used to help determine how many AEDs are needed and where to place them.

The AHA, in its *Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care (2015)*, indicates that while a facility should be able to get a response time from collapse caused by cardiac arrest to defibrillation in three to five minutes or less, the best means of achieving this objective is to provide AEDs in locations that staff or the public can reach within a 1.5-minute walk. If an individual were to walk at a rate of 3 mph (4.8 km/h), this effort would involve a distance of slightly over 500 ft (150 m). As a result, a facility operator should consider the time needed to reach various sites within its facilities from various locations and then identify those locations that would allow its staff, members, or the public to access an AED within a 1.5-minute span. If a facility occupies multiple floors, it might be wise to consider locating an AED on each floor to ensure that the device can be reached within the appropriate time limit.

Emergency planning and policies standard 6. A skills review, practice sessions, and a practice drill with the AED shall be conducted a minimum of every six months, covering a variety of potential emergency situations (e.g., water, presence of a pacemaker, children).

A skills review and practice sessions with the AED should be conducted a minimum of every six months, as recommended by the AHA's Emergency Cardiac Care Committee, as well as a number of international experts. The key takeaway of this standard for health/fitness facility operators is that conducting a physical rehearsal (e.g., practice drills) at least every six months will help ensure that the staff of the facility are prepared to respond to cardiac events that take place on the premises of the facility.

Emergency planning and policies standard 7. A staffed facility shall assign at least one staff member to be on duty, during all facility operating hours, who is currently trained and certified in the delivery of cardiopulmonary resuscitation (CPR) and in the administration of an AED.

Since training helps people learn the skills, minimize the time to defibrillation, and develop confidence, it only makes sense that staffed facilities have at least one staff person who is qualified to administer the AED.

Over the past several years, a proliferation has occurred of unstaffed health/fitness facilities that provide members and users with 24-hour access to facilities without the presence of staff. In these situations, since the facility operator will be unable to provide trained and certified staff, the facility must therefore provide a means for either members and users or external health care responders who are properly trained and certified to respond and administer an AED. It should be noted that of the 14 states requiring AEDs in health/fitness settings, only six have laws that cover unstaffed facilities (see table 3.1).

TABLE 3.1 States With AED Legislation for Health/Fitness Facilities*

State	Protection from civil liability	Require employee CPR/ AED training	Size requirement for facility	Financial assistance provided to facilities	Law covers unstaffed facilities
Arkansas	✓	✓			✓
California	✓	✓			✓
Illinois	✓	✓	✓		
Indiana	✓	✓			✓
Iowa	✓	✓		✓	
Louisiana	✓	✓	✓		
Maryland	✓	✓			
Massachusetts	✓	✓			✓
Michigan	✓	✓		✓	
New Jersey	✓	✓		✓	
New York	✓	✓	✓		
Oregon	✓	✓	✓		
Pennsylvania	✓	✓			✓
Rhode Island	✓	✓			✓

*As of October 2017.

Emergency planning and policies standard 8. Unstaffed facilities must comply with all applicable federal, state, and local requirements relating to AEDs. Unstaffed facilities shall have as part of their written emergency response policies and procedures a PAD program as a means by which either members and users or an external emergency responder can respond from time of collapse to defibrillation in five minutes or less.

Because unstaffed facilities will not have staff present to witness an event, they must provide a means by which other members and users who witness an event can activate the emergency response system or respond independently with regard to administering an AED to a member or user who has experienced an actual or perceived cardiac event. To this end, unstaffed facilities need to provide a means of monitoring members and users in the facility, and then when an event occurs, provide a means by which the member or user can be attended to within a five-minute time period commencing from the time of collapse. Examples of approaches an unstaffed facility could take in this regard include the following:

- Inform existing and new facility members and users of the facility's AED program and that trained employees will not be on the premises at certain, or all, times.
- Provide video monitoring of the facility (e.g., install a system that enables staff to monitor by video all appropriate areas of the facility during all unstaffed hours) so that any incident can be observed immediately.
- Provide "panic buttons" in various locations throughout the facility so that a member or user, including the individual who may be experiencing an event, can notify emergency responders by pushing the button.
- Provide telephone or other communication devices in various locations throughout the club so that a member or user, including the individual who may be experiencing an event, can notify emergency responders.
- Have AEDs in the facility placed in visible locations, utilizing signage to indicate AED placement as well as simple directions on how to access and administer the AED in the event a member or user witnesses a cardiac event or collapse.

BOX 3.2 Guidelines for Emergency Planning and Policies

1. A facility should extend to each employee on staff the opportunity to receive training and certification in first aid, CPR, and the use of an AED.
2. Facilities should have an incident report system that provides written documentation of all incidents that occur within the facility or within the facility's scope of responsibility. Such reports should be completed in a timely fashion and maintained on file, according to the regulatory statute of limitations for the location in which the facility does business.

Emergency planning and policies guideline 1. A facility should extend to each employee on staff the opportunity to receive training and certification in first aid, CPR, and the use of an AED.

While the relevant standard requires staffed health/fitness facilities to have only one AED-trained and certified staff member on duty during operating hours, those operators who wish to provide a higher level of safety for their members and users should consider providing all staff with training and certification in the use of an AED. This level of commitment from a health/fitness facility operator would help ensure that at least one trained and certified staff person is available at all times who can appropriately respond to a cardiac emergency in the facility. Facilities may also consider offering such training to interested facility members and users.

Emergency planning and policies guideline 2. Facilities should have an incident report system that provides written documentation of all incidents that occur within the facility or within the facility's scope of responsibility. Such reports should be completed in a timely fashion and maintained on file, according to the regulatory statute of limitations for the location in which the facility does business.

Facilities that desire to reduce their potential level of liability and provide their staff, members, and users with a safer work and physical activity environment should make the use of a written incident report system as part of their daily operating practices. An incident report system provides a means for the facility to document all emergency incidents that involve individuals within the facility (e.g., staff, members, and users, as well as independent contractors).

A properly completed written document of an incident, whether it is a minor slip and fall or a major medical emergency, allows the facility to obtain information

that can assist in the response to the incident and serve as a resource for any future requests for information about the incident. The information collected in an incident report becomes privileged information that can be released only to the proper authorities, after approval of the involved parties. A proper incident report system should incorporate a written report that is completed by a trained employee of the facility. Ideally, this report should be completed as soon as possible after an incident has occurred.

- A written incident report form (refer to appendix C for sample forms) should be approved by legal counsel prior to use. At a minimum, the completed form should contain the following types of information:
  - Day, date, and time of the incident
  - Location of the incident
  - Person(s) involved in the incident
  - Witnesses to the incident
  - Staff responding to the incident
  - Actions taken when responding to the incident
  - Outcomes of the incident
- A review of the incident should be conducted by qualified staff. As soon as possible after an incident occurs, it is advisable for the involved responders to review the report and resulting actions with facility management to assess the facility's response and to determine if further actions (e.g., retraining staff members, revision of written emergency plan) need to be taken.
- In the event of a major incident, the incident report should be forwarded to the facility's legal counsel and insurance carrier.
- It is always advisable for management to follow up with the involved parties to address any outstanding issues and to make sure that the situation has been handled in an appropriate manner.

CHAPTER 4

Professional Staff and Independent Contractors for Health/ Fitness Facilities

Courtesy of Active Wellness, LLC.

The fitness and health club industry is a people-intensive industry. Several recent surveys, including the *IHRSA 2017 Profiles of Success*, a report published annually by IHRSA, indicate that many health/fitness facilities allocate approximately 46% of their gross revenues to wages, salaries, and benefits. Not surprisingly, when a business allocates 40% or more of its resources to one specific factor, that area takes on critical importance to the success of that organization. The health/fitness industry is no different. Employees and independent contractors help create and sustain the experiences that individuals enjoy through their memberships in a health/fitness facility. Consequently, the employees and independent contractors in the industry have both a direct and an indirect effect on a health/fitness facility's level of operating success. Among the most critical of these employee and independent contractor groups are the health/fitness professionals who provide guidance, personal and group instruction, and supervision for facility users.

The most important role that staff and independent contractors have as health/fitness professionals is to ensure that a health/fitness facility's members and users have positive experiences, including everything that should be done and could reasonably be done to ensure that members and users are exposed to the innumerable benefits of being physically active. Furthermore, these professionals also have responsibility for providing a reasonably safe physical activity experience within a health/fitness facility. This responsibility includes the ability to respond to potential health-related emergencies. These roles are equally important, whether a fitness professional is working in a large multipurpose fitness club or in a boutique facility, such as a yoga or Pilates studio, cycling/spinning gym, or a sports performance facility.

Accordingly, health and fitness professionals should have the necessary competencies for fulfilling their various roles and responsibilities. These competencies normally involve some combination of education, training, certification, and hands-on experience. Among health/fitness professionals who are most likely to interact with facility members and users on a regular basis, help oversee essential program offerings, and assume supervisory responsibility for key initiatives within the facility are the fitness directors, fitness instructors, personal trainers, group exercise instructors, physical activity instructors, and health and wellness coaches. In addition to the aforementioned group of health/fitness professionals, other specialists who act as advisors, consultants, or independent contractors are the medical and health care liaisons, such as physical therapists (PT), occupational therapists (OTR), certified athletic trainers (ATC), registered dietitians (RD), chiropractors (DC), and physicians (MD or DO). They may interact directly or indirectly with the health/fitness facility members and users during the course of the physical activity programs being conducted.

This chapter presents standards and guidelines regarding the competency expectations for the aforementioned core group of professional staff and independent contractors. Box 4.1 provides a list of the three recommended standards for professional staff and independent contractors; tables 4.1 and 4.2 offer an overview of the combination of training (education, certification, and experience) that would constitute the reasonable expectation that a person would be competent to fulfill the professional demands of a particular position. Table 4.3 provides a list of the major professional certifications that are available in the health/fitness industry, and fitness and wellness certifications accredited by the National Commission for Certifying Agencies (NCCA) at the time of this writing. Box 4.2 provides a list of guidelines for professional staff and independent contractors for health/fitness facilities, and table 4.4 details a general summary of certifications available for health/fitness professionals serving special populations.

BOX 4.1 Standards for Health/Fitness Facility Professional Staff and Independent Contractors

1. Health/fitness professionals who have supervisory responsibility and oversight responsibility for the physical activity and exercise training programs, as well as the staff who administer them, shall have appropriate levels of professional education, work experience, and/or certification. Examples of health/fitness professionals who serve in a supervisory role include the fitness director, group exercise director, aquatics director, and program director.
2. Health/fitness professionals who serve in counseling, instruction, and physical activity supervision roles for the facility shall have appropriate levels of professional education, work experience, and/or certification. The primary professional staff and independent contractors who serve in these roles are fitness instructors, group exercise instructors, personal trainers, and health and wellness coaches.
3. Health/fitness professionals engaged in pre-activity screening or prescribing, instructing, monitoring, or supervising of physical activity programs for facility members and users shall have current automated external defibrillation and cardiopulmonary resuscitation (AED and CPR) certification from an organization qualified to provide such certification. A CPR or AED certification should include a hands-on practical skills assessment.

Professional staff and independent contractors standard 1. Health/fitness professionals who have supervisory responsibility and oversight responsibility for the physical activity and exercise training programs, as well as the staff who administer them, shall have appropriate levels of professional education, work experience, and/or certification. Examples of health/fitness professionals who serve in a supervisory role include the fitness director, group exercise director, aquatics director, and program director.

The primary health/fitness professionals who serve in a supervisory role are the fitness director, group exercise director, aquatics director, and program director. Table 4.1 provides examples of what might be considered an appropriate blend of professional education, certification, and work experience for some of the primary supervisory positions within the health/fitness industry.

Table 4.2 details examples of what might be considered the appropriate blend of professional education, certification, and work experience for some of the relevant positions in the health/fitness industry. Table 4.3 offers an overview of some of the major certifications available to these professionals in the health/fitness industry that are accredited by the NCCA.

TABLE 4.1 Recommended Competency Criteria for Program Supervisors in the Health/Fitness Industry

Professional position	Professional education	Professional certification	Professional experience
Aquatics director	A 4-year degree in fitness, exercise science, or a related field from an accredited* college or university is recommended, but not required.	Current certification in advanced lifesaving and water safety from a nationally recognized organization is recommended. Certification as a pool operator from either a national organization such as the Association of Pool & Spa Professionals (APSP), the National Swimming Pool Foundation (NSPF), or a local organization or government agency is recommended.	Minimum of 3 years' experience as a lifeguard, water safety instructor, or swim instructor is recommended.
Fitness director	A 4-year degree in fitness or a health-related field from an accredited* college or university is recommended.	Current fitness instructor, personal trainer, or other exercise professional certification from a nationally recognized and accredited** certification program is recommended.	A minimum of 3 years' experience as a fitness professional working in the fitness and health industry in a health/fitness facility is recommended.
Group exercise director	Two years post-high school education in fitness, health, recreation, or a related field from an accredited* college or university is recommended, but not required.	Current group exercise or group fitness instructor certification from a nationally recognized and accredited** certification program is recommended.	Minimum of 3 years' experience as a group exercise instructor working in the fitness and health industry in a health/fitness facility is recommended.
Program director	A 4-year degree in fitness, exercise science, or a related field from an accredited* college or university is recommended.	Current certification in fitness, group exercise, or a related recreational field from a nationally recognized and accredited** certification program is recommended.	Minimum of 3 years' experience working as an instructor or supervisor of physical activity or recreation programs is recommended.

*The term *accredited* in the "Professional education" column refers to education programs that have received third-party accreditation of their education procedures and practices from an appropriate agency, such as the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

**The term *accredited* in the "Professional certification" column refers to certification programs that have received third-party accreditation of their complete certification programs, policies, and practices from an appropriate agency, such as the National Commission for Certifying Agencies (NCCA).

TABLE 4.2 Recommended Competency Criteria for Instructors, Health and Wellness Coaches, and Personal Trainers in the Health/Fitness Industry

Professional position	Professional education	Professional certification	Professional experience
Personal trainer	A high school diploma is required, and a 4-year degree in fitness, exercise science, or a related field from an accredited* college or university is recommended, with 2 years of college education in the field as a recommended minimum.	A personal trainer certification from a nationally recognized and accredited** certification program is recommended.	A minimum of 6 months' experience working as a personal trainer or fitness instructor is preferred.
Exercise physiologist	A 4-year degree in exercise science, exercise physiology, or kinesiology from an accredited* college or university is required.	Exercise physiologist certification from a nationally recognized and accredited** certification program is recommended. CPR and AED certifications (AED is not required for those outside the U.S. and Canada).	A minimum of 6 months' experience working as an exercise physiologist is preferred.
Group exercise instructor	A high school diploma is required, and 2 years of college education in fitness, exercise science, dance, or a related field from an accredited* college or university is recommended.	Group exercise or group fitness instructor certification from a nationally recognized and accredited** certification program is recommended. CPR and AED certifications (AED is not required for those outside the U.S. and Canada).	A minimum of 100 hours' experience teaching group exercise or fitness classes is preferred.
Health and wellness coach	A minimum 2-year associate's degree in any field from an accredited* college or completion of an ICHWC approved health and wellness coach education program is recommended.	Health and wellness coach certification from a nationally recognized training or education program is recommended.	A minimum of 50 health and wellness coaching sessions.

*The term *accredited* in the "Professional education" column refers to education programs that have received third-party accreditation of their education procedures and practices from an appropriate agency, such as the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

**The term *accredited* in the "Professional certification" column refers to certification programs that have received third-party accreditation of their complete certification programs, policies, and practices from an appropriate agency, such as the National Commission for Certifying Agencies (NCCA).

TABLE 4.3 Selected Major Certifications Available in the Health/Fitness Industry

Organization	NCCA accredited certifications available
ACSM	Personal Trainer, Exercise Physiologist, Clinical Exercise Physiologist
American Council on Exercise (ACE)	Personal Trainer, Group Fitness Instructor, Health Coach, Medical Exercise Specialist
Athletics and Fitness Association of America (AFAA)	Group Fitness Instructor
National Academy of Sports Medicine (NASM)	Personal Trainer
National Strength and Conditioning Association (NSCA)	Personal Trainer, Strength and Conditioning Specialist, Tactical Strength and Conditioning Facilitator

Professional staff and independent contractors standard 2. Health/fitness professionals who serve in counseling, instruction, and physical activity supervision roles for the facility shall have appropriate levels of professional education, work experience, and/or certification. The primary professional staff and independent contractors who serve in these roles are fitness instructors, group exercise instructors, personal trainers, and health and wellness coaches.

With regard to what would be considered an appropriate level in a 2016 accreditation announcement of certification for personal trainers, IHRSA reaffirmed a previous position by recommending that member clubs hire only personal trainers holding at least one current certification from a certification program that has third-party accreditation from an independent, experienced, and nationally recognized accrediting body. In addition, IHRSA acknowledged that a personal trainer with a bachelor's or master's degree in exercise science also brings applicable knowledge and expertise.

The emerging profession of health and wellness coaches currently has a certification program that, while not NCCA accredited, has been developed by the International Consortium for Health and Wellness Coaching (ICHWC) and is administered through the National Board of Medical Examiners.

Facility operators should verify the certifications held by potential employees and contractors. Certification programs accredited by the National Commission for Certifying Agencies (NCCA) must provide a method for employers and the public to verify current certifications held by professionals. In addition, the Coalition for the Registration of Exercise Professionals (CREP), a not-for-profit 501(c)(6) corporation with a stated mission to secure recognition of registered exercise professionals for their distinct roles in medical, health, fitness, and sports performance fields, maintains the United States Registry of Exercise Professionals (USREPS). USREPS (www.usreps.org) is an internationally recognized registry of exercise professionals in the United States who hold current NCCA accredited certifications from CREP member organizations. At the time of this writing, CREP member organizations include ACSM, ACE, Collegiate Strength and Conditioning Coaches (CSCC), the Cooper Institute, the National Council on Strength and Fitness (NCSF), the National Strength and Conditioning Association (NSCA), and the Pilates Method Alliance (PMA).

Professional staff and independent contractor standard 3. Health/fitness professionals engaged in pre-activity screening or prescribing, instructing, monitoring, or supervising of physical activity programs for facility members and users shall have current automated external defibrillation and cardiopulmonary resuscitation (AED and CPR) certification from an organization qualified to provide such certification. A CPR or AED certification should include a hands-on practical skills assessment.

While the majority of health/fitness professionals working in a fitness facility environment will never need to respond to a life-threatening cardiovascular event, the ability to respond in a competent manner is at the core of providing members and users with a reasonably safe physical activity environment. Since those health/fitness professionals engaged in preparticipation health screening, exercise prescription, exercise instruction, and exercise activity who are monitoring are more likely to be in the presence of members and users who are involved in moderate to vigorous physical activity, it is imperative that they have training and certification in CPR and the use of an AED from a recognized certifying organization, such as the AHA or the American Red Cross. In its 2015 publication, *Guidelines Update for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC)*, the AHA recommends that PAD programs include a planned and practiced response . . . and training of anticipated rescuers in CPR and use of the AED. All fitness facilities should have the appropriate number of AEDs and staff who are trained in CPR or AED, according to the applicable state laws. Information about these state laws, with specific reference to health clubs, may be found on the National Conference of State Legislatures Web site at www.ncsl.org/research/health/laws-on-cardiac-arrest-and-defibrillators-aeds.

BOX 4.2 Guidelines for Health/Fitness Facility Professional Staff and Independent Contractors

1. Facility operators should consider having health/fitness professionals who have the appropriate level of professional education and/or certification conduct assessments with and prescribe physical activity for individuals with special needs.
2. Facility operators should consider having all staff members trained and certified in cardiopulmonary resuscitation and AED administration.
3. Facility operators should perform criminal background checks on all employees and independent contractors.
4. Facility operators should include clear policies on discrimination and on the prohibition of unlawful harassment in their employee handbooks.

Professional staff and independent contractor guideline 1. Facility operators should consider having health/fitness professionals who have the appropriate level of professional education and/or certification conduct assessments with and prescribe physical activity for individuals with special needs.

Over the past 5 to 10 years, an ever-increasing number of individuals with health conditions that limit their ability to safely participate in physical activity programs are engaging in services offered by health/fitness facilities. A 2017 *IHRSA Health Club Consumer Report* survey found that 12.8% of club members were over the age of 65, and another 26.2% were within the ages of 45 to 64. This data represents a significant number of members who are aging and may be more likely to have one or more medical conditions (such as diabetes, heart disease, cancer, hypertension, COPD). It is also not uncommon to find members and users with physical disabilities (such as blindness or loss of mobility in one or more limbs) participating in exercise programs under the supervision of health/fitness professionals. In these instances, it is prudent for health/fitness facility operators to consider having the health/fitness professional demonstrate the proper level of professional competency, as evidenced by the appropriate professional education and/or certification. In recognition of the benefit of connecting health care providers with qualified fitness professionals, ACSM developed an Exercise is Medicine® (EIM) credential, as part of its overall Exercise Is Medicine initiative. This credential prepares fitness professionals at various levels to effectively communicate with health care providers, to be easily accessible as part of the EIM database, to manage patient referrals, and to provide exercise guidance to patients, potentially including those individuals with chronic disease who have been cleared for exercise. Table 4.4 provides examples of several industry certifications and certificate programs for health/fitness professionals who are working with different special populations.

TABLE 4.4 Professional Certifications and Sample Certificate Programs Available for Health/Fitness Professionals Serving Special Populations

Organization	NCCA accredited certification	Special population
ACSM	Clinical Exercise Physiologist	Individuals under the care of a physician and rehabilitating from cardiovascular, pulmonary, metabolic, neuromuscular, neoplastic, immunologic, hematologic, musculoskeletal, and other diseases
ACE	Medical Exercise Specialist	Preventive and postrehabilitative exercise programming for individuals at risk for or recovering from metabolic, cardiovascular, pulmonary, or musculoskeletal diseases and disorders as well as prenatal and postpartum women
American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR)	Certified Cardiac Rehabilitation Professional	Provide comprehensive cardiac rehabilitation and secondary prevention for individuals with cardiovascular diseases
Organization	**Certificate program or credential***	**Special population**
ACSM	ACSM/NCHPAD (National Center on Health, Physical Activity, and Disability) certified inclusive trainer	Individuals with physical, sensory, or cognitive disability
	ACSM/ACS (American Cancer Society) certified cancer exercise trainer	Individuals with cancer or recovering from cancer
	EIM credential	Patients who could benefit from regular exercise and are referred by their health care provider; may include those with chronic diseases
National Academy of Sports Medicine (NASM)	Corrective exercise specialist	Injury prevention and recovery

*Certifications recognize professionals who meet established knowledge, skills, and competencies to work in a defined professional role, whereas assessment-based certificate programs build capacity and recognition of a specialty area of practice or set of skills.

Professional staff and independent contractor guideline 2. Facility operators should consider having all staff members trained and certified in cardiopulmonary resuscitation and AED administration.

In the health/fitness industry, most health/fitness professionals have an AED and CPR certification, since major certification organizations and employers generally require that a certified professional maintain current CPR and AED certification. On occasion, however, some may not. Accordingly, a health/fitness facility should always take steps to ensure that at least one person is on duty at all times who has the training and certification to administer first aid, CPR, and/or use of an AED. Because the first responders to many emergencies that occur in a health/fitness facility may not be health/fitness professionals, but, instead, nonfitness professional employees who constitute frontline staff, facilities should consider providing every employee with the opportunity to be properly trained in first aid, CPR, and use of an AED. The 2015 AHA *Guidelines Update for CPR and ECC* states that an emergency response plan should include "training of anticipated rescuers in CPR, and use of the AED." The more health/fitness facility staff who receive AED and CPR training and certification, the greater is the likelihood that facility operators and their staff will be able to respond to emergencies in an appropriate and timely manner.

Professional staff and independent contractor guideline 3. Facility operators should perform criminal background checks on all employees and independent contractors.

All employees and independent contractors should be subject to a criminal background check. Members and users put their trust in a facility, particularly its staff and representatives. As such, it is the obligation of facility operators to make sure that their employees and contractors are not individuals whose past history suggests they are a threat to the safety and security of members and users. Background checks allow an operator to identify if anything in an employee's or contractor's past history (e.g., criminal activity of any kind) would present a threat to the safety of the facility's members and users. Criminal background checks can be conducted either through local law enforcement authorities (in this instance, they tend to provide evidence of local criminal activity only) or through regional and national companies (these organizations often provide information on a national scope) that offer such services to private and public institutions. In the case of employees and/or independent contractors who work with youth, it is suggested that background checks also look into any possible criminal record related to offenses against youth. Some cities prohibit conducting a background check until first making a conditional offer of employment. It is suggested that facilities consult legal counsel to make sure that their background check practice is in full compliance with applicable law.

Professional staff and independent contractor guideline 4. Facility operators should include clear policies on discrimination and on the prohibition of unlawful harassment in their employee handbooks.

Facility operators should have antidiscrimination and antiharassment policies that apply to all employees at the facility. Counsel should be consulted to help prepare those policies. The policies should be contained in the employee handbook, with a requirement that all employees verify that they have read and understand the policies. The employee handbook should specify individuals to whom aggrieved employees may report incidents of alleged discrimination or harassment.

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CHAPTER 5

Health/Fitness Facility Operating Practices

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This chapter presents the standards and guidelines for a health/fitness facility's operating practices. Box 5.1 lists eight standards for health/fitness facility operations. This chapter is not intended to be an in-depth look at facility operations. Rather, it is designed to provide a template regarding operational practices that health/fitness facilities can use, as appropriate. Table 5.1 highlights information on temperature, humidity, and appropriate precautions for saunas, steam rooms, and whirlpools. Table 5.2 highlights appropriate chemistry levels for pools per the recommendations of the APSP. Box 5.2 lists the four recommended guidelines pertaining to operating practices of health/fitness facilities. Tables 5.3 and 5.4 highlight general cleaning and disinfecting guidelines for various areas in a facility.

BOX 5.1 Standards for Health/Fitness Facility Operating Practices

1. Facilities shall have an operational system in place that monitors, either manually or technologically, the presence and identity of all individuals (e.g., members and guests) who enter into and participate in the activities, programs, and services of the facility.
2. Facilities that offer a sauna, steam room, or whirlpool shall ensure that the temperature settings are appropriate and the equipment is well maintained. There should also be appropriate warning signage in place to notify members and guests of the risks associated with these amenities, including unsafe changes in temperature and humidity.
3. Facilities that offer members and guests access to a pool or whirlpool shall provide evidence that they comply with all water-chemistry safety requirements mandated by state and local codes and regulations.
4. A facility that offers youth services or programs shall provide evidence that it complies with all applicable state and local laws and regulations pertaining to their supervision.
5. The registration policy of a facility that provides child care shall require that parents or guardians of all children left in the facility's care complete a waiver (when permitted by law), an authorization for emergency medical care, and a release for the children whom they leave under the temporary care of the facility.
6. The facility shall require that parents and guardians provide the facility with names of persons who are authorized by the parent or legal guardian to pick up each child. The facility shall not release children to any unauthorized person, and furthermore, the facility shall maintain records of the date and time each child checked out and was dropped off and the name of the person to whom the child was released. Facility personnel should verify the identity of the adult picking up the child (e.g., using a numbered ticket, photo identification, or a photo in the member management computer system).
7. Facilities shall have written policies regarding children's issues, such as requirements for staff providing supervision of children, age limits for children, restroom practices, food, and parental presence on site. Facilities shall inform parents and guardians of these policies and require that parents and guardians sign a form that acknowledges that they have received the policies, understand the policies, and will abide by the policies.
8. Facilities shall properly secure physical and electronic data concerning its employees and potential, present, and future members so as to protect against a data breach and the release of their personal information.

Health/fitness facility operating practices standard 1. Facilities shall have an operational system in place that monitors, either manually or technologically, the presence and identity of all individuals (e.g., members and guests) who enter into and participate in the activities, programs, and services of the facility.

The ability to identify all individuals entering the facility and the members and guests who are participating in the various physical activity programs offered by the facility is important for at least three reasons. First, by knowing who enters the facility, the staff members at the facility can enhance the level of safety in the facility by ensuring that only those individuals with privileges have access to the facility. Second, by having knowledge of which members and guests are in the facility, the staff at the facility can respond more effectively to potential emergency situations. Third, having knowledge of who is using the facility at any given time can influence the development of both staffing and supervision schedules for each area of the facility, which in turn can provide a safer physical activity environment for the members and guests.

Monitoring systems can be either manual or electronic. Manual systems involve having members and guests sign in whenever they enter the facility. With a manual system, most facilities expect the members and guests to not only sign in but also record the time of their entry. Electronic (e.g., computer software–based) systems require that the members and guests either present an identification card to the facility or use some other form of personal identification (e.g., fingerprint, eye scan) to record their visits. The computerized systems automatically record the time of a person's entry and maintain records of every visit.

Health/fitness facility operating practices standard 2. Facilities that offer a sauna, steam room, or whirlpool shall ensure that the temperature settings are appropriate and the equipment is well maintained. There should also be appropriate warning signage in place to notify members and guests of the risks associated with these amenities, including subsequent unsafe changes in temperature and humidity.

Saunas, steam rooms, and whirlpools are all potentially high-risk areas to members and guests because of the high temperatures and humidity that are generated in these spaces. A facility's failure to maintain these three areas at what are considered safe temperature and humidity levels can further expose members and guests to harmful conditions, such as hyperthermia, heat exhaustion, heatstroke, and cardiovascular emergencies. Even when maintained at the proper temperature, these three areas can still result in dangerous consequences if individuals are not warned of the associated risks and precautions that go with their use. While events such as heart attack

and stroke are very rare, events such as orthostatic syncope (i.e., a condition where a person feels dizzy or faint from the venous pooling of blood that occurs upon changing from a supine to upright position) or heat exhaustion and heatstroke have a higher likelihood of occurring. Table 5.1 provides an overview of the recommended temperature ranges and precautions for saunas, steam rooms, and whirlpool areas.

TABLE 5.1 Recommended Temperatures and Precautions for Saunas, Steam Rooms, and Whirlpools

Facility zone	Recommended temperature range	Typical cautionary wording
Sauna	160-170 ºF (71-77 ºC)	Limit use to no more than 10 minutes at a time. Wait at least 10 minutes after completing exercise before entering. If you are pregnant, have heart disease, have kidney disease, are on certain medications for cardiovascular disease, or have other medical issues that could be adversely affected by high heat, do not use. Exposure to high temperatures for an extended period of time can result in heat exhaustion, heatstroke, heart attack, and, on occasion, death.
Steam room	100-110 ºF (38-43 ºC)	Limit use to 10 minutes at one time. Wait at least 10 minutes after completing exercise before entering. If you are pregnant, have heart disease, have kidney disease, are on certain medications for cardiovascular disease, or have other medical issues that might be adversely affected by high heat, do not use. Exposure to high temperatures for an extended period of time can result in heat exhaustion, heatstroke, heart attack, and, on occasion, death.
Whirlpool	102-105 ºF (39-41 ºC)	Limit use to 10 minutes at one time. Wait at least 10 minutes after exercise before entering. If you are pregnant, have heart disease, have kidney disease, are on certain medications for cardiovascular disease, or have other medical issues that might be adversely affected by high heat, do not use. Exposure to high temperatures for an extended period of time can result in heat exhaustion, heatstroke, heart attack, and, on occasion, death.

Health/fitness facility operating practices standard 3. Facilities that offer members and guests access to a pool or whirlpool shall provide evidence that they comply with all water-chemistry safety requirements mandated by state and local codes and regulations.

In most states, either the state or local municipality with governing authority establishes standards for the proper water chemistry. Most state and local codes provide minimums for the various chemical levels of the water. Facility operators can also refer to the APSP for more thorough information on the proper water chemistry for pools and whirlpools (spas). Table 5.2 provides an overview of the ranges recommended by the APSP for the most critical water chemical levels in a pool (current as of the writing of this text in September 2018).

TABLE 5.2 Recommended APSP Guidelines for Pool Chemistry

Water chemical	Min	Ideal	Max
Free available chlorine (ppm)	1.0	2.0-4.0	Some state or local health codes may allow or require the use of chlorine levels above 4.0
Combined chlorine (ppm)	None	None	0.2
Bromine (ppm)	1.0	3.0-4.0	4.0
pH	7.2	7.4-7.6	7.8
Total alkalinity (ppm)	60	80-100	180
Calcium hardness (ppm)	150	200-400	1,000
Cyanuric acid (ppm)	Not recommended for indoor pools where protection from sunlight is not necessary	30-50	100 (no demonstratable increase in stabilization was seen above 100)

*ppm refers to parts per million

Health/fitness facility operating practices standard 4. A facility that offers youth services or programs shall provide evidence that it complies with all applicable state and local laws and regulations pertaining to their supervision.

In all states, laws exist governing the supervision of children left under the care of a business. In certain states, facilities, including health/fitness facilities, must be licensed by the state in order to supervise a child in the absence of a parent or guardian. In many states, if the parent is on the premises and the period the child is left under the temporary supervision of the facility operator is less than a few hours (*note:* because of the variance in laws, codes, and regulations that exist between localities, readers are advised to check into the statutes that are applicable to their geographic area), then licensure is not required. Properly caring for and supervising any children who are present in a health/fitness facility are critical responsibilities. Accordingly, facilities that offer some form of children's programs or services must make sure they are in compliance with all federal and state laws and regulations.

When a child is in the exclusive control of a facility's staff (i.e., the parent or guardian is not in the facility), or when the child is under temporary supervision of the facility's staff (i.e., in a child care area while the parent is participating in activities of the facility), basic medical information must be obtained by the facility and available to the person or persons in the facility who are responsible for the child. This step requires that the facility staff work with the parents to collect relevant information, which should focus on any allergies, illnesses, and any other special medical conditions that the child may have. This medical information should be kept on file for at least one year and updated on an annual basis, if the child continues to be left under the exclusive or temporary supervision of the facility's staff.

Health/fitness facility operating practices standard 5. The registration policy of a facility that provides child care shall require that parents or guardians of all children left in the facility's care complete a waiver (when permitted by law), an authorization for emergency medical care, and a release for the children whom they leave under the temporary care of the facility.

Each parent or guardian must complete a waiver (when authorized by law) and release for the children whom they leave in the facility's care. In some states, parents and guardians cannot disclaim, waive, or release their responsibility for their children's rights; therefore, facility operators should check the relevant laws in their state. In addition to a waiver, facility operators need to have the parents or guardians complete an authorization of medical care and release for the children whom they are leaving under the exclusive or temporary care of the facility operator. In a medical emergency, the authorization of medical care allows the facility operator, especially when the parent or guardian cannot be reached, to undertake the appropriate medical emergency response to ensure the child's safety and well-being.

Health/fitness facility operating practices standard 6. The facility shall require that parents and guardians provide the facility with names of persons who are authorized by the parent or legal guardian to pick up each child. The facility shall not release children to any unauthorized person, and furthermore, the facility shall maintain records of the date and time each child checked out and was dropped off and the name of the person to whom the child was released. Facility personnel should verify the identity of the adult picking up the child (e.g., using a numbered ticket, photo identification, or a photo in the member management computer system).

A facility must have an appropriate system for ensuring that children are dropped off and picked up by authorized individuals. Authorized individuals are those people whom the parents or guardians have indicated in writing are allowed to drop off their child or pick up their child from under the exclusive or temporary care of the facility's staff. The facility shall require that parents and guardians provide the facility with names of persons who are authorized by the parent or legal guardian to pick up each child. The facility shall not release children to any unauthorized person, and furthermore, the facility shall maintain records of the date and time each child checked out and was dropped off and the name of the person to whom the child was released. Facility personnel should verify the identity of the adult picking up the child (e.g., using a numbered ticket, photo identification, or photo in the member management computer system). An appropriate record of the drop-off and pickup of the child should be maintained at all times.

Health/fitness facility operating practices standard 7. Facilities shall have written policies regarding children's issues, such as requirements for staff providing supervision of children, age limits for children, restroom practices, food, and parental presence on site. Facilities shall inform parents and guardians of these policies and require that parents and guardians sign a form that acknowledges that they have received the policies, understand the policies, and will abide by the policies.

Facilities need to have written policies regarding potentially critical children's issues, such as age limits, restroom practices, food choices, and parental presence on site. Parents must be informed of these policies and, subsequently, must sign a form indicating that they have received these policies, understand the policies, and will abide by the policies. All staff and independent contractors who work in situations where they may be alone with children must undergo both a criminal background check and a child-abuse clearance.

Health/facility operating practices standard 8. Facilities shall properly secure physical and electronic data concerning its employees and potential, present, and future members so as to protect against a data breach and the release of their personal information.

Facilities should have policies and procedures in place that are designed to protect the privacy and security of any personal information collected from or associated with potential, present, or past staff or facility members. Ensuring the privacy and security of such information not only is mandated by relevant state and federal laws, where applicable, but also is a key component in building the trust that is essential between the facilities and those individuals they employ and serve.

BOX 5.2 Guidelines for Health/Fitness Facility Operating Practices

1. Facilities that are staffed during all operating hours should have a manager on duty (MOD) or supervisor on duty (SOD) schedule that specifies which professional staff person has supervisory responsibility overseeing all operating activities during the hours that the facility is open.
2. Facility operators who operate under a staffed business model should conduct regular walk-throughs of the facility to assist members, inspect for hazards, and look out for anything that might compromise member safety.
3. Facilities that are unstaffed during some or all operating hours, and therefore have periods in which no supervision is offered, should provide the appropriate signage to communicate to members and guests that the facility is unsupervised, the inherent risks in using the facility, and what steps the members and guests should take in the event of a witnessed emergency situation. An AED and first-aid items (e.g., adhesive bandages, antibiotic ointment, ice bags) should be located in a highly visible area with instructions for appropriate use.
4. Facilities should have a written system for cleaning and disinfecting the various areas in the facility.

Health/fitness facility operating practices guideline 1. Facilities that are staffed during all operating hours should have a manager on duty (MOD) or supervisor on duty (SOD) schedule that specifies which professional staff person has supervisory responsibility overseeing all operating activities during the hours that the facility is open.

In the health/fitness industry, extensive operating hours often are the norm; many staffed facilities are open for members and guests 24 hours a day. With such extensive operating hours, it is important that facilities provide a professional staff person to serve as a manager or supervisor on duty (e.g., MOD) during all operating hours. During that person's designated shift, the MOD serves as the point person for member, user, and staff issues and, more importantly, as the lead person in any emergency response situations that might arise. The MOD needs to be trained and certified in AED, CPR, and first aid, as well as thoroughly versed in the facility's basic operating procedures.

Health/fitness facility operating practices guideline 2. Facility operators who operate under a staffed business model should conduct regular walk-throughs of the facility to assist members, inspect for hazards, and look out for anything that might compromise member safety.

As discussed in chapter 3, some facilities operate with minimal or no staffing, while others function in a fully staffed manner. If the facility operator has chosen a staffed business model, then, in addition to the professional fitness staff whose primary responsibilities vary from person to person, depending on the assigned role within the facility, facility operators should also ensure proper staffing levels for nonphysical activity settings, including the front desk, child care areas, housecleaning, locker rooms, and administrative offices.

Health/fitness facility operating practices guideline 3. Facilities that are unstaffed during some or all operating hours, and therefore have periods in which no supervision is offered, should provide the appropriate signage to communicate to members and guests that the facility is unsupervised, the inherent risks in using the facility, and what steps the members and guests should take in the event of a witnessed emergency situation. An AED and first-aid items (e.g., adhesive bandages, antibiotic ointment, ice bags) should be located in a highly visible area with instructions for appropriate use.

Over the past several years, the number of health/fitness facilities that operate under an unstaffed business model (e.g., some hotel fitness centers, some corporate fitness centers, many 24-hour key-card access commercial fitness centers) has increased, especially in the United States. If a health/fitness facility operator chooses to preside over a business model that is unstaffed, then the facility operator should make every effort to provide the appropriate signage that clearly indicates to members and guests that they are assuming personal responsibility for engaging in the use of the facility without staff supervision and that as a result, certain risks (pertaining to the unsupervised environment) exist with which they should be prepared to deal.

Health/fitness facility operating practices guideline 4. Facilities should have a written system for cleaning and disinfecting the various areas in the facility.

According to research sponsored by IHRSA, consumers see facility cleanliness as one of the top five factors that influence their decisions to join a particular facility. From a safety perspective, the failure to maintain a proper schedule of cleaning and disinfecting facility areas and equipment can lead to the spread of germs that can cause illness. Accordingly, a facility should develop and adhere to a written schedule for cleaning (and disinfecting, where applicable) all areas and relevant equipment in the facility. Furthermore, a facility should maintain written records in that regard. Tables 5.3 and 5.4 provide samples of recommended cleaning and disinfecting procedures for various areas of a health/fitness facility.

TABLE 5.3 Sampling of Recommended Cleaning and Disinfecting Procedures for Fitness and Group Exercise Zones

Facility area	Cleaning activity	Frequency
Fitness floor (gym)	Remove trash.	Daily
	Dust all horizontal surfaces.	Daily
	Clean and disinfect vinyl pads on equipment.	Daily
	Clean and disinfect equipment frames.	Daily
	Vacuum carpets and clean stains.	Daily
	Spot-clean mirrors.	Daily
	Wash and disinfect hard floor surfaces, including all rubber floor surfaces.	Daily
	Clean heating, ventilation, and air-conditioning (HVAC) vents.	Daily
	Clean and disinfect showers, drinking fountains, sinks, accessories.	Monthly
	Clean light fixtures.	Monthly
	Vacuum and clean under all equipment.	Monthly
	Fully clean mirrors and glass surfaces.	Monthly
	Clean carpets.	Quarterly or annually
	Clean wall surfaces thoroughly.	Annually
Group exercise studio	Remove trash.	Daily
	Dry-mop wood floors.	Daily
	Dust all horizontal surfaces.	Daily
	Spot-clean mirrors and glass surfaces.	Daily
	Clean mirrors thoroughly.	Daily
	Wet-mop wood floors.	Daily
	Clean and disinfect exercise tools (e.g., balls, mats, steps).	Daily
	Clean HVAC ducts.	Monthly
	Clean light fixtures.	Monthly
	Clean audio equipment.	Monthly
	Wash solid walls.	Monthly
	Refinish wood floor surfaces.	Annually

TABLE 5.4 Sampling of Recommended Cleaning and Disinfecting Procedures for Gymnasiums and Sports Courts

Facility area	Cleaning activity	Frequency
Gymnasium or sports court	Remove trash.	Daily
	Dry-mop and dust floors.	Daily
	Dust all horizontal surfaces.	Daily
	Spot-clean all glass surfaces.	Daily
	Clean all glass surfaces thoroughly.	Weekly
	Tack or wet-mop wood floors.	Weekly
	Clean HVAC filters.	Monthly
	Clean light fixtures.	Monthly
	Refinish wood floors.	Every 2 years as needed

CHAPTER 6

Health/Fitness Facility Design and Construction

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According to research sponsored by IHRSA, consumers weigh a facility's equipment and space offerings as one of the primary factors affecting their decisions to join a club. According to IHRSA studies, facilities can be separated into two basic types: fitness-only facilities and multipurpose facilities. While these two broad categories provide a basis for identifying the two primary types of health/fitness facilities, each of these two categories can be further grouped into subcategories based on the type of business operation within a particular facility.

Fitness-only facilities are defined as facilities that offer space specifically for the pursuit of fitness activities. Typically, these facilities consist of activity areas for cardiovascular equipment, variable-resistance circuit equipment, free weight equipment, functional training, and, in some instances, studios for group exercise. These facilities also include several common spaces, such as locker rooms and reception areas.

The major subcategories of fitness-only facilities are group exercise studios, free weight gyms, functional training gyms, apartment fitness rooms, corporate fitness centers, and express facilities (e.g., Anytime Fitness, Snap Fitness, Curves for Women, McFIT). Group exercise studios typically have one or two group exercise studios that are used for a variety of exercise classes, such as aerobics, yoga, or martial arts, a reception area, and locker rooms. Free weight gyms, on the other hand, normally provide a large free weight area, a reception area, and locker rooms. Similarly, functional training gyms typically have a large open area with racks, bars, bands, and other elements; a reception area; and locker rooms. Fitness centers in apartment buildings and hotels generally are located in a somewhat limited space and typically feature a few pieces of cardiovascular and variable-resistance equipment. Corporate fitness centers range from small areas that offer a few pieces of variable-resistance equipment and cardiovascular equipment to larger spaces that hold complete lines of cardiovascular, variable-resistance, and free weight equipment. In fact, many of the smallest fitness-only facilities often occupy less than 1,000 sq. ft (94 sq. m) of space.

Multipurpose facilities are defined as facilities that offer both fitness facilities and one or more recreational spaces, such as racquet courts, pools, gymnasiums, spas, and outdoor recreational areas. The majority of multipurpose facilities range in size from 40,000 to 100,000 sq. ft (12,192 to 30,480 sq. m).

The various subcategories of multipurpose health/fitness facilities include those organizations with racquet courts only, pools only, gymnasiums only, facilities with tennis courts, and facilities with a blend of several activity areas. As a rule, almost all multipurpose facilities, at a minimum, have fitness areas, gymnasiums, and a pool. Racquet courts and tennis courts are less common features for most multipurpose clubs. Some multipurpose facilities also have outdoor amenities, such as outdoor pools, ball fields, and even team-building venues. The largest multipurpose clubs tend to be those that have tennis facilities, gymnasiums, and outdoor facilities. More often than not, multipurpose facilities tend to be located in suburban settings because of the demands for space that such facilities require and the lower cost of available land.

Health/fitness facilities come in an array of sizes, shapes, and designs. Some are quite large, while others are considerably smaller. Some conduct their operations on a single floor, while others occupy multiple floors. Some have a bland appearance externally as well as internally, while others feature a design concept that emphasizes a more polished, "high-end" look.

Regardless of how large a facility is or how it looks, the key issue for a health/fitness facility is whether it is able to serve its intended and actual audience safely and effectively. This chapter addresses the factors in design and construction that can affect the ability of a health/fitness facility to provide a safe physical activity environment for its members and users.

Design and construction factors can be influenced by a number of considerations, including existing laws and regulations, operational philosophy, architectural vision, available resources, and the activities and programs that are offered within a given facility. While some of these considerations are absolute in nature, others are not. For example, a facility's program offerings and certain design factors often go hand in hand. On one hand, the program offerings that are planned for a particular facility can have an influence on many of the decisions that are made concerning the design of a facility. On the other hand, the existing layout or space limitations within a given facility can help dictate (to a degree) what activity offerings are planned for that facility. Nonetheless, a health/fitness facility's program offerings typically play a key role in the level of success achieved by that facility.

This chapter presents standards and guidelines on health/fitness facility design and construction as they pertain to helping promote a safe physical activity environment for facility users. Box 6.1 details the three required standards in this regard, whereas box 6.2 lists the 15 recommended guidelines for health/fitness facility design and construction. This chapter is not intended as a comprehensive resource on health/fitness facility design and construction factors, but rather as a basic template for the design and construction features that are necessary for providing a reasonably safe physical activity environment.

BOX 6.1 Standards for Health/Fitness Facility Design and Construction

1. Facilities, to the extent required by law, must adhere to the standards of building design that relate to the designing, building, expanding, or renovating of space, as detailed in the Americans With Disabilities Act (ADA).
2. Facilities must be in compliance with all applicable federal, state, and local building codes.
3. Facilities must provide adequate clearance to the side and at the rear of all types of continuous-motion exercise equipment.

Health/fitness facility design and construction standard 1. Facilities, to the extent required by law, must adhere to the standards of building design that relate to the designing, building, expanding, or renovating of space, as detailed in the Americans With Disabilities Act (ADA).

The ADA has established clear requirements for making facilities accessible to people with disabilities. In most instances, when a facility undergoes significant renovation or expansion or when a new facility is built, the ADA requires that the space be made accessible to people with disabilities. Depending on the extent of work being performed or the costs involved, there are instances in which a facility may be able to perform work without having to comply fully with the requirements of the ADA. Local building departments in most communities can assist facilities in obtaining a clearer understanding of the ADA requirements. Additional details on accessibility requirements, including the guidelines and standards of the United States Access Board (ADAAG), are available online at www.ada.gov/2010ADAstandards_index.htm. Among the key elements that address accessibility within a health/fitness facility are the following:

- **Elevation changes.** The ADA requires that any change in elevation in excess of 0.5 in. (1.3 cm) must have a ramp or lift, with a slope of 12 in. (30 cm) for every inch in elevation change. A mechanical lift or elevator can be used in place of a ramp in cases of extreme changes in height.
- **Passageway width.** The ADA requires that doors, entryways, and exits have a width of at least 36 in. (91 cm) to accommodate wheelchair access. In addition, hallways and circulation passages need to have a width of at least 60 in. (152 cm).
- **Height of switches and fountains.** The ADA requires that all light switches, water fountains, fire extinguishers, and AED devices be at a height that can be reached by a user in a wheelchair.
- **Signage.** The ADA expects facilities to provide essential signage that can be viewed by those individuals who are visually impaired, particularly signage on emergency exits and signage that identifies other key space locations.

- **Clear floor space.** The ADA requires that each piece of equipment must have an adjacent clear floor space of at least 30 × 48 in. (76 cm × 122 cm).

- **Locker rooms.** The ADA requires that all locker rooms be laid out in a manner that is appropriate for all users, including the disabled; for example, the doors must have compliant turning space (e.g., 60 in. [152.5 cm] diameter clear floor space), a bench with a back or attached to the wall must provide a clearance space of at least 20 × 42 in. (50.1 × 106.7 cm); and coat hooks/shelves within reach ranges (typically 48 in. [122 cm] max above the floor). Five percent (5%) of the lockers provided in the room are also required to be accessible, which includes providing a shelf within 15 in. (38 cm) of the floor and locking mechanisms that do not require pinching or grasping to engage or disengage.

- **Swimming pools and spas.** All bodies of water are required to have at least one accessible means of entry, for example, pool lifts, ramps, transfer walls, transfer systems, or a pool stair. These means must comply with the requirements of the ADAAG. Larger bodies of water require two accessible means of entry, one of which must be a lift or a ramp.

The United States Access Board is a federal agency that, among other things, provides access to accessibility guidelines and standards for the built environment. Its *Summary of Accessibility Guidelines for Recreational Facilities—Accessible Sports Facilities* is a useful resource for health/fitness facilities and is available for download at www.access-board.gov/guidelines-and-standards/recreation-facilities/guides/sports-facilities. Likewise, the *U.S. Access Board's Summary of Accessibility Guidelines for Recreational Facilities—Accessible Swimming Pools and Spas* is a practical and helpful resource for health/fitness facilities with aquatic amenities, and is available for download at www.access-board.gov/guidelines-and-standards/recreation-facilities/guides/swimming-pools,-wading-pools,-and-spas. Refer to appendix B.1, **Safety Checklist for Pool Areas**, for additional information.

Health/fitness facility design and construction standard 2. Facilities must be in compliance with all applicable federal, state, and local building codes.

While applicable federal requirements are consistent from one municipality to another, local building codes can vary drastically. Accordingly, it is imperative that facility operators be aware of the building codes in their community. The International Building Codes (IBC), developed by the International Code Council (ICC), however, have been widely adopted throughout the United States and elsewhere. Local authorities, however, having jurisdiction over building construction often adopt amendments to the IBC or have developed their own codes, which may or may not be consistent with the national codes.

Of particular note is the applicability of the accessibility standards outlined in the IBC, which for technical provisions reference a standard developed through the American National Standards Institute (ANSI). While this standard, ANSI A117.1, is fairly consistent with ADA guidelines, there are differences. In most cases, the local

authorities having jurisdiction will help determine the standard to be met. Compliance with ANSI A117.1, however, does not necessarily dictate that the facility is in compliance with the ADA, which remains compulsory under federal law.

The Virginia Graeme Baker Pool and Spa Safety Act was passed at the federal level to reduce the likelihood of users drowning in swimming pools. The requirements of this law include, but are not limited to, certain provisions for plumbing the main drain and the design of drain covers, as well as other components.

Health/fitness facility design and construction standard 3. Facilities must provide adequate clearance to the side and at the rear of all types of continuous-motion exercise equipment.

Adequate clearance, in this instance, refers to the space to the side and behind each piece of continuous-motion exercise equipment located in the facility. Facilities need to position the equipment they offer in a way to help ensure that its usage does not compromise the safety of anyone adjacent to the equipment when it is in use. For example, a clearance space of at least 3.3 ft (1 m) and 1.6 ft (0.5 m), respectively, should be provided behind and to each side of a treadmill.

BOX 6.2 Guidelines for Health/Fitness Facility Design and Construction

1. Designers should size both physical activity spaces and nonactivity spaces to provide sufficient space to accommodate the expected user demand.
2. Designers should configure physical activity space plans so that defined circulation routes are adjacent to, rather than through, the various activity zones.
3. Facilities should provide open-access circulation, which avoids blind corners, unnecessary doors, partitions, and other hazards that would present a safety risk to members and users.
4. Designers should separate physical activity spaces from operational, storage, and maintenance spaces.
5. Facilities should provide changing, showering, and toilet facilities, allowing privacy for all users.
6. Facilities should provide lavatories (sinks) in locker rooms, outside of the toilet room area.
7. Natatoriums and other wet areas should be designed to prevent moisture and chlorine-laden air from damaging building materials and components.
8. Facilities should provide all physical activity spaces with sufficient air circulation and fresh makeup air (i.e., outside air) to maintain air quality, room temperatures, and humidity at safe and comfortable levels, in accordance with applicable national standards such as the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) Standards and Guidelines. Notable exceptions to this particular guideline include such spaces as saunas, steam rooms, and hot yoga studios. However, even in these particular areas, measures to ensure safe and healthy human occupancy should be understood and implemented.
9. Facilities should illuminate all facility spaces to allow members and users to safely engage in their physical activity regimens. Minimum safe illumination levels vary according to activity in a particular area and should be carefully researched. The emerging need for energy conservation requires lighting solutions that take advantage of the available daylighting sources, automatic control devices, and the latest technologies in lamp and fixture design.
10. Facilities should be designed with background noise levels of Noise Criteria (NC) curves 40 to 50 maximum due to the operation of the HVAC building equipment. If speech is involved with the activity in the room, the lower level of NC 40 is preferred for speech intelligibility. Sound systems, often used in fitness facilities by the instructors and for music playback, should not produce sound levels greater than 85 A-weighted decibels (dBA) average, with 90 dBA maximum. Sound transmission through the perimeter partitions of a room with noise generating activities should be limited to a level that does not interfere with the functionality of the adjacent spaces.
11. Floor surfaces in physical activity areas should meet specifications regarding the proper level of absorption and slip resistance to minimize the risk of exercise- and fall-related injuries.
12. Facilities should have wall surfaces in activity spaces that are nonabrasive, flush, and free of protrusions that could cause impact injuries. Activity spaces that involve airborne projectiles, such as volleyballs or basketballs, should have a perimeter ball-containment barrier to protect users in adjacent areas and walkways.
13. When physical activity spaces have depth and distance parameters that can affect an individual's safety, then the facility should provide appropriate markings to ensure that users are aware of these depth and distance parameters.
14. Building owners should use "green" design and sustainable construction materials and techniques to enable the facilities to use energy and resources efficiently, as well as adopt practices to help their occupants be more comfortable and healthy. Regardless of whether official certification is a desired goal, the widely published principles of green design related to site development, stormwater management, energy conservation, renewable

(continued)

resources, water conservation, indoor air quality, carbon reduction, and pollution control should be honored whenever possible. Likewise, incorporation of building techniques as they relate to human occupancy of the facilities, such as temperature control, lighting and daylighting, access to healthy food and water, and a design that encourages physical exercise will help ensure a design that meets the needs of the members for years to come.

15. Building owners should consider the security of their patrons, members, and staff during the design of their facility.

Health/fitness facility design and construction guideline 1. Designers should size both physical activity spaces and nonactivity spaces to provide sufficient space to accommodate the expected user demand.

While no standard metric is advocated for the allocation of health/fitness facility space per member, general industry statistics (based on the *IHRSA 2017 Profiles of Success*) show industry member occupancy levels (sq. ft per member or members per sq. ft) range from 9.2 sq. ft (0.83 sq. m) to 15.4 sq. ft (1.4 sq. m) per member. Empirical data from health/fitness operators around the globe show a general range of 4-5 sq. ft (0.36-0.45 sq. m) per member in a budget club, for example, to 30 sq. ft (2.7 sq. m) per member in a premium club, for example. The allocation of space per member depends on the particular business model and types of spaces (e.g., tennis has very few users at a time while fitness spaces can have many in a smaller areas) that a health/fitness facility operator chooses to adopt.

As for the allocation of space for a defined user or a defined piece of equipment in a fitness center, industry practice is to allocate approximately 40 to 60 sq. ft (3.7 to 5.6 sq. m) per piece of equipment in a fitness center or per user in a group exercise studio.

Health/fitness facility design and construction guideline 2. Designers should configure physical activity space plans so that defined circulation routes are adjacent to, rather than through, the various activity zones.

Circulation areas are spaces that allow users to enter, exit, and traverse the various physical activity zones. These circulation spaces are pathways that accommodate access to each area,* including the functional spaces in and around exercise equipment. To this end, circulation routes should be at least 36 in. (91 cm) across and should be located adjacent to the physical activity areas so that users do not have to pass directly through a physical activity area to access another area.

* *Note:* The ADA requires that one piece of each type of exercise equipment have a clear floor space equal to 30 × 48 in. (76 × 122 cm) and be served by an accessible route.

Health/fitness facility design and construction guideline 3. Facilities should provide open-access circulation, which avoids blind corners, unnecessary doors, partitions, and other hazards that would present a safety risk to members and users.

Open-access circulation refers to spaces that provide adequate sight lines and convenient access and egress for routine daily use and clear exit pathways during emergency situations. The following are some of the steps that a facility can take to provide open-access circulation:

- **Avoid blind corners in two-way circulation areas.** This objective can be accomplished in several ways, including soft corners, low walls at intersections, mirrors, and appropriate warning signage.
- **Avoid the use of doors that open up into circulation paths and hallways.** When doors are mandated by local codes or privacy situations, providing proper warning signage can help reduce any risk presented by these door locations.
- **Provide circulation areas that, by the nature of their design, communicate a path of safe passage.**
- **Clear circulation areas help ensure that appropriate exit pathways exist that are both visible and accessible.**

Health/fitness facility design and construction guideline 4. Designers should separate physical activity spaces from operational, storage, and maintenance spaces.

By separating back-of-the house operational spaces from physical activity spaces designed to be used by members and users, the designer can reduce or eliminate the likelihood that members and users will enter a facility area that would immediately expose them to an increased safety risk from items such as cleaning supplies, maintenance equipment, and related materials. The following are examples of back-of-the house operational areas that should be separated from the physical activity areas:

- **Laundry.** This area normally contains cleaning agents that, according to OSHA, present an increased risk of exposure to hazardous chemicals.
- **Equipment rooms for pools and whirlpools.** These areas commonly house chemicals and other agents that may be harmful, especially if inhaled directly.
- **Maintenance rooms.** These rooms commonly contain equipment (such as saws, chemical supplies, and power tools) that could accidentally cause harm to a facility member or user.
- **Mechanical and electrical rooms.** These rooms contain equipment that could expose members and users, directly or indirectly, to dangerous situations, such as exposed wires, high temperatures, and dangerous gases.

Health/fitness facility design and construction guideline 5. Facilities should provide changing, showering, and toilet facilities allowing privacy for all users.

Given that users of a health/fitness facility come from all ethnicities, customs, and genders, they require a thoughtful approach to providing changing, showering, and toilet facilities that will meet all the various needs of these user groups. However, when it comes to toilet and showering facilities, private compartments for both toilets and showers for all genders is the best practice. The days of having open gang showers are no longer appropriate.

Many users feel comfortable in the traditional men's and women's locker rooms, separated by gender, with changing areas that are open to view by members of their gender. On occasion, however, certain circumstances dictate that an alternative approach may be needed when additional privacy is desired. Although "assisted changing rooms," "family changing rooms," "changing cabanas," and the like are known by various names, they provide the same function. While grooming may take place in a public nongender separated setting, changing, showering, and toilet facilities are all accommodated in private rooms reserved for use by a single user or a small group of users. Examples of the types of users would be mothers with young sons, fathers with young daughters, a caregiver with a special needs patient, or in reality anyone who desires a higher level of privacy or for any reason does not feel comfortable in the traditional men's and women's locker room environment.

Health/fitness facility design and construction guideline 6. Facilities should provide lavatories (sinks) in locker rooms, outside of the toilet room area.

The common user practice of self-grooming after utilizing a health/fitness facility is better served if there is access to a lavatory, without having to enter the toilet room area of the locker room. Activities such as shaving, hair styling, and teeth brushing can involve the use of liquids, creams, or gel-type products that require handwashing after use. Frequent handwashing also reduces the spread of disease. Providing easy access to lavatories outside of the toilet area provides a more attractive experience, one without exposure to the sounds and aromas that often accompany the toilet area.

Health/fitness facility design and construction guideline 7. Natatoriums and other wet areas should be designed to prevent moisture and chlorine-laden air from damaging building materials and components.

Facilities with indoor pools, showers, and other wet environments will experience higher levels of humidity and possible airborne chemical contamination. Care should be taken to design the building envelope to include finish materials that protect the other components that make up the surrounding wall construction from contamination. For example, there should be no exposed ferrous metals in these environments, and any metals that are exposed should be aluminum or stainless steel.

Health/fitness facility design and construction guideline 8. Facilities should provide all physical activity spaces with sufficient air circulation and fresh makeup air (i.e., outside air) to maintain air quality, room temperatures, and humidity at safe and comfortable levels, in accordance with applicable national standards such as the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) Standards and Guidelines. Notable exceptions to this particular guideline include such spaces as saunas, steam rooms, and hot yoga studios. However, even in these particular areas, measures to ensure safe and healthy human occupancy should be understood and implemented.

Air circulation is one of the most critical elements when designing and operating a health/fitness facility. When a room is filled with members and users exercising at a moderate to high level of intensity, the heat and humidity load increases dramatically. This situation can place an increased level of heat stress on the members and users and may result in dehydration, heat exhaustion, heatstroke, or (in rare instances) cardio emergencies. In addition to the increased heat load that can result from improper air circulation, a risk of poor air quality exists that can expose members and users to airborne pathogens that can increase the risk of respiratory disorders or other airborne illnesses.

There are many variables that must be considered when properly designing the HVAC system. ASHRAE develops and publishes technical standards to improve building services engineering, energy efficiency, indoor air quality, and sustainable development. For example, ASHRAE Standard 62.1-2016, Ventilation for Acceptable Indoor Air Quality, provides ventilation standards and guidelines for gyms, swimming pools, aerobics rooms, weight rooms, and other functional areas associated with a health/fitness facility. ASHRAE Standard 90.1-2016, Energy Standard for Buildings, provides minimum energy efficiency requirements of buildings. These standards may be viewed online at www.ashrae.org/technical-resources/standards-and-guidelines. However, the complexity of incorporating the many factors influencing a high-quality indoor air environment requires the expertise of a licensed mechanical engineer who is experienced with the design of HVAC systems for these types of facilities. The following paragraphs summarize the factors that should be taken into consideration when designing a sufficient air circulation system:

- **Maintain relative humidity at 60% or lower in all physical activity spaces.** Ideally, a relative humidity level of 50% or lower is the desired goal, but maintaining levels below 60% is necessary.

- **Maintain air temperature for all physical activity areas between 68 °F and 72 °F (20 °C and 22 °C).** The key is to maintain these temperature ranges, whether the room is empty or fully occupied by members and users who are engaging in moderate to vigorous physical activity. This guideline refers to the fact that the HVAC system within the facility should have the capability to adjust airflow to meet the demands of each space. Ideally, a facility should be engineered with specific HVAC zones that can be individually controlled for a particular area, such as group activity studios, the fitness floor, racquet courts, locker rooms, pools, and wet areas.

- **Make sure that an adequate mix of external fresh air and recirculated internal air is moving through the facility.** The higher the percentage of external air, the less likely the chance that the system will circulate air that contains internally generated airborne pathogens or toxic out-gassing. The minimum level of outside external air is determined by building codes and is related to the specific use of the space.

- **Ensure that wet areas, such as shower areas, steam rooms, whirlpool areas, and swimming pools, have negative exhaust (more exhausted air than supplied air).** Negative pressure in wet areas allows air to be pulled from adjacent spaces, rather than pushing damp or chlorine-scented air into these adjacent spaces. The proper balancing sequence is: air flows slowly from outside the locker rooms, through the locker rooms, out into the swimming pool area, and then through the exhaust system.

- **Ensure that the HVAC system is tested and balanced to provide air circulation at the proper volume (CFM, cubic feet per minute) and temperature in each physical activity area.** CFM is a quantitative measure that can be used to indicate the amount of airflow that is moved through a vent and into or out of a room. The CFM supplied for physical activity areas will vary, based on the heat and occupant loads to which the area is exposed. For example, rooms, such as group exercise studios, will require a higher CFM than racquet courts. Likewise, the cardiovascular equipment area will require a higher CFM than the free weight area. Facilities should hire a qualified mechanical engineer to provide the specific system sizing and operational modes that are essential in this regard. The proper balance of air circulation can ensure that all facility spaces are maintained at the intended temperature and humidity levels.

- **Keep the mechanical system clean.** Most mechanical systems require that the airstream be filtered and that these filters be cleaned or replaced on a prescribed and regular basis. Not only will this preventive maintenance allow the system to provide better air circulation, it will also prevent the buildup of dirt and microbes in the system.

- **Ensure all mechanical systems are properly commissioned and maintained.** Commissioning, or the verification that a system has been installed and is operating as designed, is required by the IBC (2012 and later). Proper commissioning of the systems ensures that they are operating in an optimal condition and level of energy efficiency from the beginning. Proper maintenance of the systems and equipment will ensure that they function properly over the entire course of their useful lives.

Health/fitness facility design and construction guideline 9. Facilities should illuminate all facility spaces to allow members and users to safely engage in their physical activity regimens. Minimum safe illumination levels vary according to activity in a particular area and should be carefully researched. The emerging need for energy conservation requires lighting solutions that take advantage of the available daylighting sources, automatic control devices, and the latest technologies in lamp and fixture design.

Proper illumination is a necessity for a reasonably safe environment. The proper level of illumination can vary from space to space, depending on the activity being performed. Spaces in which physical activity requires relatively fine eye–hand motor coordination (e.g., playing tennis) require a higher degree of illumination compared with those facility areas (such as a yoga studio or massage room) in which the need for lower levels of illumination might exist. Another important factor regarding proper levels of illumination is that a facility's users must be able to read all signage. The following are among the more important considerations for illumination:

- **Light levels in the majority of physical activity spaces, as measured at eye level, should be at least 50 foot-candles.** In selected areas, such as a tennis court or racquet court, light levels approaching 75 foot-candles at eye level are preferred, while on a volleyball court at floor level, a foot-candle level of 50 is appropriate. Each activity area will have slightly different illumination requirements based on the activity being performed. Lighting standards for most sporting activities are usually published by the relevant national association responsible for competitive standards.

- **When specifying light sources, an effort should be made to use light sources that are configured to produce soft, indirect lighting instead of direct lighting.** Natural lighting can be emphasized by using windows with tinted and insulated glass. Indirect light sources that bounce light off walls, floors, or ceilings are preferred to direct light sources, which often produce glare. Recent advances in LED (light-emitting diode) lamp technology have produced affordable light sources with LED lamps that last for 20 years or more and consume very little energy. The use of LED lamps will not only save energy and maintenance costs, it will also reduce the risk of lamp failure, which could subject users to substandard light levels.

- **Adjustable light sources (by means of multilevel switching or dimmers) should be provided, whenever possible, for areas such as group exercise studios, massage rooms, mind–body program areas, and similar spaces.** In certain spaces, such as group exercise studios, massage rooms, and yoga studios, variable lighting levels play an important role in establishing the type of environment conducive to the activity. For example, in studios that serve multiple functions, such as a high-intensity group exercise class or a mind–body class, there is a need to adjust lighting levels to create the proper environment.

Health/fitness facility design and construction guideline 10. Facilities should be designed with background noise levels of Noise Criteria (NC) curves 40 to 50 maximum due to the operation of the HVAC building equipment. If speech is involved with the activity in the room, the lower level of NC 40 is preferred for speech intelligibility. Sound systems, often used in fitness facilities by the instructors and for music playback, should not produce sound levels greater than 85 A-weighted decibels (dBA) average, with 90 dBA maximum. Sound transmission through the perimeter partitions of a room with noise generating activities should be limited to a level that does not interfere with the functionality of the adjacent spaces.

A health/fitness facility can have a cacophony of sounds, ranging from the background noise generated by the building's systems to the amplified sound of instructors' voices produced by an audio system. Noise levels are measured in decibels A-weighted (dBA). A-weighting generally reflects how people hear and respond to sound. Levels exceeding 90 dBA, regardless of circumstances, are too loud. Ongoing exposure of members, users, and staff to sound levels in excess of 90 dbA have been shown to cause hearing damage.

As a general rule, decibel levels in the range of 30 to 60 dBA allow people to clearly communicate and are not considered damaging to hearing. Among factors that should be considered when attempting to limit excessive noise levels in a health/fitness facility are the following:

- **Group exercise studios tend to generate the highest decibel levels (levels between 80 and 90 dBA are common).** To help reduce sound levels in these spaces, facilities should provide ceiling, floor, and wall finishes that provide moderate (Noise Reduction Coefficient [NRC] 0.7 to 0.8) to increased (NRC 0.9 to 1.0) acoustical absorption. Audio system playback sound levels should be set and limited to 85 dBA. A policy should be developed to ensure that the facility's instructors adhere to the maximum recommended levels. If needed, the audio system should be designed with automatic gain control (AGC) set to prevent the users from exceeding the maximum playback levels. In addition, these spaces should be designed with additional sound isolation and sound absorption to limit the noise into adjacent spaces.

- **Spaces that require low levels of ambient noise (such as massage rooms, mind–body studios, meditation spaces, lounges) should be designed to isolate sound from surrounding noisy spaces and loud mechanical equipment.** The walls and floor ceilings will need additional mass (typically gypsum board) and sound-absorbing material (typically fiberglass) in the partition cavities. The interior finishes should help reduce noise generated inside the room by utilizing acoustical ceilings and wall treatments with a NRC of 0.7 or higher. The total amount of treatment needed depends on the size and volume of the room. Impact sound and vibrations caused by jumping, running in place, gymnastics, dancing, and other activities are difficult to contain because they travel through the air and the building structure. Less impact noise, especially low-frequency thumps, is heard when the structure is stiffer, for example, constructed from concrete and steel as compared to wood. When a fitness room is located above another occupied room, a floating floor system, consisting of

concrete over a layer of acoustical underlayment or spring isolators, may be needed. When the impact sounds are loud, a resilient, suspended hard ceiling may also be required in the room beneath it.

Health/fitness facility design and construction guideline 11. Floor surfaces in physical activity areas should meet specifications regarding the proper level of absorption and slip resistance to minimize the risk of exercise- and fall-related injuries.

Some physical activity areas (such as the group exercise studio, basketball courts, racquet courts, sports courts, and the fitness floor) house activities that can expose users to impact stresses. In many cases, the activities performed in these areas can more than double the forces to which a member's or user's body is exposed. Fortunately, through the proper design and installation of floor surfaces, many of these additional forces can be absorbed by the floor surface, rather than by the individual's musculoskeletal system. Prior to 2009, there was no standard in North America for measuring the performance of sports flooring. As a result, facilities had no choice but to look for flooring surfaces that adhere to the Deutsches Institut für Normung (DIN) standards or EN 14904, both European standards, when installing physical activity floor surfaces. In 2009, however, ASTM International developed ASTM F2772, the first Standard Specification for Athletic Performance Properties of Indoor Sports Floor Systems for North America.

Regardless of the organization, each standard sets forth the testing methods and criteria that a flooring surface is to meet in order to achieve certification. According to the DIN standards, a floor must meet six criteria: shock absorption, standard vertical deflection, deflective indentation, sliding characteristics, ball deflection, and rolling load. According to ASTM F2772, four attributes of a flooring system are tested: shock absorption, vertical deformation, ball bounce, and sliding effect. Each of these characteristics can be used to help evaluate the suitability of a floor for specific physical activity functions, including the following:

- **Sport function.** These are floors that serve a recreational or performance sport function, such as a basketball court or a racquetball court. These court floors need to provide the right amount of surface friction and ball bounce. In deciding which floors to use for this purpose, it is critical to employ a consistent subfloor that absorbs impact equally at all points on the floor and generates minimal deflective indentation. In addition, these floors should provide a moderate level of surface friction that balances the ability to gain traction with the ability for sliding. These floors normally have a subfloor system (consisting of furring strips and shock-absorbing materials) that is covered by a solid wood surface or a rubber surface that allows for sliding movement.
- **Protective function.** The primary role served by these floors is the reduction of chronic-impact injuries or acute-impact injuries, such as those that could occur in a group exercise studio. These floors should have an appropriate level of shock absorption and minimal vertical deformation yet expose participants to an appropriate level

of friction. Normally, these floors have a three-layer system, consisting of a bottom shock-absorbing layer (neoprene shock pads or rubber pads), a middle layer that has multiple layers of plywood, and a top layer consisting of a wood or rubber surface.

- **Material–technical function.** These floors, which should meet criteria for both sport and protective function, are excellent for facilities that use space for multiple activities, such as a basketball court that also serves as a group exercise space. According to the DIN standards, this type of floor should have the following characteristics:

Shock absorption	53%
Minimum vertical deformation	2.3 mm
Minimum deflective indentation	15%
Maximum sliding characteristic	0.5 to 0.7 range
Ball deflection	90% minimum
Rolling load	337.6 lb (153.1 kg)

Facility operators should discuss their facility's requirements with floor manufacturers to ensure that the floors that they select for the facility are constructed in accordance with ASTM F2772-11 or DIN standards.

Flooring in any area that can become wet with water due to the normal operations of a health/fitness facility should be nonporous in order to be easily cleanable and sanitary yet also have a texture that provides slip resistance under foot. Common materials for this type of flooring include ceramic or porcelain tile, textured concrete, and a myriad of topically applied coatings that claim to achieve the goal of cleanability and slip resistance, without being painful to walk on.

Ceramic or porcelain tile in sizes of 2 x 2 in. (5.08 × 5.08 cm) or less are comfortable to walk on and equally effective, mainly because they have grout joints. The joints provide water with a path to escape and the foot goes directly on the surface of the tile, reducing the risk of hydroplaning. Tile sizes larger than 2 x 2 in. (5.08 × 5.08 cm) are not recommended in wet areas.

Textured concrete is often an economical choice for health/fitness facilities, especially on pool decks or other large expanses of flooring. Care should be taken to specify a nondirectional texture due to the multiple directions that people will be walking on them in a health/fitness facility. Broom finishes that are typically found on exterior sidewalks are directional, which makes the surface unsuitable for offering slip resistance in more than one direction of travel. Examples of nondirectional textures include mag sweat or swirl-troweled finish, sand- or bead-blasting, various stamped and patterned finishes, and a whole host of specialty finishes. Due to the handcrafted nature of finishing concrete, it is recommended that mock-up panels be cast prior to any final placement, and each approved mock-up be tested to determine the level of slip resistance prior to approval. The finished, installed product should also be tested in a select number of areas to verify and document that the desired level of slip resistance has been achieved.

This factor is true also for all topically applied materials. Testing the slip resistance of the final installation is important to verify and document that an acceptable level of slip resistance has been achieved. Several testing methods have been developed to determine slip resistance, including the British Pendulum Test (BPT), which is widely used around the world. Australia has arguably set the most comprehensive standard slip resistance values to be achieved for various applications, using the British Pendulum Tester, yet there are not widely accepted standards in the United States. For the use of the BPT, as of the publication date of this text, refer to appendix B-13

for additional information on the advantages and disadvantages of selected types of pool overflow systems, as well as a list of agencies that offer construction standards for aquatic facilities and associations that serve the field of aquatics.

The latest and most documented floor surface, slip-resistance testing machine in the United States is the BOT-3000E digital tribometer. It is specified for the ANSI A137.1 DCOF (dynamic coefficient of friction) wet slip-resistance test that is required for indoor ceramic tile by the IBC (2012 and later). It is also used for ANSI B101.1 (SCOF) (static coefficient of friction) and ANSI B101.3 (DCOF). ANSI also specifies accepted safety standards for minimum and maximum coefficients of friction. Refer to appendix B.12 for additional sports flooring standards.

Health/fitness facility design and construction guideline 12. Facilities should have wall surfaces in activity spaces that are nonabrasive, flush, and free of protrusions that could cause impact injuries. Activity spaces that involve airborne projectiles, such as volleyballs or basketballs, should have a perimeter ball-containment barrier to protect users in adjacent areas and walkways.

A designer should make sure that walls in activity areas don't contain protrusions (e.g., a railing that protrudes onto a court surface or a storage shelf that extends into the activity area of a group exercise studio) that might result in a member or user accidently making contact with the protrusion, while engaging in a physical activity regimen.

Health/fitness facility design and construction guideline 13. When physical activity spaces have depth and distance parameters that can affect an individual's safety, then the facility should provide appropriate markings to ensure that users are aware of these depth and distance parameters.

Certain physical activity areas, such as pools, gymnasiums (sports courts), and racquet courts, have depth and distance parameters that can result in a potential injury, if members and users are unaware of them. As a result, it is advisable to provide markings so that members and users can easily differentiate specific changes in depth or distance, without incurring bodily harm. Examples of such markings include the following:

- **Pools.** Pools present the greatest risk to member and user safety because of the presence of water and changes in depth. Facilities should follow the parameters developed by the Association of Pool & Spa Professionals (APSP) for marking pool depths and distances, subject to local and state codes. Pools are expected to provide proper depth markings at various points, especially when there are changes in pool depth.

- **Basketball courts and racquetball courts.** These courts have specific markings and dimensions established by the respective sport governing bodies, including clearance requirements. Facilities should ensure that these recommendations are followed in the design and installation of the courts and the areas that house them.
- **Walking and jogging tracks.** These are another facility component in which adequate dimensions must be provided. Lane widths and designations for walkers and runners are important. Care must be exercised to avoid blind corners and potential trip-and-fall hazards, resulting from inadequate clearances from columns, rails, and walls adjacent to the running lanes. A good rule of thumb for indoor walking and jogging lanes is to provide at least two lanes, one 5 ft (1.5 m) in width on the inside to allow walkers to use this lane side-by-side, as well as one 3 ft (1 m) in width on the outside for joggers. The radius of the inside corner should be as large as practical, depending upon the use of the track, as well as other areas of the building. A minimum of a 16 ft (4.8 m) radius should be the goal.

Health/fitness facility design and construction guideline 14. Building owners should use "green" design and sustainable construction materials and techniques to enable the facilities to use energy and resources efficiently, as well as adopt practices to help their occupants be more comfortable and healthy. Regardless of whether official certification is a desired goal, the widely published principles of green design related to site development, stormwater management, energy conservation, renewable resources, water conservation, indoor air quality, carbon reduction, and pollution control should be honored whenever possible. Likewise, incorporation of building techniques as they relate to human occupancy of the facilities, such as temperature control, lighting and daylighting, access to healthy food and water, and a design that encourages physical exercise will help ensure a design that meets the needs of the members for years to come.

Green design, also known as sustainable design, has become the building standard in many industries, including the health/fitness industry. Green design refers to practices that make use of environmentally friendly materials (e.g., recycled glass, recycled rubber products, renewable wood products, naturally renewable products, low-volatility paint products), as well as renewable and efficient energy systems (e.g., solar-powered heating and lighting, reclaimed rainwater systems, low-energy lighting systems, geothermal heating). In addition to the aforementioned green design elements, using high-efficiency long-life lamp technologies, dual-flush toilets, and low-flow shower heads all contribute to a more efficient and sustainable environment for facility users. One means of achieving green design is to retain the services of an architect who is Leadership in Energy and Environmental Design (LEED) certified. Green design not only contributes to a healthy planet but also provides users of a health/fitness facility with a healthier environment for their physical activity efforts.

In addition to the U.S. Green Building Council's LEED certification, a new rating system developed by the International WELL Building Institute that is designed to improve health and wellness through better buildings. Called the WELL Building

Standard, this system considers seven key concepts: air, water, nourishment, light, fitness, comfort, and mind. By incorporating many features within each WELL concept into the design of a facility, the goal is to provide a better environment in which people exist and thrive.

Health/fitness facility design and construction guideline 15. Building owners should consider the security of their patrons, members, and staff during the design of their facility.

The safety and security of the building's occupants is absolutely paramount, including during times of crisis and emergencies that are not part of the planned activities within the building. These circumstances include, but are not limited to, natural disasters, such as tornadoes, hurricanes, wildfires, or floods, and threats of violence, such as having an active shooter within the building. Many schools and universities are currently addressing these realities in the design of their facilities. Arguably, similar steps should be taken with health/fitness facility design.

With large open spaces and support facilities, such as kitchens, bathrooms, showers, and laundry facilities, a health/fitness center can serve very well as an emergency shelter facility in times of natural disasters. Whenever possible, communicating with the local fire and police beforehand can establish procedures to follow during times of crisis, allowing the facility to serve a tremendous benefit and aid to the community at large.

Care in locating entry and exit points and providing means to shelter in place, as well as evacuate quickly, will better prepare the facility to cope during times of emergency. As such, consulting with a security specialist that will propose multiple scenarios and responses can be beneficial during the earliest stages of design.

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CHAPTER 7

Health/Fitness Facility Equipment

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According to empirical data from the health/fitness facility industry, on average, a typical newly built health/fitness facility will invest between $20 and $25 per sq. ft ($220 to $275 per sq. m) on fitness equipment before opening its doors to the public for the first time. It is not uncommon, however, for some facilities, particularly fitness-only facilities, to invest as much as $30 per sq. ft on fitness equipment. This relatively large investment indicates the important role that fitness equipment plays in providing facility users with the opportunity to pursue their physical activity interests and needs.

This initial investment in equipment is further compounded by the need for facility owners to reinvest in equipment on an annual basis to stay current with equipment trends (entertainment, function, and safety) and to deal with the depreciation and inevitable wear on fitness equipment. According to *IHRSA 2017 Profiles of Success,* the median reinvestment allocation for fitness equipment in all types of health/fitness facilities in 2016 was 2.0% of revenues, with some health/facility operators allocating as much as 4.5% and 9.5% for all clubs and fitness-only clubs, respectively, of revenues on an annual basis to reinvesting in fitness equipment.

The basic categories of fitness equipment that play the most significant role in the industry, when it comes to delivering physical activity programs, are cardiovascular equipment, variable-resistance equipment, selectorized resistance equipment, plate-loaded leverage equipment, free weight equipment, functional equipment, and fitness accessory equipment.

- **Cardiovascular equipment.** According to the *2017 IHRSA Heath Club Consumer Report,* three of the top five usage areas of a health/fitness facility (treadmills used by 44% of members, resistance machines used by 36% of members, dumbbells used by 31% of members, upright bikes used by 29% of members, and elliptical/cardio cross-trainers used by 29%) involve cardiovascular equipment. Second only to free weight equipment (dumbbells and barbells) in terms of its availability and popularity in the industry, cardiovascular equipment consistently ranks as one of the top areas of equipment reinvestment for facility operators. Although cardiovascular equipment has been around for almost as long as the health/fitness industry has been in existence, it has taken on an escalating level of importance in the marketing and programming of health/fitness facilities over the course of the past several decades.

- **Variable-resistance, selectorized resistance, plate-loaded leverage, and alternate resistance equipment.** According to statistics provided by IHRSA, variable-resistance, selectorized resistance, and alternative resistance equipment rank just behind cardiovascular equipment in terms of importance of equipment offered (ranking according to *2017 Profiles of Success*). Selectorized resistance equipment is

strength training equipment that uses weight stacks and pulley mechanisms to provide resistance. The advantage of this type of resistance exercise is that it provides a safe and time-efficient method of strength training, one that often has particular appeal for the average health/fitness facility member or guest. Variable-resistance equipment is similar to selectorized resistance equipment, except that it employs a device (usually a cam) that allows the level of resistance provided to the exerciser at any given point in time to vary according to predetermined strength curve of the muscles involved in the exercise. Plate-loaded leverage equipment is a machine that uses free weight plates as the resistance source. Alternate resistance machines are similar to most variable-resistance machines except that they utilize a resistance source other than a weight stack or a free weight plate (e.g., air, water, and hydraulics).

- **Free weight equipment.** Free weight equipment has been around for well over 2,000 years. In fact, free weight equipment has been in existence longer than any other form of exercise equipment. According to *IHRSA's 2017 Profiles of Success,* free weight equipment was offered by more than 82% of the clubs surveyed. This statistic, one that continues from year to year in the annual IHRSA survey, indicates that free weight equipment remains the single most popular type of fitness equipment in the health/fitness club industry.

- **Functional and fitness accessory equipment.** Fitness accessory equipment includes Pilates gear, bands and tubes, fitness-testing apparatus, plyometric stations, medicine balls, exercise balls, suspension-strap systems, foam rollers, and other devices that can assist individuals in achieving their health/fitness goals. Additional fitness accessories that are often found in health/fitness facilities include equipment (such as weight training belts and protective lenses) that can be used to provide a safer environment for a facility's members and users as they engage in activities of their choosing.

This chapter presents standards and guidelines pertaining to equipment that is found in health/fitness facilities. Box 7.1 details the one required standard on health/fitness facility equipment; box 7.2 lists the five recommended guidelines that health/fitness facilities should consider when deciding what fitness equipment to offer. The chapter also contains tables 7.1 and 7.2, which address general preventive maintenance practices that facility operators can take with resistance training and cardiovascular equipment. It should be noted that this chapter is not intended to provide an in-depth review of health/fitness equipment. Rather, it is designed to present information regarding equipment that health/fitness facilities can use in their efforts to provide a safe and productive physical activity environment for their members and users.

BOX 7.1 Standards for Health/Fitness Facility Equipment

1. The aquatic and pool facilities must provide the proper safety equipment according to state and local codes and regulations.

Health/fitness facility equipment standard 1. The aquatic and pool facilities must provide the proper safety equipment according to state and local codes and regulations.

State and local governments have specific requirements regarding the safety equipment that must be present in an aquatic area. Examples of the types of equipment that may be required include:

- Specific signage restricting access to pool mechanics or chemicals
- Pool chemistry unit
- Emergency shut-off switch
- Signage with policy and procedures of the aquatics space in line with local and state requirements
- Spine board
- 25 ft (7.6 m) safety rope with a buoy
- Shepherd's crook
- Lifejackets
- Rescue tube
- Blankets
- First-aid kit

If a facility has more than one aquatic venue, each venue must have the proper equipment.

BOX 7.2 Guidelines for Health/Fitness Facility Equipment

1. Facility operators should provide a sufficient quantity and quality of equipment so that the facility is able to fulfill its mission, purpose, and intended function for its targeted members and users.
2. Facility operators should have a preventive maintenance program for their fitness equipment, including showing when the scheduled work was performed. It is recommended that all preventive maintenance of fitness equipment be done in accordance with the manufacturer's recommendations.
3. Facility operators should have a system in place for removing broken or damaged equipment from member use until that equipment has been repaired or replaced.
4. All physical activity areas should have a clock, a chart of target heart rates, and a chart depicting ratings of perceived exertion to enable members and users to monitor their levels of physical exertion.
5. Facility operators should consider providing fitness equipment that can be accessed by individuals with physical limitations who require the use of a wheelchair, including at least one piece of cardiovascular equipment and one piece of selectorized or variable-resistance equipment.

Health/fitness facility equipment guideline 1. Facility operators should provide a sufficient quantity and quality of equipment so that the facility is able to fulfill its mission, purpose, and intended function for its targeted members and users.

Health/fitness facilities vary considerably in their intended mission and purpose. For example, some facilities, such as multipurpose facilities, place emphasis on serving the fitness and recreational needs of the family market, while fitness-only clubs address the muscular strength and endurance interests of a more focused population. In recent years, a substantial number of women-only facilities have opened. Their basic business models involve providing a nonintimidating general fitness environment for their clients. Such diversity of missions and purposes significantly affects the variety, quantity, and quality of equipment that is made available to members and users.

Decisions concerning the kind of equipment to buy, how much equipment to buy, and how much to invest on equipment can be affected by a number of factors that can vary from facility to facility. The following information can be used to help clarify the key issues pertaining to such discussions:

- **Cardiovascular equipment.** The second most popular category of equipment in the health/fitness industry, cardiovascular equipment should be part of every health/fitness facility. The most popular types of cardiovascular equipment include treadmills, elliptical trainers, recumbent bicycles, upright bicycles, rowing machines, stair climbers, upper-body ergometers, and total-body machines (e.g., cross-body

trainers). Health/fitness facilities should consider offering at least three types of cardiovascular equipment (e.g., treadmills, elliptical trainers, and bicycles). The minimum number of pieces for a specific type of cardiovascular equipment should be two machines; the ideal quantity is dependent on variables, such as the number of members, expected usage during peak periods, member demographics, and so on.

While no precise criteria exist in the industry for determining the appropriate quantity or mix of cardiovascular equipment, a common practice in the industry is to provide sufficient equipment to accommodate at least 25% of the individuals who are expected to use the facility during any given two-hour time period. For example, if a hypothetical facility has 2,000 members and users, then that facility is likely to see approximately 500 (or 25%) of those members on a daily basis. Furthermore, during any given two-hour time period, it can expect to see no more than 33% of those daily users, or 165 users. If the criterion is one piece of cardiovascular equipment for every four members and users in a facility, then the facility in this example would need approximately 40 pieces of cardiovascular equipment.

- **Variable-resistance, selectorized resistance, plate-loaded leverage, and alternate resistance equipment.** Variable-resistance, selectorized resistance, plate-loaded leverage, and alternate resistance machines are designed to provide individuals with a relatively safe, time-efficient method to engage in strength exercise. Some of these machines have multiple stations that collectively offer a whole-body workout. Others address only a single muscle or area of the body. In those instances, a series of selectorized resistance, variable-resistance, plate-loaded leverage, or alternate resistance machines will be required for achieving a complete strength training regimen. At a minimum, one machine for each major muscle group in the body will be required. Depending on the facility's organizational focus, it is recommended that every health/fitness facility have at least one resistance circuit (typically 8 to 12 machines). At a minimum, health/fitness facilities should make sure that they have sufficient machines to accommodate anticipated demand by its members and users for strength exercise. While no specific industry criteria exist in this regard, common practice within the health/fitness industry dictates that at least one circuit should be provided for each 1,000 members and users of the facility.

- **Free weight equipment.** The most popular type of exercise equipment in health/fitness facilities is free weight equipment, which can include such items as dumbbells, barbells, Olympic bars and plates, kettlebells, plate-loaded benches and machines, and benches and machines that can be used for performing exercises that employ barbells and dumbbells. The type and quantity of free weight equipment that a facility provides will depend on that facility's membership and usage patterns, as well as its targeted audience.

- **Functional and fitness accessory equipment.** Over the past 10 years, the interest in and the demand for functional and performance-based fitness training have grown tremendously. Types of fitness accessory equipment that can facilitate such functional and performance-based training include, but are not limited to, medicine balls, exercise balls, tubes and bands, foam rollers, BOSU balls, Pilates-based equipment, whole-body vibration training equipment, suspension training equipment, plyometric benches, rope ladders, cones, and steps. The quantity of fitness accessory equipment that a facility acquires is highly dependent on the facility's member and user demographics, the number and interests of facility members and users, and the qualifications of its staff and independent contractors.

- **Group exercise equipment.** Group exercise studios are one of the most highly used spaces in a health/fitness facility. The types of program offerings that are typi-

cally conducted in a group exercise area include, but are not limited to, group cycling classes, dance-related classes, stretching classes, low-impact classes, yoga classes, martial arts fitness classes, callisthenic classes, weight equipment–based classes, and sport performance classes. Because of the large variety of classes that can be offered within such areas, a facility should provide the equipment that is necessary to accommodate the needs of those classes. Ancillary group exercise equipment for these classes may include group cycles, exercise mats, step benches, tubes and bands, music, visual projection systems, exercise balls, body bars, dumbbells, and medicine balls.

Health/fitness facility equipment guideline 2. Facility operators should have a preventive maintenance program for their fitness equipment, including showing when the scheduled work was performed. It is recommended that all preventive maintenance of fitness equipment be done in accordance with the manufacturer's recommendations.

Manufacturers of fitness equipment provide limited warranties on their equipment, as well as recommendations for its ongoing care. The proper care of equipment is essential for several reasons. For example, failure to have and adhere to a preventive maintenance system will almost always lead to equipment breakdowns and a heightened risk to users' safety and the facility's subsequent exposure to litigation. In most instances, the preventive maintenance of fitness equipment is quite straightforward. As a rule, facilities are encouraged to closely follow the manufacturer's recommendations for standard preventive maintenance. Tables 7.1 and 7.2 provide an overview of the most common preventive maintenance practices for resistance equipment and cardio equipment, respectively.

TABLE 7.1 Common Preventive Maintenance Practices for Resistance Equipment

Equipment	Daily	Weekly	Monthly	As needed
Variable-resistance, selectorized resistance, and alternate resistance equipment	Clean frames with mild soap and water. Clean upholstery with mild soap and water.	Check all cables and bolts and tighten as needed. Check moving parts and adjust as needed.	Lubricate guide rods with lightweight oil.	Repair or replace pads. Replace cables if needed.
Free weight benches	Clean frames with mild soap and water. Clean upholstery with mild soap and water.	Check all cables and bolts and tighten as needed. Check moving parts and adjust as needed.		Repair or replace pads. Replace cables if needed.
Dumbbells and bars	Clean dumbbells and all bar handles (plus any free weight attachment handles) daily with an antimicrobial solution on a damp cloth or an antimicrobial wipe.	Check all screws and bolts and tighten as needed.	Use lightweight oil on cloth to remove any rust.	Repair or replace broken bars and dumbbells.

TABLE 7.2 Common Preventive Maintenance Practices for Cardiovascular Equipment

Equipment	Daily	Weekly	Monthly	As needed
Bikes	Clean off control panel with dry cloth. Clean off handles with mild antibacterial soap and damp cloth. Clean off seats with mild antibacterial soap and damp cloth.	Check equipment diagnostics through control panel for any potential troubles. Check all screws and bolts and tighten as needed.	Remove bike housing and clean out dust and lint that may have collected.	Refer to manufacturer's guidelines.
Elliptical trainers	Clean off control panel with dry cloth. Clean off handles with mild antibacterial soap and damp cloth. Clean off foot pedals with damp cloth.	Check equipment diagnostics through control panel for any potential troubles. Check all screws and bolts and tighten as needed.	Remove elliptical housing and clean out dust and lint that may have collected.	Refer to manufacturer's guidelines.
Treadmills	Clean off control panels with dry cloth. Clean off housing with mild antibacterial soap and damp cloth.	Check equipment diagnostics through control panel for any potential troubles. Check all screws and bolts and tighten as needed.	Clean belt using a damp cloth. Check belt and deck surface and lubricate as needed and per manufacturer's specifications.	Replace belt, if needed. Refer to manufacturer's guidelines.

Health/fitness facility equipment guideline 3. Facility operators should have a system in place for removing broken or damaged equipment from member use until that equipment has been repaired or replaced.

Fitness equipment that is either broken or damaged can pose a safety risk to members and guests. As a result, facility operators should establish policies to address the removal of broken or damaged equipment from areas where it can be used by members and users until such time as it is repaired or replaced by a newly functioning piece. These policies should include a transparent approach to communicating to the members and users that a particular piece of equipment is temporarily damaged and out of order, along with communication as to when the piece will be repaired or replaced.

Health/fitness facility equipment guideline 4. All physical activity areas should have a clock, a chart of target heart rates, and a chart depicting ratings of perceived exertion to enable members and users to monitor their levels of physical exertion.

Health/fitness facility operators should have a clock and a target heart rate chart available in various physical activity areas (e.g., cardiovascular zone, variable-resistance zone, group exercise studio) to allow facility members and guests to self-monitor their levels of physical exertion and assist them in achieving the desired training intensity and duration. A ratings of perceived exertion chart can be substituted for or used to complement a target heart rate chart as a means of providing individuals with an easy-to-understand method of monitoring level of intensity of physical activity.

Health/fitness facility equipment guideline 5. Facility operators should consider providing fitness equipment that can be accessed by individuals with physical limitations who require the use of a wheelchair, including at least one piece of cardiovascular equipment and one piece of selectorized or variable-resistance equipment.

Individuals with physical limitations who require the use of a wheelchair or other mobility device can receive similar health benefits from exercise as individuals who do not have physical limitations. As a result, health/fitness operators should make an effort to provide this group of members and users with access to fitness equipment. Typically, this factor might involve providing at least one piece of cardiovascular equipment, such as an upper-body ergometer or a cross-functional piece, that provides those individuals who are unable to use their legs with the ability to perform continuous cardiovascular movements. In addition, many manufacturers currently produce selectorized resistance machines that can be easily accessed by individuals in wheelchairs or other mobility devices. As such, health/fitness facility operators should consider incorporating at least one of these units into their selectorized resistance offering.

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CHAPTER 8

Signage in Health/ Fitness Facilities

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Signage is one of the most important means by which health/fitness facilities communicate with their members and users, as well as with the general public. Signage can help convey a variety of messages, including hazard warnings, cautionary warnings, instructions on the proper use of a piece of equipment, and general facility information. When signage is developed and displayed properly, it allows the desired message to be communicated clearly and in a timely manner. On the other hand, poorly conceived and displayed signage can result in either confusion or a complete failure to communicate the desired message.

Signage can serve many communication roles in a health/fitness facility (e.g., providing physical directions for members and users, instructing on the safe and effective use of equipment, providing information about facility services, and warning about conditions in the facility that might expose members and users to unwarranted risk). Proper signage plays a critical role in establishing a safer physical activity environment. It should be noted, however, that no label or sign alone can prevent all injuries or ensure that all members and users engage in risk-free practices. Signage should be considered one component of a broad, comprehensive risk management plan. In that regard, ASTM International (originally known as the American Society for Testing and Materials) developed and issued F1749, titled Standard Specification for Fitness Equipment and Fitness Facility Safety Signage and Labels, which sets forth guidelines for signage and labels associated with fitness equipment and fitness facilities that can promote a higher level of safety in a health/fitness facility.

This chapter presents standards and guidelines on signage and its use in a health/fitness facility. Box 8.1 lists the five required standards on signage in health/fitness facilities, and box 8.2 details the two recommended guidelines on signage in health/fitness facilities. This chapter also contains table 8.1, which sets forth some area-specific safety and warning messages that are frequently employed in a health/fitness facility.

BOX 8.1 Standards for Signage in Health/Fitness Facilities

1. Facility operators shall post proper caution, danger, and warning signage in conspicuous locations where facility staff know, or should know, that existing conditions and situations warrant such signage.
2. Facility operators shall post the appropriate emergency and safety signage pertaining to fire and related emergency situations, as required by applicable federal, state, and local codes.
3. Facility operators shall post signage indicating the location of any AED and first-aid kits, including directions on how to access those locations.
4. Facilities shall post all ADA and OSHA signage that is required by applicable federal, state, and local laws and regulations.
5. All cautionary, danger, and warning signage shall have the required signal icon, signal word, signal color, and layout, as specified in ASTM F1749.

Health/fitness facility signage standard 1. Facility operators shall post proper caution, danger, and warning signage in conspicuous locations where facility staff know, or should know, that existing conditions and situations warrant such signage.

A facility has the responsibility to provide members and users with information about conditions and situations that might expose them to an increased risk of experiencing an injury, a health-related problem, or even death. This signage may be permanently installed in response to an ongoing condition or it may be temporary in nature (e.g., warning tape, hazard cones, or wet floor signage) in response to an issue that is under repair or in the process of replacement. In that regard, the following three types of signage are appropriate:

- **Cautionary signage.** Cautionary signage is designed to alert members and users of the potential risks that exist or the hazardous situations that might arise from using a particular piece of equipment, from circumstances inherent in a given facility area, or from participation in a specific program or service that is offered by the facility. Cautionary signage must provide members and users with both a cautionary statement and a concrete list of actions that are appropriate to avoid the risk(s) indicated in the cautionary statement.

- **Danger signage.** Danger signage is designed to provide members and users with a clear message that indicates that an *imminent* hazardous situation exists, and, if that situation is not avoided, serious injury or death may result. Danger signage must provide members and users with a clear statement of the applicable danger and what steps must be taken to avoid that danger or risk.

- **Warning signage.** Warning signage is designed to provide members and users with a clear message indicating that a *potentially* hazardous situation exists, and, if it is not avoided, death or serious injury could occur. Warning signage should provide

members and users with a clear statement that warns them of the potential risks that apply to a particular situation and the measures that can be taken to avoid the risks. Table 8.1 offers an example of a few area-specific safety and warning messages. In each situation, the basic objective of such signage is specified.

TABLE 8.1 Examples of Area-Specific Safety and Warning Signage

Activity area	Examples of safety warnings
Fitness floor (gym)	Exercising may cause conditions, such as dizziness, light-headedness, disorientation, exhaustion, or other signs or symptoms, that put the exerciser at risk. If you experience any of these conditions, you should cease exercising and contact a member of the staff. Please seek out the assistance of fitness professionals before beginning a fitness program. Heart rate charts and charts of perceived exertion are posted throughout the fitness area to assist you with monitoring your level of exertion during exercise.
Sauna or steam room	Users should limit themselves to no more than 10 minutes in the sauna to avoid the possibility of heat exhaustion or heatstroke. Members and users with cardiovascular disease, high blood pressure, or other medical conditions that could be exacerbated by exposure to high temperatures should consult a medical professional before entering the sauna.
Pool	Shower before entering the pool. Do not dive into the pool. A lifeguard is not on duty, and swimming is done at your own risk.

Health/fitness facility signage standard 2. Facility operators shall post the appropriate emergency and safety signage pertaining to fire and related emergency situations, as required by applicable federal, state, and local codes.

It is imperative that facilities comply with all applicable federal, state, and local laws as they pertain to the posting of signage that concerns fire and related emergency situations. As part of the process, it is recommended that all health/fitness facilities consult with both their local fire departments and local city authorities to ensure that they are in full compliance with all fire safety and emergency signage. Factors that such signage must address may include the following:

- **Emergency exit signage.** These signs not only show the location of all emergency exits but also provide directions for how to proceed to these exits.
- **Emergency phone and fire extinguisher location signage.** These signs identify the location of telephones and fire extinguishers, as well as provide instructions for their use.
- **Facility occupancy load and certificate of occupancy.** This signage indicates the maximum number of members and users who are allowed in the facility at any given time according to local building codes.

Health/fitness facility signage standard 3. Facility operators shall post signage indicating the location of any AED and first-aid kits, including directions on how to access those locations.

Facility operators shall provide signs that identify the location of all AED units and first-aid kits. In addition to identifying the location of these devices, signage must clearly communicate directions on how to get to these locations.

Health/fitness facility signage standard 4. Facilities shall post all ADA and OSHA signage that is required by applicable federal, state, and local laws and regulations.

Both the ADA and OSHA provide explicit regulations regarding the posting of certain signage. For example, OSHA requires that a facility operator post warning signage for hazardous chemicals and blood-borne pathogens if the member or user of a facility may be exposed to either. The ADA expects facilities to provide signage that indicates access points for people with physical challenges as well as certain signage that can be viewed by some individuals who have visual impairments.

Health/fitness facility signage standard 5. All cautionary, danger, and warning signage shall have the required signal icon, signal word, signal color, and layout, as specified in ASTM F1749.

The standards and guidelines from both ANSI and ASTM International spell out the specific parameters for appearance required for the design and layout of cautionary, danger, and warning signage, including the color of the sign, the wording to be provided, and the type of icon to be used.

BOX 8.2 Guidelines for Signage in Health/Fitness Facilities

1. Facilities should provide message boards, bulletin boards, digital signage, Web sites, or a similar type of communication venue for the communication and dissemination of relevant information concerning the facility or of particular interest to the facility's members and users.
2. Signage should have the proper appearance, readability, and placement in order to clearly display the desired message in a fashion that can easily be understood by the intended audience.

Health/fitness facility signage guideline 1. Facilities should provide message boards, bulletin boards, digital signage, Web sites, or a similar type of communication venue for the communication and dissemination of relevant information concerning the facility or of particular interest to the facility's members and users.

To provide a safer and more enjoyable physical activity experience for members and users, facilities should post pertinent information on appropriate communication sites for members and users to access. A low-tech approach to such communication might involve bulletin boards or message boards that are positioned in highly visible locations throughout the facility. As technology has advanced, health/fitness facilities should seriously consider using their Web sites, in-house electronic media centers, digital signage, or even smartphone applications to disseminate relevant information to members and users. The type of information that should be communicated might include updates on facility programs and services, rules and policies of the facility, facts about certain staff members and their qualifications, and related information. The following examples illustrate the various types of information that this guideline could address:

- **Facility program calendars and schedules.** Facility operators can use these communication tools to share information with members and users about selected activities that will be offered during a specified time period. Examples of these types of tools include group exercise schedules, monthly program calendars, and special-event posters.
- **Facility policies and rules.** Facility operators can employ these communication tools to detail to their members and users the expectations of the facility concerning fundamental issues, such as operating hours, dress code, age restrictions, and appropriate behavior of users.
- **User comments and suggestions.** Facility operators can employ these communication tools as a means by which members and users can be surveyed or as a way to post messages about their experiences in the facility or about services relating to the facility on which they would like to provide feedback.

- **Facility staff information.** Facilities can use these communication tools to share information with members and users about key staff and their qualifications. This mechanism can be an especially useful way to provide relevant information about personal trainers and other physical activity instructors.

Health/fitness facility signage guideline 2. Signage should have the proper appearance, readability, and placement in order to clearly display the desired message in a fashion that can easily be understood by the intended audience.

The following points delineate the relevant factors that a facility should consider regarding proper signage:

- **Appearance.** A sign should use colors and materials that are most likely to communicate the desired message. For instance, it is recommended that the color red be used for danger, orange for warning, and yellow for caution. The type of material used in the sign can also be important. For example, a waterproof material should be used for all signage that is posted in areas exposed to either high humidity or water.
- **Readability.** This factor refers to the words, symbols, pictures, and typeface that are used to build the signage. For example, whenever possible, line drawings and illustrations should be used on signage since they often have universal meaning. Moreover, the use of certain symbols, such as a person falling, can indicate that a condition exists that presents a slip-and-fall danger. Any typeface used on the signage should be bold and large enough so that the reader can easily read the message from a distance. The age and native language of facility users should also be considered. Young children, for instance, may not understand some words or symbols, and if a facility has a significant number of HispanicLatino users, then signage should be written in both Spanish and English.
- **Placement.** This feature refers to the location of signage. Signs should be placed in conspicuous locations that can be easily seen by the user. Signs should be placed at eye level and have sufficient white space or open space around them so that the reader's focus is clearly directed to the intended message of the signage. Signs should be placed in locations that are intuitive for members to locate their desired destinations. Movable signage may be required to accommodate proper placement during special events. At times, signage is best attached to the ceiling above and perpendicular to a doorway rather than adjacent to it, so that it can be seen from a long distance away. Signage should also be placed above items like fitness equipment that may otherwise block its view. Signage encouraging use of stairways, rather than elevators, is a good way to keep employees and patrons moving throughout their stays.

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APPENDIX A

Blueprint for Excellence

The primary purpose of this appendix is to provide a summary of the 35 standards and 38 guidelines detailed in chapters 1 through 8 of the book.

Collectively, these standards and guidelines are addressed in chapters 1 through 8, grouped and dealt with by topic (exercise preparticipation health screening; member orientation, education, and supervision; emergency planning and policies; professional staff and independent contractors; operating practices; facility design and construction; equipment; and signage). Each chapter includes both an overview of the standards and guidelines attendant to a particular topic and a discussion of the rationale underlying each standard and guideline.

Box A.1 provides a list of the 35 standards, and box A.2 provides a list of the 38 guidelines that appear in detail in chapters 1 through 8 and that have been identified as appropriate for health/fitness facilities.

BOX A.1 Standards for Health/Fitness Facilities

Exercise Preparticipation Health Screening (Chapter 1)

1. Facility operators shall offer a self-guided or professionally guided exercise preparticipation health screening tool (e.g., pre-activity screening questionnaire [PASQ], the Physical Activity Readiness Questionnaire for Everyone [PAR-Q+], and/or health history questionnaire [HHQ]) to all new members and prospective users.
2. Exercise preparticipation health screening tools shall provide an authenticated means for new members and/or users to identify whether a level of risk exists that indicates that they should seek consultation from a qualified health care professional prior to engaging in a program of physical activity.
3. Exercise preparticipation health screening tools shall be reviewed by qualified staff (e.g., a qualified health/fitness professional or health care professional), and the results of the review shall be retained on file by the facility for a period of at least one year from the time the tool was reviewed. All health data and related communications shall be kept in such a manner that it is private, confidential, and secure.
4. If a facility operator is told that a member, user, or prospective user has known cardiovascular, metabolic, or renal disease, or any other self-disclosed medical concern that may affect the individual's ability to exercise safely, medical clearance is recommended before beginning a physical activity program.

(continued)

5. Facilities shall provide a means for communicating to existing members the value of completing an exercise preparticipation health screening tool on a regular basis (e.g., preferably once annually) during the course of membership, or if they experience a significant change in health status. Such communication can be done through a variety of mechanisms, including, but not limited to, the facility membership agreement, online communications, personal correspondence, and/or signage.

Member Orientation, Education, and Supervision (Chapter 2)

1. Once a new member or prospective user has completed a preparticipation health screening process, facility operators shall then offer the new member or prospective user a general orientation to the facility.
2. Facilities shall provide a means by which members and users who are engaged in a physical activity program within the facility can obtain assistance and/or guidance with their efforts.

Emergency Planning and Policies (Chapter 3)

1. Facility operators must have written emergency response policies and procedures, which shall be reviewed regularly and physically rehearsed a minimum of twice annually. These policies shall enable staff to respond to basic first-aid situations and other emergency events in an appropriate and timely manner.
2. Facility operators shall ensure that a safety audit is conducted that routinely inspects all areas of the facility to reduce or eliminate unsafe hazards that may cause injury to employees and health/fitness facility members or users.
3. Facility operators shall have a written system for sharing information with members and users, employees, and independent contractors regarding the handling of potentially hazardous materials, including the handling of bodily fluids by the facility staff in accordance with the guidelines of the U.S. Occupational Safety and Health Administration (OSHA).
4. In addition to complying with all applicable federal, state, and local requirements relating to automated external defibrillators (AEDs), all facilities (staffed or unstaffed) shall have as part of their written emergency response policies and procedures a public access defibrillation (PAD) program in accordance with generally accepted practice.
5. AEDs in a facility shall be located to allow a time from collapse, caused by cardiac arrest, to defibrillation of three to five minutes or less. A three-minute response time can be used to help determine how many AEDs are needed and where to place them.
6. A skills review, practice sessions, and a practice drill with the AED shall be conducted a minimum of every six months, covering a variety of potential emergency situations (e.g., water, presence of a pacemaker, children).
7. A staffed facility shall assign at least one staff member to be on duty, during all facility operating hours, who is currently trained and certified in the delivery of cardiopulmonary resuscitation (CPR) and in the administration of an AED.
8. Unstaffed facilities must comply with all applicable federal, state, and local requirements relating to AEDs. Unstaffed facilities shall have as part of their written emergency response policies and procedures a PAD program as a means by which either members and users or an external emergency responder can respond from time of collapse to defibrillation in five minutes or less.

Health/Fitness Facility Professional Staff and Independent Contractors (Chapter 4)

1. Health/fitness professionals who have supervisory responsibility and oversight responsibility for the physical activity and exercise training programs, as well as the staff who administer them, shall have appropriate levels of professional education, work experience, and/or certification. Examples of health/fitness professionals who serve in a supervisory role include the fitness director, group exercise director, aquatics director, and program director.
2. Health/fitness professionals who serve in counseling, instruction, and physical activity supervision roles for the facility shall have appropriate levels of professional education, work experience, and/or certification. The primary professional staff and independent contractors who serve in these roles are fitness instructors, group exercise instructors, personal trainers, and health and wellness coaches.
3. Health/fitness professionals engaged in pre-activity screening or prescribing, instructing, monitoring, or supervising of physical activity programs for facility members and users shall have current automated external defibrillation and cardiopulmonary resuscitation (AED and CPR) certification from an organization qualified to provide such certification. A CPR or AED certification should include a hands-on practical skills assessment.

Health/Fitness Facility Operating Practices (Chapter 5)

1. Facilities shall have an operational system in place that monitors, either manually or technologically, the presence and identity of all individuals (e.g., members and guests) who enter into and participate in the activities, programs, and services of the facility.
2. Facilities that offer a sauna, steam room, or whirlpool shall ensure that the temperature settings are appropriate and the equipment is well maintained. There should also be appropriate warning signage in place to notify members and guests of the risks associated with these amenities, including unsafe changes in temperature and humidity.
3. Facilities that offer members and guests access to a pool or whirlpool shall provide evidence that they comply with all water-chemistry safety requirements mandated by state and local codes and regulations.
4. A facility that offers youth services or programs shall provide evidence that it complies with all applicable state and local laws and regulations pertaining to their supervision.
5. The registration policy of a facility that provides child care shall require that parents or guardians of all children left in the facility's care complete a waiver (when permitted by law), an authorization for emergency medical care, and a release for the children whom they leave under the temporary care of the facility.
6. The facility shall require that parents and guardians provide the facility with names of persons who are authorized by the parent or legal guardian to pick up each child. The facility shall not release children to any unauthorized person, and furthermore, the facility shall maintain records of the date and time each child checked out and was dropped off and the name of the person to whom the child was released. Facility personnel should verify the identity of the adult picking up the child (e.g., using a numbered ticket, photo identification, or a photo in the member management computer system).
7. Facilities shall have written policies regarding children's issues, such as requirements for staff providing supervision of children, age limits for children, restroom practices, food, and parental presence on site. Facilities shall inform parents and guardians of these policies and require that parents and guardians sign a form that acknowledges that they have received the policies, understand the policies, and will abide by the policies.

(continued)

8. Facilities shall properly secure physical and electronic data concerning its employees and potential, present, and future members so as to protect against a data breach and the release of their personal information.

Health/Fitness Facility Design and Construction (Chapter 6)

1. Facilities, to the extent required by law, must adhere to the standards of building design that relate to the designing, building, expanding, or renovating of space, as detailed in the Americans With Disabilities Act (ADA).
2. Facilities must be in compliance with all applicable federal, state, and local building codes.
3. Facilities must provide adequate clearance to the side and at the rear of all types of continuous-motion exercise equipment.

Health/Fitness Facility Equipment (Chapter 7)

1. The aquatic and pool facilities must provide the proper safety equipment according to state and local codes and regulations.

Signage in Health/Fitness Facilities (Chapter 8)

1. Facility operators shall post proper caution, danger, and warning signage in conspicuous locations where facility staff know, or should know, that existing conditions and situations warrant such signage.
2. Facility operators shall post the appropriate emergency and safety signage pertaining to fire and related emergency situations, as required by applicable federal, state, and local codes.
3. Facility operators shall post signage indicating the location of any AED and first-aid kits, including directions on how to access those locations.
4. Facilities shall post all ADA and OSHA signage that is required by applicable federal, state, and local laws and regulations.
5. All cautionary, danger, and warning signage shall have the required signal icon, signal word, signal color, and layout, as specified in ASTM F1749.

BOX A.2 GUIDELINES FOR HEALTH/FITNESS FACILITIES

Exercise Preparticipation Health Screening (Chapter 1)

1. Prospective members and/or users who fail to complete the preparticipation screening procedures on request should, if permitted by law, be asked to sign a waiver or release that allows them to participate in the program offerings of the facility. In those instances where such members and/or users refuse to sign a release or waiver, they should be excluded from participation to the extent permitted by law.
2. All members or users who have been identified (either through a preparticipation health screening or by self-disclosure to a qualified health care and/or health/fitness professional on staff) as having cardiovascular, metabolic, or renal disease or symptoms, or any other potentially serious medical concern, and who subsequently fail to get medical consultation should be permitted to sign a waiver or release (if permitted by law) that allows them to participate in the facility's program offerings. If a waiver or release is permitted by law, and such members or users refuse to sign, they should be excluded from participation to the extent permitted by law.

Member Orientation, Education, and Supervision (Chapter 2)

1. Facilities should provide new and existing members with the opportunity to receive personal instruction and guidance with regard to their physical activity programs.
2. Facilities should provide members with ongoing monitoring of their physical activity programs, including the opportunity to receive guidance on adjusting their physical activity programs.
3. Depending on their targeted audiences, facility operators should consider providing an array of physical activity options to accommodate the physical, emotional, and personal preferences of each user of the facility.
4. Staffed facilities should provide professional health/fitness staff to supervise the fitness floor, particularly during peak usage periods, or when there are a large number of older adults or members with special needs using the facility.

Emergency Planning and Policies (Chapter 3)

1. A facility should extend to each employee on staff the opportunity to receive training and certification in first aid, CPR, and the use of an AED.
2. Facilities should have an incident report system that provides written documentation of all incidents that occur within the facility or within the facility's scope of responsibility. Such reports should be completed in a timely fashion and maintained on file, according to the regulatory statute of limitations for the location in which the facility does business.

Health/Fitness Facility Professional Staff and Independent Contractors (Chapter 4)

1. Facility operators should consider having health/fitness professionals who have the appropriate level of professional education and/or certification conduct assessments with and prescribe physical activity for individuals with special needs.
2. Facility operators should consider having all staff members trained and certified in cardiopulmonary resuscitation and AED administration.
3. Facility operators should perform criminal background checks on all employees and independent contractors.
4. Facility operators should include clear policies on discrimination and on the prohibition of unlawful harassment in their employee handbooks.

(continued)

Health/Fitness Facility Operating Practices (Chapter 5)

1. Facilities that are staffed during all operating hours should have a manager on duty (MOD) or supervisor on duty (SOD) schedule that specifies which professional staff person has supervisory responsibility overseeing all operating activities during the hours that the facility is open.
2. Facility operators who operate under a staffed business model should conduct regular walk-throughs of the facility to assist members, inspect for hazards, and look out for anything that might compromise member safety.
3. Facilities that are unstaffed during some or all operating hours, and therefore have periods in which no supervision is offered, should provide the appropriate signage to communicate to members and guests that the facility is unsupervised, the inherent risks in using the facility, and what steps the members and guests should take in the event of a witnessed emergency situation. An AED and first-aid items (e.g., adhesive bandages, antibiotic ointment, ice bags) should be located in a highly visible area with instructions for appropriate use.
4. Facilities should have a written system for cleaning and disinfecting the various areas in the facility.

Health/Fitness Facility Design and Construction (Chapter 6)

1. Designers should size both physical activity spaces and nonactivity spaces to provide sufficient space to accommodate the expected user demand.
2. Designers should configure physical activity space plans so that defined circulation routes are adjacent to, rather than through, the various activity zones.
3. Facilities should provide open-access circulation, which avoids blind corners, unnecessary doors, partitions, and other hazards that would present a safety risk to members and users.
4. Designers should separate physical activity spaces from operational, storage, and maintenance spaces.
5. Facilities should provide changing, showering, and toilet facilities, allowing privacy for all users.
6. Facilities should provide lavatories (sinks) in locker rooms, outside of the toilet room area.
7. Natatoriums and other wet areas should be designed to prevent moisture and chlorine-laden air from damaging building materials and components.
8. Facilities should provide all physical activity spaces with sufficient air circulation and fresh makeup air (i.e., outside air) to maintain air quality, room temperatures, and humidity at safe and comfortable levels, in accordance with applicable national standards such as the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) Standards and Guidelines. Notable exceptions to this particular guideline include such spaces as saunas, steam rooms, and hot yoga studios. However, even in these particular areas, measures to ensure safe and healthy human occupancy should be understood and implemented.
9. Facilities should illuminate all facility spaces to allow members and users to safely engage in their physical activity regimens. Minimum safe illumination levels vary according to activity in a particular area and should be carefully researched. The emerging need for energy conservation requires lighting solutions that take advantage of the available daylighting sources, automatic control devices, and the latest technologies in lamp and fixture design.
10. Facilities should be designed with background noise levels of Noise Criteria (NC) curves 40 to 50 maximum due to the operation of the HVAC building equipment. If speech is involved with the activity in the room, the lower level of NC 40 is preferred for speech intelligibility. Sound systems, often used in fitness facilities by the instructors and for music playback, should not produce sound levels greater than 85 A-weighted decibels (dBA) average,

with 90 dBA maximum. Sound transmission through the perimeter partitions of a room with noise generating activities should be limited to a level that does not interfere with the functionality of the adjacent spaces.

11. Floor surfaces in physical activity areas should meet specifications regarding the proper level of absorption and slip resistance to minimize the risk of exercise- and fall-related injuries.
12. Facilities should have wall surfaces in activity spaces that are nonabrasive, flush, and free of protrusions that could cause impact injuries. Activity spaces that involve airborne projectiles, such as volleyballs or basketballs, should have a perimeter ball-containment barrier to protect users in adjacent areas and walkways.
13. When physical activity spaces have depth and distance parameters that can affect an individual's safety, then the facility should provide appropriate markings to ensure that users are aware of these depth and distance parameters.
14. Building owners should use "green" design and sustainable construction materials and techniques to enable the facilities to use energy and resources efficiently, as well as adopt practices to help their occupants be more comfortable and healthy. Regardless of whether official certification is a desired goal, the widely published principles of green design related to site development, stormwater management, energy conservation, renewable resources, water conservation, indoor air quality, carbon reduction, and pollution control should be honored whenever possible. Likewise, incorporation of building techniques as they relate to human occupancy of the facilities, such as temperature control, lighting and daylighting, access to healthy food and water, and a design that encourages physical exercise will help ensure a design that meets the needs of the members for years to come.
15. Building owners should consider the security of their patrons, members, and staff during the design of their facility.

Health/Fitness Facility Equipment (Chapter 7)

1. Facility operators should provide a sufficient quantity and quality of equipment so that the facility is able to fulfill its mission, purpose, and intended function for its targeted members and users.
2. Facility operators should have a preventive maintenance program for their fitness equipment, including showing when the scheduled work was performed. It is recommended that all preventive maintenance of fitness equipment be done in accordance with the manufacturer's recommendations.
3. Facility operators should have a system in place for removing broken or damaged equipment from member use until that equipment has been repaired or replaced.
4. All physical activity areas should have a clock, a chart of target heart rates, and a chart depicting ratings of perceived exertion to enable members and users to monitor their levels of physical exertion.
5. Facility operators should consider providing fitness equipment that can be accessed by individuals with physical limitations who require the use of a wheelchair, including at least one piece of cardiovascular equipment and one piece of selectorized or variable-resistance equipment.

Signage in Health/Fitness Facilities (Chapter 8)

1. Facilities should provide message boards, bulletin boards, digital signage, Web sites, or a similar type of communication venue for the communication and dissemination of relevant information concerning the facility or of particular interest to the facility's members and users.
2. Signage should have the proper appearance, readability, and placement in order to clearly display the desired message in a fashion that can easily be understood by the intended audience.

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APPENDIX B

Supplemental Materials

1. Safety Checklist for Pool Areas (chapters 3 and 6)
2. ACOEM Position Statement (chapter 3)
3. OSHA: Steps to an Effective Hazard Communication Program for Employers That Use Hazardous Chemicals (chapter 3)
4. Components of a First-Aid Kit Example (chapter 3)
5. Sample AED Prearrival Checklist: Preparing Your Team for AEDs (chapter 3)
6. Sample AED Postarrival Checklist: Creating a Safe Member Environment (chapter 3)
7. Sample Public Access Defibrillation Program: Ongoing Readiness Checklist (chapter 3)
8. AHA Implementing an AED Program (chapter 3)
9. Sample Active Wellness Safety Program Manual (chapter 3)
10. Effects of Various Temperatures on Human Performance (chapter 5)
11. General Illumination Guidelines (chapter 5)
12. Sports Flooring Standards (chapter 6)
13. Advantages and Disadvantages of Selected Types of Pool Overflow Systems (chapter 6)
14. Agencies That Offer Construction Standards for Aquatic Facilities and Associations That Serve the Field of Aquatics (chapter 6)
15. Samples of Signage Used in a Health/Fitness Facility (chapters 7 and 8)

Appendix B.1

Safety Checklist for Pool Areas

Inspection by_____ Date _____

Staff members are expected to report safety factors needing attention on a daily basis so that users are not exposed to unnecessary risks. Managers will make a complete written assessment of the condition of the facility on a regular basis.

Yes	No	Lifesaving equipment
____	____	Lifeguard stations are strategically located on decks near edge of pool.
____	____	Shepherd's crooks, spine boards, reaching poles, and ring buoys are consistently placed in a conspicuous and appropriate location.
		Pool and deck areas
____	____	All deck areas are in safe condition.
____	____	The decks are free of standing water.
____	____	The sunbathing area is free of any dangerous conditions.
____	____	The fence that encloses the pool area is in safe condition.
____	____	All rules and regulations are posted in high-traffic areas such as entrances to the locker rooms. Special rules and regulations such as those on using the diving boards are posted in appropriate locations.
____	____	All diving boards and stands are properly anchored and in good condition.
____	____	Water clarity is such that the main drain is clearly visible on the bottom of the pool from the pool deck.
____	____	All pool markings (depth and warning signs) are clearly visible.
____	____	All matting on guard platforms is fastened securely and is in safe condition.
____	____	Diving board steps and railings are fastened securely and are in safe condition.
____	____	All chairs, cots, and lounges are in safe condition.
		Guard room
____	____	A copy of the procedures for emergencies is posted next to the telephone.
____	____	Emergency phone numbers are also posted next to the telephone.
____	____	A first-aid kit with all the necessary emergency first-aid essentials is consistently stored in a conspicuous location.

Filter and chlorinator rooms

____ ____ All motor shafts and filter and soda ash pumps are covered with metal guards.

____ ____ Fire extinguishers (type B or C), filled and sealed and with current date tags, are kept in strategic locations.

____ ____ All chemicals are stored according to the manufacturer's storage instructions.

____ ____ An antichlorine gas mask is in operative condition. The mask is located immediately outside the entrance to the chlorine room. The canister element has a current, valid date.

____ ____ All gas chlorine tanks are fastened to the wall.

____ ____ Covers to powdered chemicals are fastened tightly, and containers are neatly stored.

Locker rooms

____ ____ All floors are kept as dry as possible and are inspected for possible slippery or unsafe conditions.

____ ____ Basket/locker racks are secured to the wall or floor base and are in safe condition.

____ ____ Baskets are in place in the racks.

____ ____ All benches are secured to the wall. Bench tops are finished and free of any rough, splintered edges.

____ ____ All bather signs for pool users are displayed on the walls at appropriate heights.

____ ____ All shower-room plumbing is securely fastened to the walls and is in safe and operable condition.

____ ____ All walls and ceilings are in safe condition.

____ ____ All lamps light when the switches are turned on.

Note: Completed checklists are valuable for several reasons. They are important tools for eliminating the avoidable injury. They also are tangible evidence that a pool manager has concern for the health and safety of pool patrons. In litigation alleging that an unsafe condition on the premises was the cause of the plaintiff's injuries, a completed checklist, signed and dated, could be invaluable. This checklist is incomplete. The items included are examples of safety checks that should be made. To be complete, the checklist should be tailored to a particular facility. Records of safety inspections should be kept indefinitely.

Appendix B.2

ACOEM POSITION STATEMENT Automated External Defibrillation in the Occupational Setting

Larry M. Starr, PhD

On November 13, 2000, President Clinton signed into law H.R. 2498, the Cardiac Arrest Survival Act, designed to expand the availability of automated external defibrillators (AEDs) in public settings and that required the Secretary of the Department of Health and Human Services to establish guidelines for the placement of AEDs in buildings owned or leased by the federal government. In May 2002, President Bush signed into law the Community Access to Emergency Devices Act within H.R. 3448 (sections 159, 312, and 313) of the Public Health Security and Bioterrorism Response Act, and on June 12, 2002, he finalized this as Public Law 107-188. The provisions authorized the availability of grants to states and localities for the purchase and placement of AEDs in public places where cardiac arrests are likely to occur and encouraged private companies to purchase AEDs and to train employees in cardiopulmonary resuscitation (CPR) and emergency defibrillation.

To support AED federal legislation, to increase awareness and value, and to offer recommendations about AEDs in the occupational setting, the American College of Occupational and Environmental Medicine (ACOEM) has included the *AEDs in the Workplace* Web site, containing survey data, case studies, reference database, and other academic and practice resources, in their Health and Productivity Management Center.[1] ACOEM also issued in 2001, and reaffirmed in 2006, a position statement on AEDs in the workplace.[2] This document updates that statement by addressing the following topics: (1) history and overview of AEDs; (2) epidemiology, morbidity, mortality, and incident locations; (3) sudden cardiac arrest (SCA) and the "chain of survival" paradigm; (4) AED technologies; (5) public-access defibrillation; and (6) guidance for the use of AEDs in occupational settings.

History and Overview of AEDs

Making its debut in 1979, the term "AED" commonly refers to any device that analyzes cardiac rhythm and enables the delivery of an electric shock when necessary.[3] Utilizing solid-state circuitry and microcomputer technologies, AEDs identify ventricular fibrillation (VF) and ventricular tachycardia (VT) then voice prompts a user to prepare for delivery of a shock. Two modes of AED are available. An "automated" AED analyzes then prompts a user to press a button to deliver a shock. Some AEDs are multifunctional and can be set to operate in "automatic" mode, which analyses and delivers a shock without a user prompt.

Annual sales and the total number of AEDs in the United States are difficult to confirm. One study published in 2006 estimated that more than 200,000 are sold annually for public use in

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the United States.[4] A 2011 industry report estimated that total US sales in 1996 were approximately 18,645 devices, and by 2006 total sales had reached more than 775,000, an increase of 30% per year over the decade.[5] Annual revenue forecasts for the defibrillator market by 2015 are estimated to be $1.7 billion in the United States,[4] and when implantable cardioverter defibrillators are included, in excess of $11 billion globally.[6]

Submitting key words, "automated external defibrillator," to the National Library of Medicine's pubmed.gov search site produces more than 11,000 scholarly papers written about AEDs including clinical and field reports. Although some devices have had safety alerts and recalls commonly attributed to manufacturer quality control,[4,7] most research has demonstrated that overall, devices are safe, effective, accurate, and increasingly cost-effective.[8–12] As AEDs are easy to transport due to reduced size and weight (less than 7 pounds),[13] and because federal and state legislation enables and provides liability protection to acquirers and users,[14] AEDs are a standard of care device for health and allied health providers and are commonly available within medical institutions and for emergency medical services and fire departments, and police officers.[15,16] More than 30 years of evidence has also shown that little or no training or education is required for proper use,[17–20] because devices have easy-to-follow audio and visual prompt instructions,[21–23] or operate automatically without user decision making after pads are placed on the chest of the patient. For these reasons, AEDs are commonly available for voluntary emergency first aid responders and untrained bystanders who may be present at the scene of a cardiac arrest. This open access is promoted in part because the *2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations* published by the International Liaison Committee on Resuscitation (ILCOR), which represents principal resuscitation organizations worldwide including the American Heart Association (AHA), European Resuscitation Council, and the Heart and Stroke Foundation of Canada has recommended that "AED use should not be restricted to trained personnel. Allowing the use of AEDs by persons without prior formal training can be beneficial and may be lifesaving. Because (however) even brief training improves performance (eg, speed of use, correct pad placement), it is recommended that training in the use of AEDs be provided." [24]

As rapid use saves lives, AEDs are available for lay citizens across a broad spectrum of private and public locations including airports, casinos, community centers, educational institutions, and sports and shopping centers, and in tens of thousands of occupational settings where they are provided for use by health care and nonmedical first aid responders. Indeed, data collected from May 1, 2006, to April 30, 2007, from the Resuscitation Outcomes Consortium, an observational study involving 13,769 out-of-hospital cardiac arrests from 10 North American sites (8 US and 2 Canadian), showed that overall survival to hospital discharge was 7%, survival with bystander CPR but no AED was 9%, and when an AED was used and shock delivered survival was 38%.[25]

Epidemiology, Morbidity, Mortality, and Incident Locations

Cardiovascular diseases (CVD), including coronary heart disease and SCA, remain significant concerns to general public health and the occupational setting in particular. According to the 2011 statistical update provided by the AHA an estimated 82,600,000 American adults have one or more types of CVD.[26] Of these, 40,400,000 are estimated to be younger than 60 years. Total CVD includes 76,400,000 people with high blood pressure, 16,300,000 with coronary heart disease, 7,900,000 who experienced myocardial infarction, 9,000,000 with angina pectoris, 5,700,000 with heart failure, and 7,000,000 who experienced a stroke.

The AHA noted that CVD accounted for 33.6% (813,804) of all 2,243,712 deaths in 2007 (the most recent data available), an average of one death every 39 seconds.[25] Data have also indicated that approximately one of every six or 406,351 deaths in the United States resulted from coronary heart disease. The AHA estimate for 2011 is that 785,000 Americans will have a new coronary attack, approximately 470,000 will have a recurrent attack, and an additional 195,000 silent first myocardial infarctions will be identified.

A significant number of cardiac arrests occur in out-of-hospital locations. Out-of-hospital cardiac arrests data collected by emergency medical service programs in Seattle and King County,

Washington, from January 1, 1990, through December 31, 1994,[27] revealed that public sites represented 16% of incidents. The Resuscitation Outcomes Consortium examined the period 2005–2007 for seven US sites (Alabama, Dallas, Iowa, Milwaukee, Pittsburgh, Portland [Oregon], and Seattle and King County) and three Canadian sites (Ottawa, Toronto, and Vancouver) and reported 12,930 out-of-hospital cardiac arrests, of which 15.8% occurred in public locations.[28] In a 2007 report of the Save Hearts in Arizona Registry and Education program, which reviewed emergency medical services (EMS) first-care reports submitted voluntarily by 30 municipal fire departments responsible for approximately 67% of Arizona's population, the total number of out-of-hospital adult arrests of presumed cardiac etiology reported statewide was 1097.[29] Of these, 15% occurred in public locations.

There are several electrical abnormalities that result in SCA, but the majority of deaths begin with an initial rhythm of VF.[30–32] If VF is not treated quickly, nearly all patients degenerate to asystole,[33] which is fatal.[34] In patients known to have ischemic heart disease, the out-of-hospital cardiac arrests incidence of VF and VT is 80% to 90%.[35]

Over the past three decades, the recorded incidence of VF or pulseless VT as the initial rhythm encountered by EMS in out-of-hospital cardiac arrests has decreased significantly,[36,37] from approximately 70% to 23%,[25,38] with an overall incidence of 26%.[27] Ventricular fibrillation or VT is higher for bystander-witnessed events in public and occupational settings, because bystanders arrive sooner than EMS; thus, survival to hospital discharge is nearly three times higher when an AED is applied by a lay responder after a cardiac arrest in a public location than in a private home where the initial assessment and responses are primarily made by EMS (34% vs 12% for arrests at home).[39] The consensus of science to correct VF and pulseless VT is immediate chest compression followed by a single electric shock with a controlled dose and duration of energy followed by resumption of chest compressions. If circulation does not return, this is followed by a sequence of compression and electric shock with the same or with increasing energy levels.[40]

Cardiopulmonary resuscitation without electric therapy may sustain a patient in VF for a short time but only rarely restores an organized rhythm. Indeed, performing CPR in the period of 1.5 to 3 minutes before defibrillation does not necessarily improve survival for patients with out-of-hospital VF or pulseless VT.[41,42] And delaying CPR even for AED rhythm assessment is associated with decreased probability of conversion of VF to another rhythm.[42,43] As return of an adequate perfusing rhythm requires immediate application of the combination of CPR, defibrillation, and pharmacotherapy as soon as possible after arrest, establishing controls to support these enhances the probability of survival.

Sudden Cardiac Arrest and the Chain-of-Survival Paradigm

Factors contributing to out-of-hospital survival following SCA have been described primarily in terms of a time-related, linear chain-of-survival paradigm.[44,45] The sequential interventions (links) leading to survival are (1) early recognition and call for EMS; (2) early initiation of basic life support CPR; (3) early defibrillation (AED); and (4) early advanced (cardiac) life support (ALS) primarily involving drug intervention protocols. Following the release of the *2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care*, a fifth link, integrated post–cardiac arrest care, was added.[46]

Sudden cardiac arrest survival has been described as dependent on the sequential availability of the links although more advanced applications may jump ahead of lesser ones. For example, if workplace allied health personnel or the arriving community EMS responders are not qualified or prepared to deliver ALS, this link may not be available until the patient arrives at a medical center. If CPR-trained first aid responders initiate chest compressions in conjunction with an AED, and this is quickly followed by intervention by ALS-level responses, then timing between these links will likely be shorter.

In a systematic review of literature through 2008, the factors most correlated with survival to hospital discharge following out-of-hospital cardiac arrest were witnessed by a bystander, witnessed by EMS, applying bystander CPR, being found in VF or VT, and achieving return of spontaneous circulation.[47] Without intervention, survival following SCA decreases rapidly to zero. Several studies have reported that for each minute of untreated cardiac arrest, the probability

of successful rhythm conversion decreases by up to 10%, producing an equivalent per-minute-death rate.[48,49] Conversely, survival rates as high as 90% have been reported when the collapse-to-defibrillation ("drop-to-shock") time is within 1 minute.[50–52]

To empirically define the contribution of each link in the chain of survival, data from the Seattle experience were examined between 1976 and 1991.[49] A best-fit model demonstrated the following equation:

Survival rate = 67% at collapse – 2.3% per minute to CPR – 1.1% per minute to defibrillation – 2.1% per minute to ACLS

As noted by the authors,

> The regression constant, 67%, represents the probability of survival in the hypothetical situation in which all treatments are delivered immediately after collapse to patients with prehospital cardiac arrest . . . . With delays in CPR, defibrillatory shock, and definitive care, the magnitude of the decline in survival rate per minute is the sum of the three coefficients (–2.2%, –1.1%, –2.1%), or –5.5%.[49]

Although the chain-of-survival paradigm is an established metaphor, some argue that it is too simple because the forces that affect survival are complex.[53] For example, when the four survival categories are examined in more detail, at least 50 "known or speculative" and additional "yet to be identified" factors not included in the chain can be acknowledged as influencing SCA survival.[54] In addition, only approximately 7.9% of victims survive out-of-hospital cardiac arrest in the United States (a number that has not changed significantly in almost 30 years[47]) and there is a fivefold difference in survival rate among US communities.[38] Thus, some commentators have called for a rethinking of the approach to cardiac arrest in terms of relevant links,[55] and the use of a chain metaphor.[56]

AED Technologies

AED Analysis of Rhythms, Waveforms, Energy Levels, and Application

Automated external defibrillators utilize microprocessors to analyze several characteristics of the surface electrocardiogram signal. Wave frequency, amplitude, and some integrated features such as slope or morphology are identified and compared with preset values. In an unresponsive, nonbreathing, pulseless patient, an AED will advise shocks for monomorphic and polymorphic VT, supraventricular tachycardia, or VF.

Early AED models offered monophasic or biphasic waveforms. Monophasic waveforms provide current flows in a single direction (polarity). When the rate at which the pulse falls to zero is gradual, they are referred to as monophasic damped sinusoidal. When the rate is instantaneous, they are called monophasic truncated exponential. Biphasic waveform defibrillators deliver a sequence of two pulses in which the second is of opposite polarity to the first. Although biphasic damped sinusoidal and biphasic truncated exponential are both technically possible, almost all AEDs currently provided are biphasic truncated exponential devices.

Reviewing all levels of evidence, ILCOR and AHA recommended that for a biphasic truncated exponential waveform for defibrillation of pulseless VT/VF cardiac arrest, it is reasonable to start with an energy level of 150 to 200 J.[40] Although they note that there is insufficient evidence to determine the initial energy level for any other biphasic waveform, initial and subsequent shocks using this waveform should be at 360 J. Although there is lower total shock success for monophasic defibrillation,[57] in the absence of a biphasic defibrillator, a monophasic defibrillator is acceptable and use of a high initial energy (360 J) seems preferable.[40]

Shock success is usually defined as termination of VF 5 seconds after the shock. When defibrillation is required, a single shock should be provided with resumption of chest compressions/CPR immediately after the shock. Chest compressions should not be delayed for rhythm reanalysis or a pulse check immediately after a shock. For second and subsequent biphasic shocks, the same initial energy level is acceptable.

Device "Errors"

With the increase in size and competition of the AED manufacturing and distribution market over the past decade, the defibrillator industry has recalled hundreds of thousands of devices and has notified the US Food and Drug Administration (FDA) about thousands of adverse incident reports including device failure during a rescue attempt that may have contributed to patient harm or death.[58] In response, the FDA's

Circulatory System Devices advisory committee has discussed whether additional regulatory controls may be needed to ensure safe and reliable performance and long-term monitoring of devices.[59,60] Despite these reviews, the remarkable lifesaving benefits continue to outweigh the number or nature of reports so federal agencies including FDA and the Occupational Safety and Health Administration continue to advocate use of these important lifesaving devices. Indeed, there is no recommendation from any federal, state, or medical agency to make any change to current AED clinical practice.

Public Access Defibrillation

The public access defibrillation (PAD) concept gained momentum in 1992 when the AHA Task Force on the Future of CPR challenged the medical device industry to create AEDs that would make early defibrillation accessible to the public.[61] Public access defibrillation applies to all US organizations including the federal government,[62] and is defined as out-of-hospital cardiac arrest treated with an AED by persons other than the community-designated personnel. For example, the state of Maryland PAD exempts from PAD policy "all healthcare facilities, physician's offices, dentist's offices, federal government agencies, jurisdictional EMS operational programs, and commercial ambulance services."[63]

The rationale for PAD was based on the concern that in many densely populated areas, traditional EMS responders cannot respond in sufficiently short time to perform resuscitation and maximize survival. It was determined that training and equipping lay responders to use AEDs and provide resuscitation until arrival of EMS was a practical and appropriate solution to that problem.

All US states have passed a version of PAD legislation describing the process of acquisition, control, and use of an AED by lay responders. Elements commonly addressed in state legislation include immunity for rescuers, acquirers, and enablers; training requirements for users; medical supervision or involvement; and EMS notification. A summary of the details of state PAD legislation is available in AED-information databases such as the National Conference of State Legislatures,[64] and the National Center for Early Defibrillation.[65]

Although survival from PAD has been shown to be increasing and effective,66 and although PAD legislation requires AED sales to be state-registered, registry compliance and governance continue to show challenges. For example, a 2004 review of PAD in North Carolina indicated that the state EMS database contained only 18% of PAD locations, suggesting that there are a large number of AEDs placed in communities that are not registered within the community PAD system.[67] Arlington, Texas, with a population of more than 365,000, provides a list and map of only 32 AEDs available for "all businesses."[68] In Philadelphia, researchers from the University of Pennsylvania have designed a contest to find AEDs in the city to "enable us to build a comprehensive map and registry of Philadelphia AEDs that can be used in emergency situations by the 911 center and the public."[69]

Guidance for the Use of AEDs in Occupational Settings

Federal and state government agencies and dozens of professional, safety, and medical societies have issued AED position statements over the past decade.[70] Occupational Safety and Health Administration has established partnerships with the American Association of Occupational Health Nurses[71] and ACOEM,[72] in which resources are offered to occupational sites including reference to the ACOEM AED guidance[73] and by citing that "volunteers trained in CPR and the use of AEDs had twice as many victims survive compared to . . . volunteers trained only in CPR."[74] The following are updated ACOEM guidance for the use of AEDs in the occupational setting.

Establishment of a Management System for the AED Program

A management system should be established within each organization to have clearly defined lines of responsibility for those who oversee and monitor the program.

Medical Direction and Administrative Control of the AED Program A qualified medical director should be assigned to manage all medical aspects of the AED program. Medical direction responsibilities include but are not limited to providing the required written authorization to acquire the AED and performing a case-by-case

review each time the AED is used in the occupational setting.

An administratively qualified person should be responsible for the program's overall administration and coordination activities. Responsibilities include but are not limited to establishing or integrating the AED program with an ongoing quality assurance system, ensuring compliance with industry-related and other regulatory requirements, ensuring proper interface with local EMS, and ensuring proper education, training, or support for AED users prior to and following use.

Awareness of and Compliance With Federal and State Regulations, and Policies An occupational AED program must comply with appropriate federal guidelines such as the Cardiac Arrest Survival Act and federal and state PAD legislation. As the details of state PAD legislation vary, a single corporate policy for a geographically separated organization may be insufficient unless it addresses all elements where the AEDs are placed. An occupational AED program should address and be in compliance with relevant medical practice insurance requirements and insurance programs for the organization, and for occupational physicians and nurses, and any programs affecting lay responders.

Development of a Written AED Program Description for Each Location

A written summary of the AED program should be prepared, distributed, and discussed with all relevant (eg, administrative, safety, security, health care) personnel at an occupational facility. As state PAD legislation requires registration of AEDs and EMS notification, and may require additional communication to ensure smooth application of medical protocols, all information associated with PAD state requirements and compliance should be included in the written program.

Integration With an Overall Occupational Emergency Response Plan and Coordination with Local Emergency Medical Services

The AED program should be a component of the more general plan describing emergency responses at the occupational setting. Topics addressed by the AED component should include but not be limited to the awareness and placement of AEDs to ensure easy and timely access; procedure for notification of suspected cardiac emergency to occupational medical, trained first aid responders, and bystanders; assessment of scene and patient; proper body substance isolation procedures; CPR and AED response protocols; clinically appropriate patient transport to a medical facility including how continuation of care will be ensured; occupational responder and bystander debriefing; equipment review, service, and replacement; and methods to review follow-up care.

Coordination with local EMS should be part of an integrated plan. This includes but is not limited to review and coordination between EMS protocols and occupational response protocols; communication and logistic support to ensure rapid EMS access to the occupational site and to patient location; collaboration between EMS and occupational responders about on-site patient treatment and supervision; transition from the occupational site to the local medical center; and integration of occupational follow-up protocols with those at the medical center.

Selection and Training of Responders Although an AED should be used by the first available bystander, trained or not, all designated occupational first aid responders and all occupational health care users should receive training that is recognized and standardized. Topics should include adult (and child, if appropriate) CPR and use of the specific AED expected to be available and used at the occupational site. Short video/computer self-instruction (with minimal or no instructor coaching) that includes synchronous hands-on practice ("practice-while-you-watch") in basic life support can be considered as an effective alternative or retention method to instructor-led courses. Occupational medical and administrative leaders are encouraged to identify individuals at the workplace who would be regularly trained in CPR/AED and first aid or ALS procedures, if appropriate to the work environment. Such people would be more likely to recognize, respond, and support the responses of bystanders when SCA or another medical emergency occurs.

Selection of AEDs All AEDs must meet federal FDA medical device and federal and state

PAD legislation criteria. Automated external defibrillator devices should also meet the most current recommendations of ILCOR and AHA. When an older, previously acquired device is available, training of responders should address any aspects of the device that vary from current recommendations.

Selection of and Placement of AED and Ancillary Supplies

Ancillary supplies should be available for use when managing an occupational SCA involving an AED. Examples include but are not limited to bloodborne pathogens responder and cleanup kits to ensure compliance with body substance isolation procedures,[75] CPR barrier masks with one-way valve, AED responder kits to support application of self-adhesive defibrillation pads (razor to shave chest hair and towel to dry the chest after removal of a transdermal patch),[76] and a CPR audio prompting device to guide action and timing sequences of CPR ventilations and compressions.[77,78]

As dyspnea, hypoxemia, or signs of heart failure or shock are indications for oxygen administration and as use of 100% oxygen during adult cardiac arrest continues to be part of the recommended treatment algorithm according to ILCOR and AHA,[24] a CPR resuscitation mask with an oxygen port to permit delivery of supplemental oxygen for the breathing or nonbreathing patient and a portable emergency oxygen device should be available. To support this, the 2011 training guidelines issued by the American Red Cross[79] and the National Safety Council[80] include administration of oxygen as part of AED and CPR responding. Also, FDA medical device and drug policies continue to recognize emergency oxygen as appropriate for use without prescription by properly trained personnel.[81] Precautions to minimize sparking from the paddles/pads and avoidance of use when high-flow oxygen is directed across the chest should be taken.[58]

When practical, AEDs and ancillary supplies should be placed to allow initiation of resuscitation and use of the AED ("drop-to-shock" interval) within as brief a period of time as possible following suspected cardiac arrest. As probability of survival reportedly can decrease by 7% to 10% per minute until defibrillation,[49] a 5-minute response time is a goal. Estimating the time needed for transport and set up of the AED in various work areas can help determine whether a proposed location is appropriate.

Schedules for Training/Retraining

As life support knowledge and skills, both basic and advanced, can deteriorate in as little as 3 to 6 months, frequent assessments and, when needed, refresher training are recommended to maintain knowledge and skills.[79]

Scheduled Equipment Maintenance and Replacement

A preventive and postresponse service procedure should be established. Records should be maintained for the AED and all ancillary supplies.

Establishment of an AED Quality Assurance Program

The AED program should be incorporated into or have its own quality assurance program. Elements should include but are not limited to medical review by a qualified physician after every AED use; record keeping of all AED-related training, locations, servicing; and records of all medical reviews following AED use. In addition, a method to evaluate the efficacy of the program against its objectives (educational and administrative), and a method to improve or sustain critical elements should be provided.

Cost of Start-up and Continued Management

Administrators and health care practitioners should be aware that *acquiring* an AED is one element of a comprehensive and ongoing program. Costs must be identified to initiate (eg, acquisition of the device, training, and materials; administration, coordination) and to sustain the continued operation of a program. These ongoing costs should be monitored.

Conclusion

Development of a program to acquire and utilize AEDs is a reasonable, appropriate, and increasingly common aspect of managing SCA in the occupational setting. However, acquiring the AED is but one of the elements necessary for such a program. To comprehensively address the prevention of SCA morbidity and mortality among working age adults, a complete AED program is recommended.

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Appendix B.3

Steps to an Effective Hazard Communication Program for Employers That Use Hazardous Chemicals

Employers that have hazardous chemicals in their workplaces are required by OSHA's Hazard Communication Standard (HCS), 29 CFR 1910.1200, to implement a hazard communication program. The program must include labels on containers of hazardous chemicals, safety data sheets (SDSs) for hazardous chemicals, and training for workers. Each employer must also describe in a written program how it will meet the requirements of the HCS in each of these areas.

Employers can implement an effective hazard communication program by following these six steps:

Step 1. Learn the Standard/Identify Responsible Staff

- Obtain a copy of OSHA's Hazard Communication Standard.
- Become familiar with its provisions.
- Make sure that someone has primary responsibility for coordinating implementation.
- Identify staff for particular activities (e.g., training).

You may obtain a copy of the Hazard Communication Standard on OSHA's hazard communication webpage at www.osha.gov/dsg/hazcom. The provisions of the standard that apply to employers using chemicals in their workplaces are found primarily in paragraphs (e) written hazard communication program; (f) labels and other forms of warning; (g) safety data sheets; and (h) employee information and training. It is important that you become familiar with these provisions to determine what is needed for compliance in your workplace.

In order to ensure that you have an effective hazard communication program, and address all of the necessary components, responsibility for implementation of hazard communication should be assigned to someone to coordinate. The person designated for overall program coordination should then identify staff to be responsible for particular activities, such as training.

Step 2. Prepare and Implement a Written Hazard Communication Program

- Prepare a written plan to indicate how hazard communication will be addressed in your facility.
- Prepare a list or inventory of all hazardous chemicals in the workplace.

Paragraph (e) of the standard requires employers to prepare and implement a written hazard communication program. This requirement is to help ensure that compliance with the standard is done in a systematic way, and that all elements are coordinated. The written program must indicate how you will address the requirements of paragraphs (f) labels and other forms of warning; (g) safety data sheets; and (h) employee information and training, in your workplace.

The written program also requires employers to maintain a list of the hazardous chemicals known to be present in the workplace. Using the product identifier (e.g., product name, common name, or chemical name) to prepare the list will make it easier for you to track the status of SDSs and labels of a particular hazardous chemical.

Remember, the product identifier must be the same name that appears on the label and SDS of the hazardous chemical.

Step 3. Ensure Containers Are Labeled

- Keep labels on shipped containers.
- Label workplace containers where required.

Chemical manufacturers and importers are required to provide labels on shipped containers with the following information: product identifier, signal word, pictograms, hazard state-

ments, precautionary statements, and the name, address and phone number of the responsible party. Therefore, when an employer receives a hazardous chemical from a supplier, all of this information will be located together on the label; however, additional information may also appear.

As the employer, you are required to ensure that containers in the workplace are labeled. You may use the same label from the supplier or you may label workplace containers with alternatives, such as third party systems (e.g., National Fire Protection Association [NFPA] or Hazardous Materials Identification System [HMIS]) in addition to the other required information. Any container of hazardous chemicals in the workplace must at a minimum include the product identifier and general information concerning the hazards of the chemical. Whatever method you choose, your workers need to have access to the complete hazard information.

Step 4. Maintain Safety Data Sheets (SDSs)

- Maintain safety data sheets for each hazardous chemical in the workplace.
- Ensure that safety data sheets are readily accessible to employees.

Safety data sheets are the source of detailed information on a particular hazardous chemical. Employers must maintain copies of SDSs for all hazardous chemicals present in their workplaces. If you do not receive an SDS from your supplier automatically, you must request one. You also must ensure that SDSs are readily accessible to workers when they are in their work areas during their work shifts.

This accessibility may be accomplished in many different ways. You must decide what is appropriate for your particular workplace. Some employers keep the SDSs in a binder in a central location (e.g., outside of the safety office, in the pick-up truck on a construction site). Others, particularly in workplaces with large numbers of chemicals, provide access electronically. However, if SDSs are supplied electronically, there must be an adequate back-up system in place in the event of a power outage, equipment failure, or other emergency involving the primary electronic system. In addition, the employer must ensure that workers are trained on how to use the system to access SDSs and are able to obtain hard copies of the SDSs. In the event of a medical emergency, hard copy SDSs must be immediately available to medical personnel.

Step 5. Inform and Train Employees

- Train employees on the hazardous chemicals in their work area before initial assignment, and when new hazards are introduced.
- Include the requirements of the standard, hazards of chemicals, appropriate protective measures, and where and how to obtain additional information.

Paragraph (h) of the HCS requires that employers train employees on the hazardous chemicals in their work area before their initial assignment and when new hazards are introduced into the work area, and this training must be conducted in a manner and language that employees can understand. Workers must understand they are exposed to hazardous chemicals. They must know that labels and safety data sheets can provide them with information on the hazards of a chemical, and these items should be consulted when needed. In addition, workers must have a general understanding of what information is provided on labels and SDSs, and how to access them. They must also be aware of the protective measures available in their workplace, how to use or implement these measures, and whom they should contact if an issue arises.

Step 6. Evaluate and Reassess Your Program

- Review your hazard communication program periodically to make sure that it is still working and meeting its objectives.
- Revise your program as appropriate to address changed conditions in the workplace (e.g., new chemicals, new hazards, etc.).

Although the HCS does not require you to evaluate and reassess your hazard communication program, it must remain current and relevant for you and your employees. The best way to achieve that is to review your hazard communication program periodically to make sure that it is still working and meeting its objectives and

to revise it as appropriate to address changed conditions in the workplace (e.g., new chemicals, new hazards, etc.).

Additional Information

See *Hazard Communication: Small Entity Compliance Guide for Employers That Use Hazardous Chemicals* for more detailed information on how to implement an effective hazard communication program. Additional information on the Hazard Communication Standard can be found on OSHA's Hazard Communication webpage at www.osha.gov/dsg/hazcom.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

Reprinted from OSHA, *Fact Sheet: Steps to an Effective Hazard Communication Program for Employers That Use Hazardous Chemicals.* www.osha.gov/Publications/OSHA3696.pdf

Appendix B.4

Components of a First-Aid Kit Example

At a minimum, a first-aid kit should contain the following:

- Assorted basic plastic adhesive bandages, various sizes
- 3" × 3" sterile gauze pads (wound dressing)
- 4" × 4" sterile gauze pads (wound dressing)
- 5" × 9" sterile dressing (major wound dressing)
- 3" cohesive bandage (dressing cover)
- Adhesive tape, 2" width (secure dressings, strapping)
- Paper tape, 1" width
- Medical-grade, nonlatex disposable gloves
- CPR breathing barrier, such as a pocket facemask
- Conforming roller gauze bandage
- Triangular bandages (slings, support, padding)
- Germicidal hand wipes or waterless alcohol-based hand sanitizer
- Antiseptic wipes
- If ice is not immediately available, instant cold packs
- Scissors (first-aid type)
- Tweezers
- Sterile eye pads (emergency eye cover)
- Sterile irrigation solution (wound cleaning, eye wash)
- Emergency blanket
- Current first-aid guide

Appendix B.5

Sample AED Prearrival Checklist: Preparing Your Team for AEDs

The following checklist is a quick reference that will help you prepare your employees and members for the arrival of your AED (automated external defibrillator).

___ Review this checklist and the accompanying materials in your AED binder.

___ Pay particular attention to the following sections of this binder, as they will help you the most in preparing for this important program:

- AED policy
- Emergency-procedure template
- AHA materials
- AED information
- Support services listing

___ Set up a meeting with your department heads to review the relevant information and discuss your club's strategy (provide handouts of the important information). **During this meeting, identify one department head or employee partner to become your AED program coordinator. In addition, discuss how you want to communicate to your members.**

___ Identify the employees who will be part of the initial CPR or AED training. We suggest that these be employees who serve as department heads or employees who cover all the club's operating hours.

___ Have your AED coordinator set up an AED binder that can be used to store all the important information, such as the physician's prescription, list of certified employees, weekly operating checklist, AED manual, and club's emergency plan.

___ Have your AED coordinator work with the AED trainer (see the list in your binder) and the AED provider to make sure dates are set up for the training and installation of the program (a calendar of the scheduled training and installation dates will be provided).

___ Establish your club's specific emergency policies so this can be shared with the entire team at a later date.

___ Please note that the AED provider will provide both your physician prescription (standing order) and registration of your AED with the state and local EMS authorities.

___ Arrange a meeting with your entire employee team and share with them the core information about the program and how the club will be implementing the program. Share with them the policies, club emergency plan, proposed member communications, and a list of those who will be receiving training.

___ Arrange to give a presentation to both your board and your committees. Share with them the key information about the program. Discuss with them how to communicate about the AED program to the entire membership.

___ Set up a timeline for ongoing training and rehearsal of your program and make it a part of your ongoing operations.

___ Have your AED coordinator make the final arrangements for the training and installation of the club's AED.

Appendix B.6

Sample AED Postarrival Checklist: Creating a Safe Member Environment

This checklist is intended to be a quick reference to help you ensure that your team is ready to operate a safe PAD in the club.

___ Make sure that each employee who participates in the AHA Heartsaver AED training receives the proper verification of certification from the AED manager (AHA trainer). Make sure a copy of the certification is placed in the employee's file. You might also consider having a place where you post the names of employees certified in the use and administration of an AED. **Note: You should also place the name of all certified staff in the Web-based AED manager program, which will allow you to monitor the club's staff readiness.**

____ Make sure that the AED provider provides your team and your AED coordinator with complete training in the AED functioning before the AED is actually placed in the club. In addition, make sure the AED coordinator has received complete training in the use of the AED manager program. The AED provider will also indicate the best location for your AED.

____ Have your AED coordinator use the AED manager program on a weekly basis. The following are the requirements for use of this program: enter on a weekly or monthly basis the state of readiness of the AED (you will be shown how to do this) and enter the names of all staff who are certified in CPR and AED use and related information that needs to be entered.

____ The AED manager program will email you when it is time for retraining and recertifying staff, when it is time to replace a battery or pad, and when they notice you are not monitoring the equipment as specified. They will also forward automatically at no cost any replacement battery or pads when the system indicates they need to be replaced.

____ Set up an ongoing rehearsal schedule for dealing with emergencies and in particular the administration of the AED. **It is recommended that you hold rehearsals at least once every six months. We are providing as part of this program an AED training regimen that allows you to simulate the actual application of the AED. Take advantage of it and rehearse often.**

____ The AED provider is scheduled to make an annual site inspection to test the AED. Make sure that this happens because it is a backup for your weekly and monthly checkups.

____ In the event you have to use the AED, make sure to follow the guidelines provided in both this binder and in your training as it applies to recording of the event and communicating said event to your designated medical director. You will also need to coordinate the downloading of all event information to the appropriate medical authority. **Please note that the records of any event can be shared only with the medical director overseeing the AED program unless the member or guest indicates in writing otherwise (HIPAA [the Health Insurance Portability and Accountability Act of 1996]).**

____ In the event you have to use the AED, make sure that you immediately complete an incident report and maintain it on file at the club. In addition, complete the event data sheet on the AED manager program because this will allow immediate communication with AED managers.

____ Always keep at least two sets of the following on site with your AED: pads, batteries, and rescue kits. When you use one, immediately replace it.

Appendix B.7

Sample Public Access Defibrillation Program: Ongoing Readiness Checklist

Monthly Activities the Club Must Perform

- Make sure your club has a designated AED coordinator who is responsible for the program at the club level and is a registered user of the AED manager system.
- The AED coordinator must check the AED readiness status at least once a month by going to the AED and checking the status indicator for a green check. A red *X* means it is not working.
- The AED coordinator must access the AED manager Web site for the club a minimum of once a month. Upon accessing the Web site, the AED coordinator must do the following:

  ____ Indicate that the AED unit was checked and indicate the status as either working or not (green check indicates it is working, red *X* means it is not working).

  ____ Update the section for certified AED employees if any certified employee has left the club or if a newly certified employee partner is added.

  ____ Update the AED location section if for some reason the AED has been moved or another AED has been added to the club.
- Review your email for any messages that might be forwarded by the AED manager. The AED manager will email notices when it is time to replace pads or batteries as well as when they notice your AED unit has not been checked.
- When a new employee is hired, make sure that person gets an AED certification within 90 days.
- Have an AED certified employee on duty at the club during all operating hours.

Ongoing Activities (As Needed, Semiannual, and Annual) the Club Must Perform

- Conduct practice AED and emergency drills at least twice a year with your staff.
- Provide refresher AED training at least once a quarter using the practice AED unit and dummy that was provided at the time of your AED installation.
- Maintain the number of AED certified employees on staff at a minimum of 10; when the opportunity arises, make every effort to increase that number.
- Have an annual certification class conducted exclusively by the AED manager. This will ensure that you always have enough certified employees in the club, that a third party has verified the clinical integrity and readiness of your AED program, and that all on-site information is updated in the AED manager system.
- In the event your club has an incident that requires the use of the AED, make sure that, after following the proper emergency procedures, you contact the AED manager and complete the incident follow-up procedures within 24 hours.
- Meet with your department heads and other key supervisors at least twice annually to review the various requirements of the program using the AED program information you received at the time of implementation.
- Replace batteries and pads as directed by the AED manager (every two years) or after an incident.
- Maintain an extra battery and set of pads at the club at all times.

Appendix B.8

Implementing an AED Program

Sudden cardiac arrest (SCA) is a leading cause of death in the United States. More than 350,000 cardiac arrests occur outside of the hospital each year. Twelve percent of those victims survive. SCA can happen to anyone at any time. It is important for companies and organizations to implement AED programs so employees are prepared to respond to an SCA emergency. Key steps to implementing an AED program are listed below.

1. **Get medical oversight.** The U.S. Food and Drug Administration (FDA) may require a physician's prescription to purchase an AED. The responsibilities of the physician may include signing off on or making recommendations on training plans and policies and procedures, evaluating data recorded on an AED during a medical emergency, and helping assess each use of an AED to recommend any improvements.

2. **Work with local EMS.** Working with your local EMS system is a key step to implementing an AED program. Most states require you to coordinate your AED program with local EMS and to provide follow-up data to EMS after any use of the AED. In states that require registration or application for AED programs, the physician or program coordinator completes this process.

3. **Choose an AED.** There are several AEDs on the market that are suitable for a company's or organization's AED program. The American Heart Association does not recommend one device over another. The AED you choose should be simple and easy to use.

4. **Contact technical support.** Make sure you have technical support when your AED device requires it. Call the manufacturer's technical support number and see what kind of response you get. Is a representative available to help you right away? Are you on hold for a long time? Does your call go to voice mail?

5. **Make sure program support is available.** Some AED manufacturers provide help with program implementation and ongoing support. They can assist with placement, medical authorization, registration, training, and supplies. Review your capabilities and determine if services like these would be helpful in deploying your AED program.

6. **Place your AEDs in visible and accessible locations.** Effective AED programs are designed to deliver a shock to a victim within three to five minutes after the person collapses. Use a three-minute response time as a guideline to help you determine how many AEDs you need and where to place them. AEDs can be placed near elevators, cafeterias, main reception areas, in secured or restricted access areas, and on walls in main corridors.

7. **Develop a training plan.** AED users should be trained in CPR and the use of an AED. Training in the use of an AED can help increase the comfort and confidence level of responders. Some companies and organizations recruit and train employees as responders. Responders are trained in CPR and the use of an AED so someone is always available to respond to an emergency. The American Heart Association offers CPR AED training in a classroom setting and an eLearning format.

8. **Raise awareness of the AED program.** After initial implementation, provide information to all employees at your company about the AED program. You can use internal newsletters, posters, magnets, signage, or other means to promote your AED program and identify where the devices are located. By continually raising awareness of the program, you reinforce to employees that your company or organization is committed to their safety.

9. **Implement an ongoing maintenance routine.** It is important to do a weekly or monthly visual inspection of the AEDs to ensure they are in working order. The program coordinator or another designated person can do the inspections. This person develops a written checklist to assess the readiness of the AEDs. Also, talk with your manufacturer regularly to get the latest information about software updates or upgrades.

FDA-Cleared AED Manufacturers

Cardiac Science, www.cardiacscience.com

Defibtech, www.defibtech.com

HeartSine Technologies, www.heartsine.com

Philips Healthcare, www.healthcare.philips.com/us

Physio-Control, www.physio-control.com

ZOLL Medical Corporation, www.zoll.com

Appendix B.9

Preamble to the *Active Wellness Safety Manual*

The following section includes an example of a safety program manual adapted for use in this text by Active Wellness, LLC. As part of an overall risk management program, all health/fitness facilities should consider developing and implementing a comprehensive safety program. This *Active Wellness Safety Program Manual* contains four chapters, which specifically address many of the topics and issues presented in chapter 3 of this text.

Chapter 1 introduces key elements of the Active Wellness Injury and Illness Prevention Program (IIPP). In an effort to provide safe and healthy working conditions, the primary objective of the IIPP is to prevent and reduce injuries and illnesses in all levels of the organization and its activities. **Chapter 2** addresses the Active Wellness Emergency Response Plan (ERP). The purpose of the ERP is to provide staff and clients with a clear action plan in the event of an emergency. Health/fitness facilities must not only attempt to prevent reasonably foreseeable emergencies (through risk management strategies), they must also plan and practice for them. **Chapter 3** addresses the Active Wellness Bloodborne Pathogens plan and education related to minimizing exposure to blood-borne pathogens. The OSHA Bloodborne Pathogen Standard applies to all employers whose employees could be "reasonably anticipated," as a result of performing their job duties, to come in contact with blood or other potentially infectious materials. Finally, **chapter 4** covers the Active Wellness Hazard Communication Program, which is designed to control, and communicate about, hazardous substances and chemicals in the workplace.

Safety plans, and particularly emergency plans, should not be copied or implemented directly from this manual, from those published in textbooks, or from plans developed by other health/fitness organizations or facilities. It is important that individual plans and policies be specifically developed and tailored for each individual organization and facility. Every organization/facility has unique factors that must be carefully considered when developing such plans. These factors include, but are not limited to, the type and nature of health/fitness program activities, number of clients or users and their demographics, staff size and training, facility size and layout, and local EMS response time. Finally, safety and emergency plans should be approved by a health/fitness organization's management, legal counsel, insurance provider, and appropriate experts (e.g., a medical director or liaison, local EMS personnel).

active wellness
A HEALTHY LIFE COMPANY

SAFETY PROGRAM MANUAL

Active Wellness LLC | P.O. Box 2358 | San Francisco, CA 94126

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CHAPTER 1 | Injury & Illness Prevention Program (IIPP)

Appendix information is company specific and therefore has been removed. For more information or for samples, visit www.activewellness.com/sales.

CHAPTER 2 | Emergency Response Plan (ERP)

Appendix information is company specific and therefore has been removed. For more information or for samples, visit www.activewellness.com/sales.

CHAPTER 3 | Bloodborne Pathogens

CHAPTER 4 | Hazard Communication Program

CHAPTER 1

INJURY & ILLNESS PREVENTION PROGRAM

HEALTH & SAFETY POLICY STATEMENT

It is the policy of Active Wellness that injury and illness prevention shall be considered of primary importance in all phases of operations and administration.

It is the intention of the Active Wellness's top management to provide safe and healthy working conditions and to establish and insist upon safe practices at all times by all employees.

The prevention of injury and illness is an objective affecting all levels of the organization and its activities. It is therefore, a basic requirement that each supervisor make the safety of employees an integral part of their regular management function. It is equally the duty of each employee to accept and follow established safety regulations and procedures.

Every effort will be made to provide adequate training to employees. However, if an employee is ever in doubt how to do a job safely, it is their duty to ask a qualified person for assistance. Employees are expected to assist management in injury and illness prevention activities. Unsafe conditions must be reported. Fellow employees that need help should be assisted. Everyone is responsible for the housekeeping duties that pertain to their jobs.

Any injury that occurs on the job, even a slight cut or strain, must be reported to management as soon as possible. In no circumstance, except an emergency, should an employee leave a shift without reporting an injury that occurred.

When you have an injury and illness, everyone loses; you, your family, your fellow employees and Active Wellness. Please work safely. It's good for everyone.

AUTHORITY & RESPONSIBILITY FOR IIPP

VP OF HUMAN RESOURCES

The VP of Human Resources (VP of HR) is the individual identified as having primary authority and responsibility for the IIPP at Active Wellness.

The **VP of HR** has responsibility to:

- Establish Active Wellness policy on safety matters
- Communicate Active Wellness' emphasis on health and safety
- Encourage prompt employee reporting of health and safety concerns without fear of reprisal
- Maintain contents of the safety programs, including reviewing and revising the IIPP as necessary
- Keep current on local, state and federal safety requirements
- Ensure the delivery of the following:
    - Incident Investigations
    - Workplace Inspections / Hazard Corrections
    - Safety Communications
    - Safety Training
    - Employee Suggestions / Reports of Unsafe Conditions
- Incident reporting
    - Ensure submission of state required worker's compensation reports, including California DWC-1 and 5020 reports, to the insurance carrier
    - Ensure employee receipt of worker's compensation reports per state requirements
- Remain aware of the overall safety program status
- Coordinate with Directors of Operations on a quarterly basis to:
    - Review incidents, investigations and any allegations of a hazardous condition brought to Active Wellness' attention by any employee
    - Recommend priorities for correction of the hazard, including responsibility and target completion dates
    - Review the results of periodic, scheduled workplace self-inspections to identify any needed safety procedures or programs, and to determine and implement specific corrective actions
    - Develop and implement solutions related to employee suggestions
- Ensure the proper and current postings as required by this program, Cal-OSHA and Human Resource related regulations
- Collect annual OSHA 300 Log and distribute OSHA 300A Form to each site for the previous year
- Ensure timely reporting of serious incidents per OSHA requirements

DIRECTOR OF OPERATIONS, REGIONAL MANAGERS, SITE MANAGERS, DEPARTMENT HEADS AND SUPERVISORS

Director of Operations, Regional Managers, Site Managers, Department Heads and Supervisors have a major responsibility in ensuring their employees are provided a safe and healthy workplace by complying with the provisions of the IIPP.

Directors of Operations and Regional Managers have primary authority and responsibility to ensure implementation of the IIPP within the regions they oversee. This is accomplished by:

- Ensuring the Active Wellness safety program is implemented at the site level
- Communicating the Active Wellness' emphasis on health and safety
- Contributing to the development of training course requirements and conducting required training
- Ensuring completeness of incident investigations, including documentation and corrective actions
- Administering periodic, scheduled workplace inspections
- Ensuring GMs provide safety-related records to the VP of HR for recordkeeping
- Reviewing accident investigation reports to ensure root causes have been identified and corrected
- Analyze work procedures for hazard identification and correction
- Ensuring proper documentation of safety-related records including:
    - Incident Investigations
    - Workplace Inspections / Hazard Corrections
    - Safety Communications
    - Safety Training
    - Employee Suggestion Form / Report of Unsafe Conditions
- Ensuring health and safety training is being delivered to new employees as well as quarterly by each site
- Ensuring accurate record keeping of training attendance through site supervisor use of the training roster, recording training completion in Ascentis MSS for each employee and uploading any applicable checklists to Ascentis
- Encouraging prompt employee reporting of health and safety concerns without fear of reprisal
- Ensuring Employee Injury and Illness Incident Investigation Report is completed and provided to the VP of Human Resources in a timely manner (same day of incident)
- Ensuring completed safety-related records are sent to Human Resources for recordkeeping in a timely manner (e.g. Attendance Rosters, Employee Suggestion Forms, Inspection Forms, etc.)
- Communicating with the VP of HR on a quarterly basis to:
    - Review Active Wellness’ overall safety status
    - Review incidents, investigations and any allegations of a hazardous condition brought to the Active Wellness’ attention by any employee
    - Recommend priorities for correction of the hazard, including responsibility and target completion dates
    - Review the results of periodic, scheduled workplace self-inspections to identify any needed safety procedures or programs, and to determine and implement specific corrective actions
    - Develop and implement solutions related to employee suggestions
- Ensure the proper and current postings as required by this program, Cal-OSHA and Human Resource related regulations
- Ensure the proper completion and submission of the annual OSHA 300 Log for each site for the previous year
- Ensure timely reporting of serious incidents per OSHA requirements

Site Managers have primary authority and responsibility to ensure implementation of the IIPP within the sites they oversee. This is accomplished by:

- Ensuring the Active Wellness’ safety program is implemented at the site level
- Communicating Active Wellness' emphasis on health and safety
- Analyzing work procedures for hazard identification and correction
- Providing health and safety training to new employees and quarterly to all employees

- Ensuring accurate record keeping of training attendance through use of the training roster, recording training completion in Ascentis for each employee and uploading any applicable checklists to Ascentis
- Coordinating with the Director of Operations and/or Regional Manager to complete and document periodic, scheduled workplace inspections
- Conducting prompt incident investigations
- Stopping any work process or procedure which poses an imminent hazard to any employee, or when identified hazards cannot be immediately corrected, removing affected employees from area
- Encouraging prompt employee reporting of health and safety concerns without fear of reprisal
- Immediately reporting all workplace injuries or illness to the VP of HR, Director of Operations and Regional Manager
- Ensuring the Employee Injury and Illness Incident Investigation Report is completed and provided to the VP of HR, Director of Operations, and Regional Manager in a timely manner (same day of incident)
- Ensuring completed safety-related records are sent to Human Resources for recordkeeping in a timely manner (e.g. Attendance Rosters, Employee Suggestion Forms, Inspection Forms, etc.)
- Ensuring each employee has received general safety training and the safety training appropriate to performing required work tasks
    - Job specific training for all employees in their department
        - Communicating identified hazards and hazard controls
        - Ensuring necessary employee personal protective equipment is properly worn and maintained
    - Retraining employees as directed by the VP of HR, Director or Operations, and/or Regional Manager
- All training documentation to be forwarded to Human Resources
- Communicate with the Director of Operations and Regional Manager on a quarterly basis to:
    - Review incidents, investigations and any allegations of a hazardous condition brought to Active Wellness' attention by any employee
    - Recommend priorities for correction of the hazard, including responsibility and target completion dates
    - Review the results of periodic, scheduled workplace self-inspections to identify any needed safety procedures or programs, and to determine and implement specific corrective actions
    - Develop and implement solutions related to employee suggestions
- Ensure the proper and current postings as required by this program, Cal-OSHA and Human Resource related regulations
- Ensure the proper completion and submission of the annual OSHA 300 Log for the site for the previous year
- Ensure timely reporting of serious incidents to VP of HR, Director of Operations and Regional Manager (same day of incident)

Department Heads and Supervisors have the responsibility to work in coordination with Site Manager to:

- Ensure Active Wellness' safety program is implemented at the site level
- Communicate Active Wellness' emphasis on health and safety
- Analyze work procedures for hazard identification and correction
- Provide health and safety training to new employees and quarterly to all employees

- Ensure accurate record keeping of training attendance through use of the training roster, recording training completion in Ascentis MSS for each employee and uploading any applicable checklists to Ascentis
- Encourage employees to report health and safety issues
- Visually inspect designated work area(s) daily to identify hazards and evaluate safe work practices
- Coordinate with the Site Manager to complete and document periodic, scheduled workplace inspections
- Correct identified hazards and unsafe work practices
- Immediately report all workplace injuries or illness to the Site Manager
- Ensure injured employees follow injury and illness reporting processes and are provided prompt medical care
- Conduct prompt incident investigations
- Ensuring the Employee Injury and Illness Incident Investigation Report is completed and provided to the Site Manager in a timely manner (same day of incident)
- Provide completed safety-related records to Site Manager for recordkeeping (e.g. Attendance Rosters, Employee Suggestion Forms, Inspection Forms, etc.)
- Ensure each employee has received general safety training and the safety training appropriate to performing required work tasks
    - Job specific training for all employees in their department
        - Communicating identified hazards and hazard controls
        - Ensure necessary employee personal protective equipment is properly worn and maintained
        - Retrain employees as directed by the VP of HR, Director or Operations, Regional Manager and/or Site Manager
    - All training documentation to be forwarded to the Site Manager
- Ensure timely reporting of serious incidents to VP of HR, Director of Operations, Regional Manager and Site Manager (same day of incident)

EMPLOYEES

The success of Active Wellness' Safety Program depends on employees as well as management.

Employees are responsible to:

- Not undertake a job until you have received instructions on how to do it properly and safely, and are authorized to perform the job
- Not undertake a job that appears to be unsafe
- Report unsafe conditions or unsafe behaviors immediately to a Site Manager, Department Head or Supervisor
- Warn coworkers about defective equipment and other hazards
- Stop work if an imminent hazard is present
- Understand all employees have the right to report any health and safety hazard/concern without fear of reprisal
- Report any work-related injury or illness, however slight, to your Site Manager, Department Head, Supervisor, or Regional Manager and seek treatment promptly
- Participate in workplace safety inspections as requested
- Participate in safety training programs as required by Active Wellness
- Understand the potential hazards associated with your job description and at all work areas

- Understand safe work practices, how these practices protect against hazards and wear or use prescribed protective equipment when required
- Follow all safe work practices and precautions to include:
  - Basic Safety Rules
  - Safe Work Practices
  - Workplace Ergonomics
  - Job Hazard Analysis
  - Manufacturers Equipment Safety Rules (as trained)
  - Proper use and maintenance of Personal Protective Equipment
- Read and follow the OSHA poster, health and safety-related signs, warning signals and directions
- Never remove or alter mechanical safeguards (guarding)
- Never use chemicals without fully understanding their toxic properties and without the knowledge required to work with them safely
- Review the emergency action plan, evacuation routes and Safe Zone area(s)
- Comply with applicable OSHA standards
- Cooperate with the OSHA compliance officer conducting an inspection if he or she inquires about safety and health conditions in the workplace

COMPLIANCE WITH SAFE WORK PRACTICES

All employees need to be knowledgeable of and responsible for complying with safe and healthful work practices, including applicable regulations, Active Wellness policy, site and departmental safety practices (Appendix A). Employees have an obligation to Active Wellness to ensure a safe working environment for themselves and others by:

- Being familiar with the safe work practices particular to their job
- Complying with all safe work practices, conditions and personal protection equipment requirements of their job functions
- Reporting all unsafe conditions, injuries or illnesses to their supervisor
- Attending meetings, trainings and reviewing safety related communications

Site Managers, Department Heads and Supervisors must ensure their employees comply with these practices by:

- Enforcing the safe work practices for all employees
- Retraining employees who demonstrate unsafe practices or behaviors
- Disciplining employees who repeatedly fail to comply with established policies and procedures
- Recognizing employees who actively participate and take actions to work safely and promote safety at Active Wellness

Overall performance in maintenance of a safe and healthful work environment may be recognized and discussed during performance evaluations. Employees will not be discriminated against for work-related injuries, and injuries will not be included in performance evaluations, unless the injuries were a result of an unsafe act on the part of the employee.

DISCIPLINE

Employees are expected to use good judgment when doing their work and to follow established safety rules.

Disciplinary measures will result when employees fail to comply with applicable regulations, Active Wellness policy, site policy, departmental safety procedures and/or partner polices (where applicable). Employees will be given remedial instruction and an opportunity to correct unsafe behaviors.

Repeated failure to comply or willful and intentional noncompliance may result in disciplinary measures up to and including termination.

An employee may be subject to immediate termination when a safety violation places the employee or coworkers at risk of permanent disability or death.

Disciplinary actions and remedial instruction sessions are to be documented. Records are to be provided to the VP of HR.

COMMUNICATION

It is Active Wellness' policy to maintain open communications between management and staff on matters pertaining to safety. Your thoughts regarding safety are considered important, and we encourage your active participation in our Active Wellness safety program.

Employees will be informed about safety matters through one of the following communication methods:

- Headquarters communications
- Site meetings
- Department meetings
- Training
- E-mail
- Seminars or speakers
- OSHA poster(s), signage and warning signals
- Safety Data Sheets

All employees are encouraged to communicate safety concerns to their supervisor without fear of reprisal.

All employees are free to express any safety concerns or suggestions during safety meetings, training programs, to your Site Manager, Department Head or Supervisor, or by completing the online Employee Suggestion Form/Report of Unsafe Work Conditions located on the Active Wellness Intranet.

Directors of Operations, Regional Managers, Site Managers, Department Heads and Supervisors are responsible for communicating with employees regarding safety and health issues. Communication with employees on safety and health issues must be in a form readily understandable by all employees.

Directors of Operations, Regional Managers, Site Managers, Department Heads and Supervisors are responsible for ensuring employees are supplied access to hazard information pertinent to their work assignments. Information concerning the health and safety hazards of tasks performed by department staff is available from a number of sources. These sources include, but are not limited to, safety related Active Wellness communication, equipment operating manuals, container labels, Safety Data Sheets (SDSs), and work area postings.

EQUIPMENT OPERATING MANUALS

Equipment (e.g. pool, fitness, café tools, etc.) must be operated in accordance with the manufacturer's instructions, as specified in the equipment's operating manual. Copies of operating manuals or specific safety rules are available upon request to the Site Manager. Employees who are unfamiliar with the operation of a piece of equipment and its potential hazards cannot use the equipment.

Training on how to properly and safely operate equipment is provided as part of job-specific training to employees authorized to operate the equipment.

IDENTIFYING WORKPLACE HAZARDS

Identifying and controlling hazards is one of the most important elements of a successful Injury and Illness Prevention Program.

- Employees share responsibility for identifying hazards and are to report unsafe conditions or unsafe behaviors immediately to a Site Manager, Department Head or Supervisor
- Director of Operations, Regional Managers, Site Managers, Department Heads and Supervisors are responsible for identification and correction of hazards their employees face and should ensure work areas they control are inspected
- If the hazard is not fully understood or cannot be corrected by the Department Head or Supervisor, it is to be elevated promptly to the VP of HR, Director of Operations and/or Regional Manager

Periodic inspections will be conducted to identify and evaluate hazards according to the following schedule:

Type of Inspection	Frequency	Responsible Person
Visual inspections of designated work area(s)	Daily	Site Managers, Department Heads and Supervisors
Documented inspections of designated work area(s)	Quarterly	Director of Operations, Regional Managers and/or Site managers

Periodic inspections may be supplemented with additional inspections whenever new substances, processes, procedures, or equipment introduced into the workplace represent a new occupational safety and health hazard or whenever supervisors are made aware of a new or previously unrecognized hazard.

METHODS FOR IDENTIFYING WORKPLACE HAZARDS INCLUDE:

- Self Inspections
  - Employees should ensure their workspace is free from recognized hazards
  - Site Managers, Department Heads and/or Supervisors visually access their employee's activities on a daily basis to ensure safe work practices are being followed
  - Director of Operations, Regional Managers and Site Managers will conduct quarterly Self Inspections using the Operational Standards of Evaluation (OSE) form
- Review Incident & Investigation Reports
  - VP of HR, Director of Operations, Regional Managers and Site Managers will review incident reports and investigations to determine hazards and administer solutions
  - Employee Suggestions / Report of Unsafe Conditions
  - Employees communicate suggestions/safety concerns by:
    - Contacting their Director of Operations, Regional Manager, Site Manager, Department Head or Supervisor in person or via email/phone
    - Emailing the VP of HR
    - Completing the online Employee Suggestion Form/Report of Unsafe Work Conditions located on the Active Wellness Intranet

CORRECTING WORKPLACE HAZARDS

Hazards discovered as a result of a periodic inspection or during normal operations must be corrected by the Site Manager, Department Head or Supervisor in control of the work area. These hazards must be corrected as quickly as possible after discovery of a hazard, with respect to the severity of the hazard. If the hazards cannot be corrected by the Site Manager, Department Head or Supervisor, it is to be elevated promptly to the Director of Operations and/or Regional Manager.

Hazard corrections resulting from periodic Self Inspections are to be documented using the Hazard Inspection and Correction Record.

Hazard corrections resulting from visual inspections OR employee reports of Unsafe Conditions are to be corrected immediately with an email sent to the Director of Operations, Regional Manager and Site Manager immediately upon correction and documented on the quarterly Hazard Inspection and Correction Record.

The Site Manager, Department Head and/or Supervisor in control of the work area is to correct, or coordinate the correction of, unsafe condition(s) as quickly as possible. The Site Manager, Department Head and/or Supervisor is to notify the Regional Manager and/or Director of Operations of a hazard which they lack the knowledge or authority to correct.

If an imminent hazard exists, work in the area should cease, and the appropriate supervisor must be contacted immediately. If the hazard cannot be immediately corrected without endangering employees or property, all affected employees will be removed from the area except those qualified and necessary to correct the condition.

REPORTING EMPLOYEE WORKPLACE INJURIES & ILLNESSES

Employees who are injured or become ill at work must report the injury/illness immediately to their Site Manager, Department Head or Supervisor.

Site Manager, Department Heads or Supervisors will ensure the employee receives the necessary and appropriate care. If immediate medical treatment beyond first aid is needed, call 911 so the employee can be treated appropriately.

The following resources (Appendix B) are to be utilized by employees who experience a workplace injury or illness:

- Employee Injury and Illness Reporting
- Medical Provider Network (MPN)
- State Required Worker's Compensation Forms

The following resources (Appendix C) are to be utilized by the VP of HR, Directors of Operations, Regional Managers, Site Managers, Department Heads and Supervisors:

- Employee Injury and Illness Reporting Process for Supervisors
- Employee Injury and Illness Investigation Report
- OSHA Logs and Serious Injury Reporting

INVESTIGATING WORKPLACE INJURIES & ILLNESS

Site Managers, Department Heads or Supervisors are to notify the Director of Operations, Regional Manager and VP of HR of any accident or injury as soon as possible.

Employee Injury & Illness Incident Investigation Report form is located on the Active Wellness Intranet > Worker's Comp Info. It is to be completed and sent via email to the VP of HR, Director of Operations, and Regional Manager after every employee injury or illness incident.

The report must include the following:

- The events that led up to the injury or illness
- Examination of the accident scene to determine potential cause of the incident
- The specific employee illness or injury that occurred
- The emergency response and after care that was received by the affected employee
- Witness information

The email must include the following:

- Confirmation of review of safety communications and training records of affected employees
- Confirmation of review of safe work practices to ensure they were followed
- Determine corrective action to prevent this type of accident from occurring again
- Interviews with the injured employee and any witnesses, as applicable (attach supplemental documents to the report)

The Director of Operations, Regional Manager and VP of HR will review each incident report to confirm the investigation was thorough and corrective actions have been implemented. Investigations and/or corrective actions found to be incomplete will be returned to the Site Manager for further follow-up.

The Regional Manager will bring corrective actions that are not implemented in a reasonable period of time to the attention of the Director of Operations of the applicable site or VP of HR as needed.

IN THE EVENT OF SERIOUS INJURY

Any serious injury or illness, or death, of an employee occurring in a place of employment or in connection with any employment, must be reported to the nearest OSHA enforcement unit within eight (8) hours of their occurrence.

Serious injuries include, fatalities, any loss of a body part, permanent disfigurement or any hospitalization of a period exceeding 24 hours (other than for observation).

The VP of HR must be notified on the same day that an incident occurs by the Director of Operations, Regional Manager and/or Site Manager. The VP of HR will contact OSHA to report the serious injury.

SAFETY & HEALTH TRAINING

The VP of HR will ensure appropriate training programs are developed and implemented.

Employee safety training (Appendix D) is provided at no cost to the employee and is conducted during the employee's normal working hours on Active Wellness time. Safety training may be presented by a person knowledgeable on the topic being presented (e.g. supervisor, other employees, and representatives from other relevant Active Wellness departments, or from outside sources).

All employees, including management, supervisors, and lead personnel shall have training and instruction on general and job-specific safety and health practices. Training and instruction shall be provided as follows:

- When the IIPP is first established
- To all new employees
- To all employees given new job assignments for which training has not previously provided
- Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard
- Whenever we become aware of a new or previously unrecognized hazard
- To supervisors to familiarize them with the safety and health hazards to which employees under their immediate direction and control may be exposed
- To all employees with respect to hazards specific to each employee's job assignment

This training will include (but is not limited to):

- IIPP Orientation
  - Basic Safety Rules
  - Safe Work Practices
  - Job Hazard Analysis
  - Reporting Processes
    - Injuries and Illnesses
    - Security Incidents
    - Unsafe Work Conditions
- Emergency Response Plan (ERP), including evacuation routes and Safe Zones
- Safe housekeeping guidelines, tips for preventing slips, trips and falls, and back injury prevention
- Site specific safety and security protocol, including locations of First Aid Kits, AED(s) and fire extinguishers
- Supervisor training such as managing the AED maintenance, OSHA Log reporting and worker's compensation program management

Where applicable, training may also include:

- Ergonomics
  - Prevention of musculoskeletal disorders, including proper lifting techniques
- Use of appropriate clothing, including gloves, footwear, and personal protective equipment
- Information about chemical hazards to which employees could be exposed and other hazard communication program information
- Proper food and beverage storage to prevent them from becoming contaminated
- Specific instructions regarding hazards unique to a job assignment, to the extent that such information was not already covered in other training

JOB SPECIFIC TRAINING

Site Managers, Department Heads and Supervisors are required to be trained on the hazards to which the

employees under their immediate control may be exposed so they understand and can enforce proper protective measures.

Site Managers, Department Heads and Supervisors are to ensure their new hires and existing employees receive appropriate job specific training (Appendix A) on:

- Specific hazards of work to be performed
- Proper precautions for protection against identified hazards
- Equipment-specific safety
- Site, Department and/or Partner specific policies and procedures

Available training resources include:

- Basic Safety Rules
- Safe Work Practices

In addition, there may be Site, Department and/or Partner specific training documents that must be implemented.

TRAINING DOCUMENTATION

Safety training (Appendix D) is to be documented and include the following information:

- Training Topic
- Date of Training
- Name/Signature of Trainer/Presenter Name/Signature of Attendees
- Site Inspection and Hazard Correction checklists
- Copy (or electronic reference) of instructional materials
- New Employee Safety Training Checklist (if applicable)

The “Attendance Roster” form, or similar, must be used to ensure proper documentation of training/communications.

RECORDKEEPING & DOCUMENTATION

Many standards and regulations of Cal/OSHA contain requirements for the maintenance and retention of records for occupational injuries and illnesses, medical surveillance, exposure monitoring, inspections, and other activities relevant to occupational health and safety.

OSHA 300 LOG OF OCCUPATIONAL INJURIES AND ILLNESSES

The Site Manager must maintain an OSHA 300 Log of Occupational Injuries and illnesses (Appendix C). This log is to be updated each quarter and a copy of the log is to be kept on site. After the end of each calendar year the log is to be complete, signed by the Site Manager and sent to Human Resources will complete the OSHA 300A form and send back to the Site Manager to be posted in the employee break area from February 1st through April 30th of each calendar year.

To comply with these regulations, and to demonstrate the critical elements of this IIPP are being implemented, the following records will be kept on file for at least the length of time indicated below:

RETAIN FOR 3 YEARS:

- Copies of Quarterly Self Inspection Checklists
- Copies of Incident Investigation Reports
- Copies of Safety Communication
- Copies of Employee Suggestion Emails/Reports of Unsafe Conditions
- Copies of Safety Postings

RETAIN FOR THE DURATION OF EACH INDIVIDUAL'S EMPLOYMENT:

- Copies of Employee Safety Training Records and related training documents

RETAIN FOR 30 YEARS OR FOR THE DURATION OF EACH INDIVIDUAL'S EMPLOYMENT IF >30 YEARS:

- Copies of Employee Exposure Records, or other required Employee Medical Records

A safe and healthy workplace must be the goal of everyone at Active Wellness with responsibility shared by management and employees alike. If you have any questions regarding this Injury and Illness Prevention Program, contact the Director of Operations, Regional Manager, Site Manager or VP of HR.

CHAPTER 2

EMERGENCY RESPONSE PLAN

PURPOSE

The purpose of this Emergency Response Plan (ERP) is to provide Active Wellness employees and clients with a clear plan of action in the event of an emergency. This plan covers emergency actions for all work areas and focuses on the protection of employees and others during emergencies.

The Emergency Response Plan will be reviewed annually and updated whenever:

- New hazards are identified or existing hazards change
- There are changes to the facility layout or infrastructure
- There are changes to emergency action and evacuation procedures

AUTHORITY

California Code of Regulations Title 8, Section 3220, Emergency response plan and Code of Federal Regulation, 29 CFR 1910.38

EMERGENCY ESCAPE PROCEDURES & ROUTE ASSIGNMENTS

Whenever notification of an emergency is signaled, personnel are to evacuate via the nearest, unblocked evacuation route to the predetermined Safe Zone(s).

Site specific evacuation routes and the Safe Zone are designated in the site-specific evacuation plan (Appendix B). Evacuation Plan includes:

- Location of all exits
- Location of all fire extinguishers
- Location of all fire alarm triggers
- Location of AEDs
- Location of all stairways
- Arrows indicating the safest routes out of the building
- A “Safe Zone” located an appropriate distance from the building where occupants should gather after evacuating the building

CRITICAL SITE OPERATIONS

There are no “critical site operations” for employees to perform before they evacuate. Everyone is to evacuate to the Safe Zone in the event of an emergency.

ACCOUNTING FOR EMPLOYEES

After employees are evacuated and have reached the Safe Zone, the Department Heads and/or Supervisors will coordinate a headcount of employees/clients within their department.

- Site Managers, Department Heads and/or Supervisors are to *visually* confirm that employees/clients within their department/program are accounted for.
- Department Heads and/or Supervisors are to report the results to Site Manager
- The Site Manager reports the name(s) of any missing persons and last known location or pertinent information to the Regional Manager and emergency response agencies

EMERGENCY RESPONSE TEAM

The Emergency Response Team (ERT) is made up three key employees:

1. Department Heads and/or Supervisors
2. Site Manager
3. Regional Manager

Department Heads and/or Supervisors

- Perform headcount of employees/clients within Department/Program
- Ensure employees/clients stay within designated Safe Zone until emergency response agencies determine it is safe to leave
- Report headcount results to Site Manager
- If someone is missing, provide last known location or pertinent information to Site Manager
- Perform activities as assigned by Site Manager; transfer duties to Site Manager or alternate Department Head and/or Supervisor before leaving

Site Manager

- Coordinate with emergency response agencies (e.g. Fire, Police, Public Health, etc.)
- Sweep Active Wellness employee occupied building/address to ensure no one is left in the structure
- Gather headcount information from Department Heads and/or Supervisors
- Report headcount results to Regional Manager and emergency response agencies
- Assist emergency response agencies with locating missing individuals
- Serve as main contact
- Overall emergency management of Active Wellness employee/client at the Active Wellness employee occupied building/address
- Direct ERT members within their Active Wellness employee occupied building/address
- Coordinate the assessment of hazardous conditions during/after an event

Regional Manager

- Gather headcount information from Site Manager
- Report headcount results to Director of Operations, VP of Operations and VP of Human Resources
- Gather information on incident from Site Manager and relay to Director of Operations, VP of Operations and VP of Human Resources

FURTHER INFORMATION OR EXPLANATION OF DUTIES

In the event the emergency continues to an extended period of time, the Director of Operations, VP of Operations and VP of Human Resources will work with the Regional Manager and Site Manager in developing an extended emergency management effort.

Further information or explanation of duties will be provided by the Regional Manager.

ALARM SYSTEM

The building's alarm system will be activated to signal employees/clients to evacuate the structure and proceed to the Safe Zone.
Staff is trained on how to activate the alarm. The Site Manager shall assure that manually operated actuation devices are unobstructed, conspicuous and readily accessible.

The alarm system is designed, installed and approved by the local fire authority. Active Wellness and/or the partner company shall assure that all devices, components, combinations of devices or systems constructed and installed comply with General Industry Safety Orders; Article 165 and are approved by the local fire authority.

If the alarm system is designed with distinct alarm signals, employees will be trained on each signal and what actions are required based on the type of signal. Employees are to be able to perceive the alarm signal above ambient sound and light.

The Site Manager shall assure that all employee alarm systems are restored to normal operating condition as promptly as possible after each test or alarm. Devices and components of alarm systems that are subject to wear or destruction shall have replacements available in sufficient quantities and locations for prompt restoration of the system.

Maintenance and Testing

Active Wellness shall ensure that all employee alarm systems are maintained in operating condition except when undergoing repairs or maintenance, unless the system maintenance is managed by the partner company in which case maintenance and testing is the responsibility of the partner.

Active Wellness shall maintain or replace power supplies as often as is necessary to assure a fully operational condition, unless such power supply maintenance is managed by the partner company in which case maintenance and testing is the responsibility of the partner. Back-up means of alarm, such as employee runners or telephones, shall be provided when systems are out of service.

Active Wellness shall ensure that servicing, maintenance and testing of employee alarms are performed by persons trained in the designed operation and functions necessary for reliable and safe operations of the system, unless the system is managed by the partner company in which case maintenance and testing is the responsibility of the partner.

EMERGENCY PROCEDURES BY TYPE

Procedures have been provided for the following types of emergencies (Appendix C):

- Medical (Non-Cardiac) Emergency
- Medical (Cardiac) Emergency
- Detecting Heart Attacks and Strokes
- Fire Emergency
- Severe Weather and Natural Disaster

- Telephone Bomb Threat
- Extended Power Loss
- Chemical Spill
- Bio-Terrorism
- Personal Violence

TRAINING

Before implementing the emergency response plan, the Site Manager shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

The Site Manager will advise each employee of his/her responsibility under the plan at the following times:

- Initially when the plan is developed
- Whenever the employee's responsibilities or designated actions under the plan change
- Whenever the plan is changed

The Site Manager, Department Heads and/or Supervisors shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review.

CHAPTER 3

BLOODBORNE PATHOGENS

Bloodborne pathogens are infectious materials in blood that can cause disease in humans, including, pandemic flu, hepatitis B and C, and human immunodeficiency virus, or HIV. While it is not reasonably anticipated that employees within the clubs will be exposed to bloodborne pathogens, the following plan and education are designed to minimize exposure.

REPORTING EXPOSURE INCIDENTS

Any specific eye, mouth, other mucous membrane, non-intact skin, or contact with blood or other potentially infectious material is considered an exposure incident and should be reported to the employer.

Reporting an exposure incident right away permits immediate medical follow up. Early action is critical. Immediate intervention can forestall the development of hepatitis B or enable the affected worker to track potential HIV infection. Prompt reporting also can help the worker avoid spreading bloodborne infection to others. It also enables the employer to evaluate the circumstances surrounding the exposure incident to try to find ways to prevent such a situation from occurring again.

EXPOSURE CONTROL PLAN AND WORK PRACTICE CONTROLS

Exposure Determination
Employees who may be exposed to bloodborne pathogens are:

- Service Desk/Reception – should they respond to a medical emergency and be exposed to blood or other bodily fluids
- Housekeeping – through blood or body fluids within laundry. This is not anticipated, but possible.
- Fitness – should they respond to a medical emergency and be exposed to blood or other body fluids. Fitness staff may also be exposed should they come into contact with a member who has open sores or wounds.
- Massage – should they respond to a medical emergency and be exposed to blood or other body fluids. Massage staff may also be exposed to open sores and wounds while performing massages
- Any employee cleaning bodily fluid spills.

Work Practice Controls
In order to prevent exposure employees must follow the following protocols:

- Use disposable gloves available within each site to handle all laundry, respond to a medical emergency, pick up contaminated waste products, or empty trash receptacles
- If gloves cannot quickly be used for a medical emergency to stop the flow of blood, use clean towels, being careful to not contact blood or contaminated materials
- Massage staff should avoid direct contact with members with open wounds, sores, or additional exposure to bloodborne pathogens. If needed use disposable gloves to avoid direct contact
- Wash hands after direct contact with members, prior to eating or drinking and after any suspected exposure

- Use emergency mouth to mouth resuscitation pocket resuscitators. These will be at the Service Desk and Fitness Office
- Use spill kits, available within each club, to clean up blood or other body fluids on floors or equipment
- Never directly handle a needle found within the site
- Non-latex gloves will be provided should an employee have an allergy to latex

SPILL CLEAN UP

In order to protect against exposure to bloodborne pathogens, should a bodily fluid spill occur, the following steps are followed:

- Put on disposable gloves, apron, shoe covers, and facemask
- Use an absorbent clean-up pack and sprinkle it over the spill
- Using the scoop and scraper within the kit to scrape off the absorbent
- Put contaminated items into the red biohazard bag and secure ties
- Do not discard gloves, apron, shoe covers, or facemask at this time
- Pour chlorine solution over spill area and let stand for ten minutes
- Use disposable paper towels to wipe up chlorine solution
- Place all gloves, apron, shoe covers, facemask, and contents of first biohazard bag into second biohazard bag
- Dispose according to local ordinances
- Thoroughly wash hands

POST EXPOSURE STEPS

Should a club staff member be exposed to bloodborne pathogens in the course of employment, the following are followed:

- Report the exposure immediately to your Site Manager
- Post exposure evaluation and follow up care will be made available at no cost to all employees who have an exposure incident
- Immediately following an exposure incident, the employees will be provided a free confidential medical evaluation, confidential medical counseling, and follow up care outlined
- Documentation of the route of exposure, circumstances in which the incident occurred, will be placed on the exposure treatment sheet
- Current law(s) allows the following procedures: the source individual's blood shall be tested as soon as possible, after consent is obtained, for HIV infectivity
- Source testing for HBV and/or HIV need not be repeated when the source individual is known to be infected with HBV or HIV
- Exposed employees will be offered the hepatitis B vaccine. Should the employee decline the hepatitis B vaccine, the employee will sign a declination form. Should the employee change his/her mind regarding accepting a hepatitis B vaccine in the future, it will be provided to the employee at no cost

**Please reference the Bloodborne Pathogens section in the IIPP Manual on the Intranet for more detailed information on Active's policies and procedures regarding bloodborne pathogens.*

CHAPTER 4

HAZARD COMMUNICATION PROGRAM

To enhance our employees' health and safety, Active Wellness has developed, implemented, and maintains a hazard communication program that ensures effective communication about associated hazards of some of the substances in our workplace, and the control of these hazards through a comprehensive hazard communication program that includes the elements listed below. The hazard communication managers, Directors of Operations, have full authority and responsibility for implementing and maintaining this program.

LIST OF HAZARDOUS SUBSTANCES

Directors of Operations will coordinate with the Site Managers to prepare and keep current an inventory list of all known hazardous substances present in our workplace. Specific information on each noted hazardous substance can be obtained by reviewing the SDSs (see Attachment, "Hazardous Substance Inventory List").

PROPOSITION 65 LIST OF CHEMICALS

Directors of Operations is responsible for obtaining updates of Proposition 65 listed chemicals and providing new information to affected employees. In the case of newly added chemicals to the Proposition 65 list, the necessary warning will take effect 12 months from the date of listing.

SAFETY DATA SHEETS (SDSs)

The Site Manager is responsible for obtaining the SDSs, reviewing them for completeness, and maintaining the data sheet system for each site. In the review of incoming data sheets, if new and significant health/safety information becomes available, this new information is passed on immediately to the affected employees by additional training sessions, posting of memos, and other means of communication.

Legible SDS copies for all hazardous substances to which employees of each location may be exposed are kept on site. These SDS sheets are placed in a three-ring binder and made available to all employees whenever the site is occupied. The Site Manager is also responsible to obtain SDS from vendors and subcontractors if the hazardous materials used by vendors and subcontractors may create expose to employees. Both Active Wellness and vendor SDS sheets are kept in the same binder, or in a separate one that is appropriately labeled. All SDS sheets will be preceded by an inventory of all hazardous materials.

SDSs are readily available for review to all employees in their work area and during each work shift. If SDSs are missing or new hazardous substance(s) in use do not have SDSs, or if an SDS is obviously incomplete, please contact the Site Manager immediately, and a new SDS will be requested from the manufacturer. If we are unable to obtain the SDS from the vendor within 25 calendar days of the request, we will either call our local Cal/OSHA compliance office or write to:

Division of Occupational Safety and Health
Deputy Chief of Health and Engineering Services
P. O. Box 420603
San Francisco, CA 94142-0603

If anyone has a specific question or needs additional information on an SDS, please call the Site Manager.

LABELS AND OTHER FORMS OF WARNING

Each container will have an appropriate label prominently displayed that includes:

1. A product identifier
2. A signal word
3. Hazard statement
4. Pictogram
5. Precautionary statement

Chemical manufacturers are required to provide the appropriate information on the original product label. All labels, tags, etc., must be maintained in a legible condition and not defaced. Quarterly Safety Inspections will check for correct labeling.

Secondary Containers & Workplace Labels

- The use of secondary containers should be limited
- If some of the chemical is transferred into a secondary container without a label, then a workplace label must be created and placed on the container. Consider using clear packing tape to place the label from an empty bottle of the same chemical onto the secondary container. Make sure the label is in legible condition and not defaced
- Workplace labels must be in English, maintained in a legible condition and not defaced. Labels may be written in another language, as long as an English label is also provided
- Workplace labels are required to contain either:
    - Much of the same information that a manufacturer's original product label must contain, or
    - Product identifier and at least one of the following items of information: words, pictures, symbols, or a combination thereof that provides at least general information about the hazards of the chemical
- Only portable, secondary containers which contain a small amount of chemicals and are under the strict control of the employee using the product during that shift do not require to be labeled

If necessary, the Site Manager will arrange for labels, signs, and other warnings to be printed in other languages.

EMPLOYEE INFORMATION AND TRAINING

Employees are to attend a health and safety training session set up by the Site Manager and/or Supervisor prior to starting work. All employees who are handling hazardous substances, or who work near and around such substances are trained regarding safe use of those substances. Training is updated whenever a new hazardous substance is introduced to the workplace. Training for employees includes:

- Information on the substances to which employees may be exposed
- The requirements of the Hazard Communication Standard and the employees' right to know about the hazards of the chemicals with which they work
- The location of chemical inventories and Materials Safety Data Sheets for the substances to which they are exposed
- Methods and observations that may be used to detect a leak or exposure to substances covered under this section
- Measures employees can take to protect themselves from substances covered by this section
- Emergency procedures in the event of a spill or accidental contact

- First aid treatment in the event of an exposure
- Disposal methods for the hazardous substances with which they work
- Employees' rights to receive information regarding hazardous substances to which they may have been exposed
- Information on chemicals known to the State to cause cancer or reproductive toxicity (Proposition 65 Warning)

Employees will receive additional training when a new hazard is introduced into the workplace or whenever employees might be exposed to hazards at another employer's work site.

HAZARDOUS NON-ROUTINE TASKS

According to the OSHA Standard [29CFR 1910.1200(e)(1)(ii)], Active Wellness will inform employees of the hazards of non-routine tasks (for example, the moving of fitness equipment).

Active Wellness does not have "non-routine tasks" as defined in the standard.

In the event a non-routine task is identified, employees will be trained on the chemical hazards. Non-Routine training be conducted by the Site Manager and will discuss the hazard assessment results and precautions necessary to prevent, or reduce likelihood of, exposure to hazards.

INFORMING CONTRACTORS

To ensure that outside contractors work safely in our locations and to protect our employees from chemicals used by outside contractors, the Site Manager is responsible for giving and receiving the following information from contractors:

- Hazardous substances, including Proposition 65 chemicals, to which they may be exposed while on the job site as well as substances they will be bringing into the workplace. We will also provide contractors with information on our labeling system and access to SDSs, as appropriate
- Precautions and protective measures the employees may take to minimize the possibility of exposure

If anyone has questions about this plan, please contact the Site Manager. Our plan will be maintained by the Directors of Operations to ensure that the policies are carried out and the plan is effective.

Appendix B.10

Effects of Various Temperatures on Human Performance

Effective temperature (° F)*	Performance effects
90	Upper limit for continued occupancy over any reasonable period of time.
80-90	Expect universal complaints, serious mental and psychomotor performance decrement, and physical fatigue.
80	Maximum for acceptable performance even of limited work; work output reduced as much as 40% to 50%; most people experience nasal dryness.
78	Regular decrement in psychomotor performance; individuals experience difficulty falling asleep and remaining asleep; optimum for bathing or showering.
75	Clothed subjects experience physical fatigue, become lethargic and sleepy, and feel warm; unclothed subjects consider this temperature optimum without some type of protective cover.
72	Preferred for year-round sedentary activity while subjects are wearing light clothing.
70	Midpoint for summer comfort; optimum for demanding visual-motor tasks.
68	Midpoint for winter comfort (heavier clothing) and moderate activity, but slight deterioration in kinesthetic response; people begin to feel cool indoors while performing sedentary activities.
66	Midpoint for winter comfort (very heavy clothing) while subjects are performing heavy work or vigorous physical exercise.
64	Lower limit for acceptable motor coordination; shivering occurs if individuals are not extremely active.
60	Hand and finger dexterity deteriorates, limb stiffness begins to occur, and shivering is positive.
55	Hand dexterity is reduced by 50%, strength is materially decreased, and there is considerable (probably uncontrolled) shivering.
50	Extreme stiffness; strength application accompanied by some pain; lower limit for unprotected exposure for more than a few minutes.

*These temperature effects are based on relatively still air and normal humidity (40% to 60%). Higher temperatures (a shift upwards from 1° to 4°F) are acceptable, if airflow is increased and humidity is lowered; at somewhat lower temperatures (a shift upward of 1° to 4°F) are less acceptable, if airflow increases, and humidity is unchanged.

Appendix B.11

General Illumination Guidelines

Task requirements	Light level (FC)	Type of illumination
Small detail; low contrast; prolonged viewing; fast, error-free response	100	Supplementary lighting fixture located near visual task
Small detail, fair contrast, close but short duration work, speed not essential	50-100	Supplementary lighting and/or well-distributed and diffused general lighting
Typical office/desk activity	40-60	General lighting with diffusing fixture directly overhead
Sports (e.g., tennis and basketball) or indoor recreational games (e.g., Ping-Pong and billiards)	30-50	General lighting with sufficient number of fixtures to provide even court or table illumination
Recreational reading and letter writing	25-45	Supplementary lighting, positioned over reading so that page glare does not occur
Typical housekeeping activities	10-25	General lighting
Visibility for moving about, avoiding people and furniture, and negotiating standard stairs	5-10	General and/or supplementary lighting (with care taken not to allow supplementary sources to project in the user's eyes)

Note: These guidelines are only approximations. Foot-candle values are higher than some recommendations, not for seeing, but because these levels provide an additional psychological benefit as well. Levels relate to light levels measured at the primary seeing point (e.g., the desk or table surface, on the floor, or stair tread level). Brightness ratios between the seeing task and the immediate surroundings should not exceed 5:1; between the task and the remote surroundings, 20:1; and between the immediate work area and any other remaining visual environment, 80:1. Natural or white artificial light should be used regardless of the type of illumination (i.e., these levels do not apply to monochromatic light sources).

Appendix B.12

Sports Flooring Standards

Resilient flooring products for a multiuse exercise area should adhere to a recognized industry standard. Widely accepted standards include ASTM F2772 and the DIN standards. The DIN standards require that a floor meet six criteria, which are summarized below:

1. **Shock absorption:** A floor's ability to reduce the impact of contact with the floor surface. The greater the shock absorption, the more protective it is because it reduces impact forces. An aerobics floor, for example, would need more shock absorption than a basketball court.
2. **Standard vertical deformation:** The actual vertical deflection of the floor upon impact. The greater the deformation, the more the floor deflects downward. Floors with minimal deformation are not good at absorbing impact forces.
3. **Deflective indentation:** The actual vertical deflection of the floor at a distance 19.6 in. (50 cm) from the point of impact. The greater the indentation, the more likely impact at one spot will cause deflection at a distant point.
4. **Sliding characteristics:** The surface friction of the finished floor. A floor with poor sliding characteristics would be inappropriate for aerobics or basketball.
5. **Ball reflection (game-action response):** The response of a ball dropped on the floor compared to a ball dropped on concrete.
6. **Rolling load:** A floor's ability to withstand heavy weight without breaking or sustaining permanent damage.

These DIN criteria are then used to evaluate the effectiveness of a floor. A floor will have one of three functions:

1. **Sports function:** A floor that serves a sports function enhances athletic performance. Surface friction and ball reflection are important here.
2. **Protective function:** A floor that serves a protective function reduces the risk of injury (e.g., from a fall) during activity. Shock absorption is important here.
3. **Material–technical function:** A floor that serves a material–technical function meets the sports and protective functions.

In a health/fitness facility, the gymnasium and multipurpose floors are classified under sports function or material–technical function. The aerobics floor is classified under protective function, with some sports function characteristics.

A floor surface that has a material–technical function should meet the following DIN criteria:

Shock absorption	53% minimum
Standard vertical deformation	0.09 in. (2.3 mm) minimum
Deflective indentation	15% maximum
Sliding characteristics	0.5 to 0.7 range
Ball deflection	90% minimum
Rolling load	337.6 lb (153.1 kg)

ASTM F2772 sets forth testing methods and criteria for four flooring attributes and then classifies the flooring into one of five performance-level classifications (from C1 to C5). These are summarized below:

1. **Shock absorption:** Measures the floor's ability to reduce the force of impact transferred to the athlete. Increased shock absorption typically results in reducing the risk of long-term injuries due to high-impact sports activities.
2. **Vertical deformation:** Measures the floor's ability to deform or "give" when an athlete jumps or falls. It is associated with flooring comfort and the reduction of immediate injuries.
3. **Ball bounce:** Measures the accuracy of the vertical ball behavior. The higher and more uniform the ball rebound, the better playability.

4. **Sliding effect:** Also referred to as coefficient of friction. It is the floor's optimal level of grip and slide in all directions and allows for safe and easy movement or pivoting.

Floors must adhere to the criteria in all four attributes to meet ASTM F2772 standards. Performance levels are:

1. **Shock absorption:** Minimum of 10% force reduction.
2. **Vertical deformation:** Must be less than 0.14 in. (3.5 mm) for synthetic floors, less than 0.2 in. (5.0 mm) for wood floors.
3. **Ball bounce:** Minimum of 90% ball rebound.
4. **Sliding effect:** Value must be between 80 and 110.

Compliant flooring systems are then categorized into five classes of shock absorption:

1. Class 1 are floors from greater than or equal to 10% to less than 22%.
2. Class 2 are floors from greater than or equal to 22% to less than 33%.
3. Class 3 are floors from greater than or equal to 33% to less than 45%.
4. Class 4 are floors from greater than or equal to 45% to less than 57%.
5. Class 5 are floors greater than or equal to 57% shock absorption.

Class 1 floors are suitable for classrooms and most multipurpose uses. Class 2 floors should be considered as the minimum for low-impact sport and multipurpose exercise areas. Class 3 floors should be considered a minimum for competitive sports with a high level of playability, while Class 4 floors should be considered for high-impact training and aerobics areas. Class 5 floors are for custom or highly specialized installations requiring significant shock absorption, such as climbing wall flooring and gymnastics mats.

Appendix B.13

Advantages and Disadvantages of Selected Types of Pool Overflow Systems

Type	Advantages	Disadvantages
Fully recessed concrete gutter	None	Old-fashioned system Most expensive to build Difficult to clean Contrary to efficient pool operation
Semirecessed gutter	Provides visible pool edge for competition Cuts down surface roughness when gutters are flooded Water surface closer to deck than in fully recessed gutter	Water level 5 or 6 in. (12.7 or 15.2 cm) below deck; difficult for users to climb out of pool Some cleaning difficulty Narrow edge of gutter lip provides precarious footing for diving off edge
Roll-out gutter	Comfortable pool use and egress Ideal for teaching and recreation Gives beginner swimmers a feeling of security by allowing wide visibility Easy cleaning Low construction costs	Decks may flood if adequate number of drains not provided Pool edge not visible for competition; temporary turning boards can be used
Deck-level or rim flow system	Trench serves as integral surge tank Minimum construction costs Comfortable pool use and egress Ideal for teaching and recreation Gives beginner swimmers a feeling of security Easy cleaning	Deck can flood if not properly pitched Pool edge not visible for competition; temporary turning boards can be used Care needed in choosing cleaning materials for deck because some deck water enters pool recirculation system Bottom inlets in rim flow system inaccessible for servicing
Surface skimmers	No surge tank required Low construction costs	Not suitable for large pools Continuing expense and nuisance of maintaining the movable weirs Turbulence not eliminated
Prefabricated stainless steel gutter	Large diameter return pipe is substituted by the manufacturer for a surge tank Provides visible pool edge for competition Good wave-quelling performance Fully recessed, semirecessed, and roll-out gutter options available	Skimmer weirs, optional in some systems, need manual adjustments several times a day Waterline inlets disturb swimmers in end lanes Exposed rings for lane and lifelines Stainless steel requires advanced attention to water chemistry and cleaning regimens to avoid pitting or rusting Higher construction costs in some regions of the United States

Appendix B.14

Agencies That Offer Construction Standards for Aquatic Facilities and Associations That Serve the Field of Aquatics

ANSI (American National Standards Institute)
www.ansi.org

APHA (American Public Health Association)
www.apha.org

APSP (Association of Pool & Spa Professionals)
www.apsp.org

FINA (Fédération Internationale De Natation)
www.fina.org

NCAA (National Collegiate Athletic Association)
www.ncaa.com

NSF International
www.nsf.org

NSPF (National Swimming Pool Foundation)
www.nspf.org

USA Diving
www.teamusa.org/USA-Diving

USA Swimming
www.usaswimming.org

USA Synchronized Swimming
www.teamusa.org/USA-Synchronized-Swimming

Appendix B.15

Samples of Signage Used in a Health/Fitness Facility

Sauna Policies

1. The sauna temperature is kept between 170 °F and 180 °F (77 °C and 82 °C).
2. Limit yourself to a maximum of 10 minutes.
3. Because of high temperatures, the sauna can be dangerous to your health. We recommend that you consult your physician before you use the sauna. Those who are pregnant and those with medical conditions such as high blood pressure, heart disease, and respiratory problems should avoid exposure to high heat.
4. Allow yourself at least 5 minutes after exercising to cool down before entering.
5. No food or drink is allowed inside.
6. Please shower before entering.

Steam Room Policies

1. The steam room temperature is kept between 100 °F and 110 °F (38 °C and 43 °C).
2. Limit yourself to a maximum of 10 minutes.
3. Because of high temperatures and humidity, the steam room can be dangerous to your health. We recommend that you consult your physician before you use the steam room. Those who are pregnant and those with medical conditions such as high blood pressure, heart disease, and respiratory problems should avoid exposure to high heat and humidity.
4. Allow yourself at least 5 minutes after exercising to cool down before entering.
5. No food or drink is allowed inside.
6. Please shower before entering.

Pool Policies

1. The pool temperature is kept between 78 °F and 84 °F (25 °C and 29 °C) and is posted daily.
2. Follow all posted Pool Rules and safety signage.
3. Please shower before entering the pool.
4. No diving is allowed. Or, as applicable: Diving is allowed only in designated areas.
5. No food or drink is allowed in the pool area.
6. No running or boisterous or rough playing is allowed on the pool deck.
7. Individuals with open wounds or sores should not enter the pool.

Racquetball and Squash Court Rules

1. Eye protection shall be worn at all times.
2. Black-soled shoes are not allowed on the court.
3. No food or drink is allowed on the court.

Numbered Court Signs

Racquetball Court 1	Squash Court 1
Racquetball Court 2	Squash Court 2
Racquetball Court 3	Squash Court 3

Cardio Area Policies

1. We recommend you see the club's fitness staff before you start a training program.
2. Please limit yourself to 30 minutes on all cardio equipment. During prime times, limit yourself to 20 minutes.
3. Please realize that all equipment usage is on a first-come, first-served basis.
4. Please warm up before using the equipment and cool down afterward.
5. Please wipe off controls, seats, and railings when you are finished with your workout.
6. Please return cardio equipment controls to the start position when your workout is completed.
7. Please report any injuries to the facility staff.

Resistance Circuit Policies

1. We recommend you see the club's fitness staff before you start a training program.
2. During prime times, please limit yourself to a maximum of two sets per station. You may return after completing the rest of your circuit.

3. Please lower and raise the plates carefully.
4. Please wipe off the pads when you are finished with a piece of equipment.

Free Weight Area Policies

1. We recommend you see the club's fitness staff before you start a training program.
2. Because of the high risk of injury, we recommend you use a spotter when training with free weights.
3. Please replace all dumbbells and plates on the appropriate racks when finished with them.
4. Please remove plates from bars when you are finished with them.

Treadmill Policies

1. Start the treadmill before you step on the belt.
2. Increase the speed and elevation gradually.
3. After completing your workout, gradually reduce the speed to 3 miles per hour and the elevation to 0.
4. Please wipe off the control panel after completing your workout.

Pool Temperature

1. Pool temperature is _____. (The blank should be filled in with signage of temperature. Facility operators should create temperature figures from 78 °F to 86 °F [25.5 °C to 30 °C].)

Whirlpool Policies

1. The whirlpool temperature is kept between 102 °F (38.8 °C) and 105 °F (40.5 °C).
2. Limit yourself to a maximum of 10 minutes.
3. Due to high temperature and humidity, the whirlpool can be dangerous to your health. We recommend that you consult your physician before you use the whirlpool. Those who are pregnant and those with medical conditions such as high blood pressure, heart disease, and respiratory problems should avoid exposure to high heat and humidity.
4. Allow yourself at least 5 minutes after exercising to cool down before entering.
5. No food or drink is allowed in whirlpool.
6. Please shower before entering.

Walking and Jogging Track Policies

1. Track direction is clockwise Mon, Wed, Fri, Sun. Track direction is counterclockwise Tue, Thu, Sat.
2. Please be careful when entering, changing lanes, and exiting the track in order to avoid collisions with other users.

Equipment Out of Order

1. This equipment is out of service. It will be repaired or in service by _____.

APPENDIX C

Forms

1. Sample Incident Report Form (chapter 3)
2. Sample Health, Fitness, and Racquet Sports Club Incident Report (chapter 3)

Appendix C.1

Sample Incident Report Form

Date of accident _____ Time of accident _____

Member's name _____ Member number _____

Address _____

Home phone _____ Business phone _____

Location of accident _____

Staff attending _____

Witnesses (nonstaff) _____

Details of accident _____

_____

_____

_____

_____

_____

Action taken by staff _____

_____

_____

_____

Staff reporting _____ Date _____

Department head's signature _____ Date _____

Note: The law varies from state to state. No form should be adopted or used by any program without individualized legal advice.

Appendix C.2

Sample Health, Fitness, and Racquet Sports Club Incident Report

(Complete for all incidents and report immediately—please print)

<table>
<tr><td></td><td>Month Day Year Time of accident
a.m. p.m.</td><td>Club member
Yes ☐
No ☐</td><td>Club name
Club location</td></tr>
<tr><td rowspan="5">Injured person</td><td>First name (M.I.) Last name Age</td><td colspan="2">Hospital or first aid squad notified
Yes ☐ No ☐</td></tr>
<tr><td rowspan="2">Number and street</td><td colspan="2">Name:</td></tr>
<tr><td colspan="2">Time of initial call:</td></tr>
<tr><td rowspan="2">City State Zip</td><td colspan="2">Times of follow-up calls:
1. 3.
2. 4.</td></tr>
<tr><td colspan="2">Time of arrival:</td></tr>
<tr><td>Business phone Home phone</td><td colspan="2">Time of departure:</td></tr>
<tr><td colspan="4">Description of acccident:</td></tr>
<tr><td colspan="4">Check items that apply to injured person:
Bleeding injury: Yes ☐ No ☐ Other visible injury: Yes ☐ No ☐
No visible injury, but complaint of pain: Yes ☐ No ☐
If eye injury, wearing eyeguards? Yes ☐ No ☐</td></tr>
<tr><td colspan="2">Describe exact injury sustained:</td><td colspan="2">Describe first aid administered by club:</td></tr>
</table>

(continued)

(continued)

First witness	Second witness
First name (M.I.) Last name	First name (M.I.) Last name
Number and street	Number and street
City State Zip	City State Zip
Business phone Home phone	Business phone Home phone
Description of accident by witness Signature:	Description of accident by witness Signature:

Description of place of accident

Interior ☐ Exterior ☐ Walking area ☐ Playing surface ☐ Locker room ☐ Physical fitness room ☐

Other:

Conditions: Dry ☐ Wet ☐ Smooth ☐ Even surface ☐ Slippery ☐

Foreign substance? Yes ☐ No ☐ If "YES", description:

If injury took place outside club building, check appropriate items:

Weather condition: Dry ☐ Rain ☐ Snow ☐ Ice ☐ Day ☐ Night ☐

Lighting conditions:

IMPORTANT: If injury took place on a court, provide name, address, and telephone number of the individuals who used or rented the court during the prior hour.

Additional comments

Did police investigate? Yes ☐ No ☐

Name and rank of officer Department Phone number

Submitted by (signature) Telephone Date and time

This information is for reporting purposes only. The information provided is the responsibility of the insured and club.

Courtesy of Creative Agency Group.

APPENDIX D

Trade and Professional Associations Involved in the Health/Fitness Facility Industry

Athletics and Fitness Association of America (AFAA)
www.afaa.com

American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR)
www.aacvpr.org

American College of Sports Medicine (ACSM)
www.acsm.org

American Council on Exercise (ACE)
www.acefitness.org

American Heart Association (AHA)
www.americanheart.org

American Massage Therapy Association (AMTA)
www.amtamassage.org

Club Industry
www.clubindustry.com

ClubIntel
www.club-intel.com

IDEA Health and Fitness Association (IDEA)
www.ideafit.com

Institute for Credentialing Excellence (ICE)
www.credentialingexcellence.org

International Consortium for Health & Wellness Coaching (ICHWC)
www.ichwc.org

International Council on Active Aging (ICAA)
www.icaa.cc

International Health, Racquet, and Sportsclub Association (IHRSA)
www.ihrsa.org

Medical Fitness Association (MFA)
www.medicalfitness.org

MedFit Network (MFN)
https://medfitnetwork.org

National Academy of Sports Medicine (NASM)
www.nasm.org

National Athletic Trainers' Association (NATA)
www.nata.org

National Center on Health, Physical Activity, and Disability (NCHPAD)
www.nchpad.org

National Collegiate Athletic Association (NCAA)
www.ncaa.com

National Institute for Occupational Safety and Health (NIOSH)
www.cdc.gov/niosh

National Strength and Conditioning Association (NSCA)
www.nsca.com

National Recreation and Park Association (NRPA)
www.nrpa.org

National Swimming Pool Foundation (NSPF)
www.nspf.com

National Wellness Institute (NWI)
www.nationalwellness.org

President's Council on Sports, Fitness, and Nutrition (PCSFN)
www.hhs.gov/fitness

SHAPE America (previously American Alliance for Health, Physical Education, Recreation and Dance [AAHPERD])
www.shapeamerica.org

Sports & Fitness Industry Association (previously the Sporting Goods Manufacturers Association) (SFIA)
www.sfia.org

U.S. Squash
www.ussquash.com

USA Diving
www.teamusa.org/USA-Diving

USA Synchronized Swimming
www.teamusa.org/USA-Synchronized-Swimming

USA Swimming
www.usaswimming.org

Wellness Council of America (WELCOA)
www.welcoa.org

YMCA of the USA (YMCA, the Y)
www.ymca.net

YWCA of the USA (YWCA USA)
www.ywca.org

See more resources listed in appendix G.

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APPENDIX E

About the American College of Sports Medicine

ACSM advances and integrates scientific research to provide educational and practical applications of exercise science and sports medicine.

This mission statement describes a complex organization working to improve the quality of life around the globe. ACSM has more than 50,000 members and certified professionals practicing clinical medicine, research, education, and an array of health and fitness disciplines.

The world's largest organization of its kind, ACSM tackles issues as diverse as obesity and motorsport injuries. ACSM is at the nexus of science and public policy, working to develop new knowledge and apply it toward a healthier, more fit society. From astronauts to student-athletes, physiologists to personal trainers, people turn to ACSM for definitive information on health, fitness, sports medicine, and exercise science. Founded in 1954, ACSM is internationally regarded as defining the gold standard for science, education, and certification.

ACSM reaches professionals and the public through a variety of means:

- Leading scholarly journals: *Medicine & Science in Sports & Exercise®*, *Exercise and Sport Sciences Reviews*, *ACSM's Health & Fitness Journal®*, *Current Sports Medicine Reports*, and *Translational Journal of the American College of Sports Medicine*.
- ACSM publishes several books for their diverse audiences and is best known for *ACSM's Guidelines for Exercise Testing and Prescription*, first published in 1975.
- Meetings present the latest scientific research and practical and clinical applications as well as fitness techniques and public health issues.
- Through media outreach, ACSM experts provide accurate, evidence-based insight into sports medicine, exercise science, and health and fitness.
- Infographics, brochures, the ACSM blog, ACSM certification blog, and other publications present consumer advice, standards, and guidelines for practitioners as well as other definitive information.
- The ACSM Web site, www.acsm.org, serves as a portal to health and fitness information, science-based guidance, professional development, and other resources.
- ACSM has a strong online presence through social media outlets such as Facebook, Twitter, Instagram, and YouTube.

ACSM Membership

ACSM is a lifelong resource, serving students and professionals in more than 70 disciplines within sports medicine and exercise science. ACSM membership brings a host of benefits, such as publications, conferences, and regional chapter services. Members enjoy special discounts and opportunities.

Membership categories include the following:

- Undergraduate, graduate, and medical students are eligible for the Student membership level.
- The Alliance of Health and Fitness membership is for professionals in the health and fitness and medical fitness industries.
- Professional membership is for degreed professionals as well as postdoctoral fellows and medical residents and clinical fellows.

And, in recognition of their distinguished achievement and service to the profession, members can pursue fellow status in ACSM.

As professionals in training, students are an important focus of ACSM. The board of trustees includes student representation, and each regional chapter selects a representative to the Student Affairs Committee. Student members enjoy discounted dues, publications, and meetings. More information is available at www.acsm.org/students.

ACSM Certification: The Gold Standard

ACSM's emphasis on rigorous science and professionalism has earned it a reputation as the gold standard for certification of health and fitness professionals. To consumers, institutions, and organizations that insist on demonstrated knowledge and skills, ACSM certification signifies the highest level of preparation and practice.

For more on ACSM certification programs, see the *Get & Stay Certified* tab on the ACSM Web site.

ACSM Interest Groups

Interest Groups provide a forum for focused discussion, activity, and debate among members with similar interests. Many find the networking opportunities especially valuable. Through participation in ACSM Interest Groups, members take part in the academic and professional life of ACSM and help advance its mission.

ACSM Regional Chapters

Twelve regional chapters allow greater participation among members and encourage networking and professional growth for longtime members and students alike. Regional chapters produce publications and hold annual scientific meetings.

ACSM Initiatives

The initiatives ACSM American Fitness Index and Exercise Is Medicine® (EIM), founded in 2008, are affecting cities and programs worldwide.

The ACSM American Fitness Index (Fitness Index) celebrates healthy, active lifestyles and encourages city leaders to enact policies and make system changes to promote these behaviors. The Fitness Index ranks America's 100 largest cities on a composite of health behaviors, health outcomes, community infrastructure, and local policies that support a physically active lifestyle. Visit the Web site at www.americanfitnessindex.org to compare cities' rankings and scores.

The vision of EIM is to make physical activity assessment and promotion a standard in clinical care, connecting health care with evidence-based resources for people everywhere and of all abilities. EIM encourages primary care physicians and other health care providers to include physical activity when designing treatment plans and to refer patients to evidence-based exercise programs and qualified exercise professionals, especially those with the EIM credential. To find out more about EIM visit the EIM Web site, www.exerciseismedicine.org.

Contacting ACSM

www.acsm.org
401 W. Michigan Street
P.O. Box 1440
Indianapolis, IN 46206-1440
317-637-9200 (phone)
317-634-7817 (fax)

ACSM Certifications for Health and Fitness Professionals

For more than 40 years, professionals who wish to demonstrate the highest level of expertise in exercise testing and prescription have sought ACSM certification. This gold standard distinguishes those who work in many settings:

- Hospital clinical and rehabilitation programs
- Corporate wellness centers

- Park and recreation departments
- Health/fitness facilities
- Senior residences and care programs
- Medical fitness centers

ACSM Certification Programs

ACSM offers four core certification programs:

- ACSM Certified Group Exercise Instructor (ACSM-GEI)
- ACSM Certified Personal Trainer (ACSM-CPT)
- ACSM Certified Exercise Physiologist (ACSM-EP)
- ACSM Certified Clinical Exercise Physiologist (ACSM-CEP)

The ACSM Certified Group Exercise Instructor (ACSM-GEI) possesses a minimum of a high school diploma and works in a group exercise setting with apparently healthy individuals and those with health challenges who can exercise independently to enhance quality of life, improve health-related physical fitness, manage health risk, and promote lasting health behavior change. The ACSM-GEI develops and leads safe and effective exercise programs using a variety of leadership techniques to foster group camaraderie, support, and motivation to enhance muscular strength and endurance, flexibility, cardiorespiratory fitness, body composition, and any of the motor skills related to the domains of health-related physical fitness.

The ACSM Certified Personal Trainer (ACSM-CPT) works primarily with apparently healthy individuals to enhance fitness. The ACSM-CPT also works with individuals who have stable health challenges and are cleared to exercise independently. The ACSM-CPT conducts basic preparticipation health screenings, lifestyle inventories, and fitness assessments for health and skill-related components of fitness. The ACSM-CPT assesses behavior adaptation readiness and offers guidance in the development of realistic, client-centered goals related to health, fitness, and wellness. The ACSM-CPT develops and administers programs designed to promote optimal cardiorespiratory fitness, muscular strength, muscular endurance, flexibility, and body composition, as well as agility, balance, coordination, power, speed, and reaction time. The ACSM-CPT facilitates client motivation and adherence and honors client confidentiality. The prudent ACSM-CPT refers clients to allied health professionals when a client's needs exceed the knowledge, skill, or ability.

The ACSM Certified Exercise Physiologist (ACSM-EP) is an exercise professional with a minimum of a bachelor's degree in exercise science qualified to pursue a career in university, corporate, commercial, hospital, and community settings. The ACSM-EP supports apparently healthy individuals and individuals with medically controlled diseases and health conditions in adopting and maintaining healthy lifestyle behaviors. The ACSM-EP is typically employed or self-employed in commercial, community, studio, corporate, university, and hospital settings.

The ACSM Certified Clinical Exercise Physiologist (ACSM-CEP) is an allied health professional with a minimum of a bachelor's degree in exercise science or equivalent and 1,200 hours of clinical hands-on experience or a master's degree in clinical exercise physiology and 600 hours of hands-on clinical experience. An ACSM-CEP utilizes prescribed exercise and basic health behavior interventions and promotes physical activity for individuals with chronic diseases or conditions; examples include, but are not limited to, individuals with cardiovascular, pulmonary, metabolic, orthopedic, musculoskeletal, neuromuscular, neoplastic, immunologic, and hematologic diseases. The ACSM-CEP provides primary and secondary prevention strategies designed to improve, maintain, or attenuate declines in fitness and health in populations ranging from children to older adults.

For information about each certification, visit the Web site at www.acsm.org/get-stay-certified. Certification at a given level requires the candidate to have a knowledge and skills base commensurate with that specific level of certification. Each level of certification has minimum requirements for experience, level of education, and other certifications. ACSM's *Get Certified Guide* outlines the requirements and is available for free on the Get Certified page of the Web site.

More Than Four Decades of Certification

The ACSM certification program began in 1975 along with publication of the first edition of *ACSM's Guidelines for Exercise Testing and Prescription*. That era was marked by rapid development of exercise programs for patients with stable coronary artery disease. ACSM sought a means to disseminate accurate information on this health care initiative through expression of consensus from its members in basic science, clinical practice, and education. These early clinical certifications helped establish safe and scientifically based exercise services for cardiac rehabilitation.

Over the past 43 years, exercise has gained widespread recognition as an important component in programs of rehabilitative care or health maintenance for an expanding list of chronic diseases and conditions. The growth of public interest in the role of exercise in health promotion has been equally impressive. In addition, federal policy makers have revisited questions of medical efficacy and financing for exercise services in rehabilitative care of selected patients. In recent years, recommendations from the U.S. Public Health Service and the U.S. Surgeon General have acknowledged the central role that regular physical activity can play in preventing disease and promoting health.

ACSM's development of professional exercise certifications in the 1980s increased the availability of qualified professionals providing scientifically sound advice and supervision regarding physical activities in apparently healthy adults. Since 1975, ACSM has certified more than 33,000 professionals. Many colleges and universities have adopted ACSM guidelines in establishing standardized curricula that are focused on the knowledge and skills required for various certifications.

ACSM also oversees continued competence requirements for maintenance of certification. The ACSM Approved Provider program offers educational opportunities such as workshops, regional chapter meetings and annual meetings, and other educational programs approved by the ACSM Professional Education Committee. These enhancements support the continued professional growth of those who have made a commitment to service in the exercise profession. Other online educational opportunities with convenient online self-tests can be found at the ACSM Web site at www.acsm.org/get-stay-certified.

How to Obtain Information and Application Materials

ACSM certification programs are subject to continual review and revision. Content development is entrusted to a diverse committee of professional volunteers with expertise in exercise science, medicine, and program management. The committee's expertise also includes design and procedures for competency assessment. Inquiries concerning certifications, application requirements, fees, and examination procedures may be made to:

ACSM Certification
800-486-5643
Web site: www.acsm.org/get-stay-certified
Email: certification@acsm.org

APPENDIX F

About the Editors

Daniel P. Connaughton, EdD, ACSM-EP, CSCS

Dan is a professor and serves as associate dean for faculty affairs in the College of Health and Human Performance at the University of Florida. Prior to his career in academia, Dan held management positions in recreation, aquatic, and health/fitness programs. His teaching and research are primarily focused on the study of law, policy, and risk management in sport, recreation, and fitness programs. He has authored or coauthored three textbooks, several book chapters, and over 115 peer-reviewed research articles. Furthermore, he has served as the principal investigator on over $12.5 million of externally funded contracts and grants, including research funded by the AHA that investigated implementation constraints and risk management practices related to AED in sport and recreation programs. Over the course of his career, Dan has received several teaching and research awards. He is also a research fellow with the Sport and Recreation Law Association and the Research Consortium of SHAPE America.

Jason Conviser, PhD, FACSM

Jason earned his PhD from the University of Wisconsin–Madison and his MBA from Northwestern University's Kellogg Graduate School of Management. He is a fellow of both the ACSM and the Medical Fitness Association. Jason is currently president of JMC & Associates, offering consulting to the health, wellness, and medical industries in the development and operations of fitness programs and business strategies in a nonmedical environment. During his career, Jason has given over 550 health, fitness, and wellness presentations to groups ranging in size from 5 to 2,000. He has also been an invited speaker to 38 international conferences and continuing education programs. In addition, he has authored, coauthored, or edited six books on various health-related topics and has written almost 50 articles that have appeared in scientific journals, trade publications, and major newspapers.

Brian P. Heermance, Esq.

Brian is a senior partner with the New York office of Morrison Mahoney LLP, a northeast regional law firm with 180 attorneys in New York, New Jersey, Connecticut, Rhode Island, Massachusetts, and New Hampshire. He has nearly 30 years of experience in civil litigation on behalf of insurance companies and self-insureds, with an emphasis on trial work and the defense of cases involving professional liability, construction, product liability, transportation, and tort liability. Brian has numerous years of experience defending health clubs and has been a frequent speaker on legal and risk management issues at the IHRSA Annual Convention and Club Industry Show. He has also served as a legal consultant on litigated matters involving health clubs. Brian argued and won a case before New York's highest appellate court, a decision that held that a health club has no statutory duty to use an AED that it was required to possess (*Miglino* v. *Bally*, 20 N.Y.3d 342 [2013]). He has also published a number of articles concerning the legal responsibilities and obligations of health clubs.

Bill McBride

Bill is the president and CEO of BMC3, Bill McBride Consulting, Coaching, and Club Man-

agement. He is also the cofounder, president, and chief executive officer of Active Wellness. As a health club industry veteran, Bill has over 25 years of experience leading and managing all aspects of commercial health clubs, medical fitness centers, residential, community, multitenant, and corporate fitness sites. He co-founded Active Sports Clubs and Active Wellness, LLC. In addition, he owns a health club consultancy, BMC3. Bill has served as chairman of the IHRSA; served on the board of directors and as president of the Mid-Atlantic Club Management Association (MACMA); and served on the Industry Advisory Panel for the ACE. He is actively engaged as an author on industry education, serves on several fitness-related technology company advisory boards, serves the Medical Wellness Association (MWA) as a faculty member, and serves on the MedFit Network (MFN) advisory board. Bill consults and speaks regularly on industry-related topics throughout the world.

Robert McDonald

Robert is a senior principal and LEED-accredited architect best known for designing and managing large-scale municipal recreation and wellness facilities in the United States. Notable projects include a flagship recreation center in his hometown of Laramie, Wyoming, the Half Acre Student Recreation and Wellness Center for the University of Wyoming, and the Glenwood Springs Community Center at the edge of historic Glenwood Canyon in Colorado. Examples of Bob's design work and management of large-scale facilities can be evidenced in the nearly 200,000 sq. ft (18,580.6 sq. m) Campbell County recreation center in Gillette, Wyoming, as well as Infinity Park in Glendale, Colorado. His most recent work in the field of medical fitness is the 130,000 sq. ft (12,077 sq. m) MC Fitness + Health project near Columbus, Ohio. This project is an exceptional example of an integrated medical wellness facility combining 55,000 sq. ft (5,109.6 sq. m) of medical fitness space with 45,000 sq. ft (4,180.6 sq. m) of ambulatory care space and 30,000 sq. ft (2,787 sq. m) of leased physician office space. Bob is also an accomplished public speaker, both as a focus group facilitator and as an industry expert at national professional conferences. He has been with OLC since 1996.

James A. Peterson, PhD, FACSM

Jim earned his PhD from the University of Illinois at Champaign. A fellow of the ACSM, he currently is a sports medicine consultant residing in Monterey, California. From 1971 to 1990, he served as a full professor in the department of physical education at the United States Military Academy at West Point. From 1990 to 1995, he worked as the director of sports medicine for StairMaster Sports/Medical Products. He has authored, coauthored, or edited over 100 books on various health- and sports-related topics, including the first four editions of *ACSM's Health/Fitness Facility Standards and Guidelines*. In addition, he has written over 200 articles that have appeared in a variety of journals and publications. He has also appeared on a number of national television shows, including *Good Morning America*, the *CBS Evening News*, and ABC's *Nightline*.

Mary E. Sanders, PhD, FACSM, CDE, ACSM-CEP, ACSM-RCEP

Mary is an adjunct professor in the School of Medicine and Community Health Sciences, School of Public Health at the University of Nevada, Reno. As a clinical exercise physiologist, certified diabetes educator, and a fellow of ACSM, she also directs WaterFit internationally. In addition, she serves on the International Council on Active Aging (ICAA) advisory board and is an associate editor for the *Journal on Active Aging*. Mary served 15 years as an associate editor for *ACSM's Health & Fitness Journal*® and still continues to contribute to the journal. She has conducted a number of studies with her global colleagues that have targeted a variety of exercise-related topics, including land and water exercise, aging, exercise for people with disabilities and medical conditions, and exercise for improving health and fitness across the continuum of health.

Robyn M. Stuhr, MA, ACSM-RCEP

Robyn is the vice president for Exercise is Medicine® at ACSM. Previously, she was the sports medicine program director at UC San Diego Health, acting as liaison to the U.S. Olympic Committee Medical Network. Robyn served as vice president of the Academy (education division) at ACE, and, prior to that, was an exercise

physiologist and administrative director of the first women's sports medicine center in the country at Hospital for Special Surgery in New York. Robyn has 30 years of clinical and administrative experience in health care, including cardiac rehabilitation, business and occupational health, health promotion, and sports medicine. During her career, she has written articles for *ACSM's Health & Fitness Journal*® as well as several book chapters, articles, and educational handouts on exercise, health, and fitness. She has also lectured extensively to professional and lay audiences on a variety of fitness and health topics.

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APPENDIX G

Suggested References

1. Suggested Online Resources
2. Printed Materials
3. Chapter Resources

Appendix G.1

Suggested Online Resources

AACVPR—American Association of Cardiovascular and Pulmonary Rehabilitation
www.aacvpr.org

AB—Athletic Business
www.athleticbusiness.com

ACE—American Council on Exercise
www.acefitness.org

ACOEM—American College of Occupational and Environmental Medicine
www.acoem.org

ACSM—American College of Sports Medicine
www.acsm.org

ADA—American With Disabilities Act
www.ada.gov

ADAAG—United States Access Board
www.access-board.gov/guidelines-and-standards/buildings-and.../adaag

AFAA—Athletics and Fitness Association of America
www.afaa.com

AHA—American Heart Association
www.heart.org

AMTA—American Massage Therapy Association
www.amtamassage.org

ANSI—American National Standards Institute
www.ansi.org

APHA—American Public Health Association
www.apha.org

APSP – The Association of Pool & Spa Professionals (previously known as NSPI—National Spa and Pool Institute)
www.apsp.org

Aquatic Safety Research Group
www.aquaticsafetygroup.com

Aquatics International
www.aquaticsintl.com

ARC—American Red Cross
www.redcross.org

ASHRAE—American Society of Heating, Refrigerating and Air-Conditioning Engineers
www.ashrae.org

Association of Aquatic Professionals
https://aquaticpros.org

ASTM—American Society for Testing and Materials International
www.astm.org

CAAHEP—Commission on Accreditation of Allied Health Education Programs
www.caahep.org

Canadian Red Cross
www.redcross.ca

CDC—Centers for Disease Control and Prevention
www.cdc.gov

CDC—Centers for Disease Control National Diabetes Prevention Program
www.cdc.gov/diabetes

Club Industry
www.clubindustry.com

ClubIntel
www.club-intel.com

DHS—Department of Homeland Security
www.dhs.gov

DIN—Deutsches Institut für Normung (German Institute for Standardization)
www.din.de/en

EHFA—European Standards: Europe Active
www.ehfa-standards.eu

FEMA—Federal Emergency Management Agency
www.fema.gov

FINA—International Swimming Federation
www.fina.org

Fitness Law Academy
PASQ and related forms listed under "Free Resources"
www.fitnesslawacademy.com

IBC—International Building Code
www.iccsafe.org

ICAA—International Council on Active Aging
www.icaa.cc

ICC—International Code Council
www.iccsafe.org

ICHWC—International Consortium for Health & Wellness Coaching
www.ichwc.org

IDEA Health & Fitness Association
www.ideafit.com

IHRSA—International Health, Racquet and Sportsclub Association
https://ihrsa.org

MFA—Medical Fitness Association
www.medicalfitness.org

MFN—MedFit Network
https://medfitnetwork.org

Morrison Mahoney LLP—Brian P. Heermance, Partner
Bheermance@morrisonmahoney.com
www.morrisonmahoney.com

NASM—National Academy of Sports Medicine
www.nasm.org

NATA—National Athletic Trainer's Association
www.nata.org

National Wellness Institute
www.nationalwellness.org

NCAA—National Collegiate Athletic Association
www.ncaa.com

NCCA—National Commission for Certifying Agencies
www.credentialingexcellence.org

NCHPAD—National Center on Health, Physical Activity and Disability
www.nchpad.org

NCSL—National Council on State Legislatures
www.ncsi.org

NIOSH—National Institute for Occupational Safety and Health
www.cdc.gov/niosh

NRPA—National Recreation and Park Association
www.nrpa.org

NSCA—National Strength and Conditioning Association
www.nsca.com

NSF International
www.nsf.org

NSPF—National Swimming Pool Foundation
www.nspf.org

OSHA—Occupational Safety and Health Administration
www.osha.com

PCSFN—President's Council on Sports, Fitness & Nutrition
www.hhs.gov

Recreation Management
www.recmanagement.com

Recreonics
www.recreonics.com

SFIA—Sports & Fitness Industry Association (Sporting Goods Manufacturers Association)
www.sfia.org

SHAPE America (previously AAHPERD, American Alliance for Health, Physical Education, Recreation and Dance)
www.shapeamerica.org

Sports Facilities & the Law
sportsfacilitieslaw.com

USA.gov, "Commonly Requested U.S. Laws and Regulations"
www.usa.gov

USA Diving
www.teamusa.org/USA-Diving

USA Swimming
usaswimming.org

USA Synchronized Swimming
www.teamusa.org/USA-Synchronized-Swimming

U.S. Access Board
www.access-board.gov

U.S. Squash
www.ussquash.com

WELCOA—Wellness Council of America
www.welcoa.org

Wellcoaches
www.wellcoachesschool.com

YMCA of the USA
www.ymca.net

YWCA of the USA
www.ywca.org

Appendix G.2
Printed Materials

ACSM Books

- American Academy of Family Physicians, et al. *Preparticipation Physical Evaluation*. 4th ed. Itasca, IL: American Academy of Pediatrics; 2010.
- American College of Sports Medicine. *ACSM and NCHPAD Resources for the Inclusive Fitness Trainer*. Indianapolis, IN: American College of Sports Medicine; 2012.
- American College of Sports Medicine. *ACSM's Certification Review.* 5th ed. Philadelphia, PA: Wolters Kluwer; 2018.
- American College of Sports Medicine. *ACSM's Guidelines for Exercise Testing and Prescription*. 10th ed. Philadelphia, PA: Wolters Kluwer; 2018.
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- Pire, N. *ACSM's Career and Business Guide for the Fitness Professional*. Baltimore, MD: Lippincott Williams & Wilkins; 2013.
- Potteiger, J. *ACSM's Introduction to Exercise Science.* 3rd ed. Philadelphia, PA: Wolters Kluwer; 2018.
- Pronk, N. *ACSM's Worksite Health Handbook: A Guide to Building Healthy and Productive Companies*. 2nd ed. Champaign, IL: Human Kinetics; 2009.
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- Rowland, T. *Cardiopulmonary Exercise Testing in Children and Adolescents*. Champaign, IL: Human Kinetics; 2018.

ACSM Position Stands

(available from journals.lww.com/acsm-msse/pages/collectiondetails.aspx?TopicalCollectionId=1)

- American College of Sports Medicine and the American Diabetes Association. Exercise and type 2 diabetes: American College of Sports Medicine and the American Diabetes Association: Joint Position Statement. *Med Sci Sports Exerc*. 2010;42(12):2282-2303.
- American College of Sports Medicine and the American Heart Association. Joint Position Statement: automated external defibrillators in health/fitness facilities. *Med Sci Sports Exerc*. 2002;34(3):561-564.
- American College of Sports Medicine. Exercise and fluid replacement. *Med Sci Sports Exerc*. 2007;39(2):377-390.
- American College of Sports Medicine. Exercise for patients with coronary artery disease. *Med Sci Sports Exerc*. 1994;26(3):400.
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- Sawka, M, et al. ACSM Position Stand: the use of blood doping as an ergogenic aid. *Med Sci Sports Exerc*. 1996;28(10):127-134.
- Thompson, P, et al. Exercise and acute cardiovascular events: placing the risks into perspective. *Med Sci Sports Exerc*. 2007;39(5):886-897.

IHRSA Reports

(All materials are available on www.IHRSAstore.com.)

- *The IHRSA Health Club Consumer Report*
- *The IHRSA Profiles of Success*
- *The IHRSA Global Report*
- *The IHRSA Canadian Health Club Report*
- *The IHRSA European Health Club Report*
- *The Market Report on Spanish Health Clubs*
- *The IHRSA Latin American Report* (Available in English, Spanish, and Portuguese)
- *How to Prevail in Competitive Markets*

Other Print Materials

- Plummer T. *The Business of Fitness*. Monterey, CA: Healthy Learning; 2003.
- Tharrett S. *Fitness Management*. 4th ed. Monterey, CA: Healthy Learning; 2017.
- Fried, G. *Managing sport facilities*. 3rd ed. Champaign, IL: Human Kinetics; 2015.
- Fried, G., and Ammon, Jr. R. What is appropriate signage for the sport industry? *Journal of Legal Aspects of Sports*. 2001;11(2) 181-208.

Appendix G.3

Chapter Resources

Chapter 1: Exercise Preparticipation Health Screening

1. American College of Sports Medicine and American Diabetes Association. ACSM and ADA Joint Position Statement: Exercise and Type 2 Diabetes Mellitus. *Med Sci Sports Exerc*. 2010;42(12):2282-2303.
2. American College of Sports Medicine. *ACSM's Guidelines for Exercise Testing and Prescription*. 10th ed. Riebe D, editor. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2017.
3. Eickoff-Shemek JM, Craig AC. Putting the new ACSM's pre-activity health screening guidelines into practice. *ACSM's Health Fit J*. 2017;21(3):11-21.
4. Magal M, Riebe D. New participation health screening recommendations: what exercise professionals need to know. *ACSM's Health Fit J*. 2016;20(3):22-7.
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Chapter 2: Member Orientation, Education, and Supervision

1. American College of Sports Medicine. *ACSM's Guidelines for Exercise Testing and Prescription*. 10th ed. Riebe D, editor. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2017.
2. International Health, Racquet & Sportsclub Association. *2017 Profiles of Success*. Monterey, CA: Healthy Learning; 2018.
3. International Health, Racquet & Sportsclub Association. *2017 IHRSA Health Club Consumer Report*. Boston, MA: IHRSA; 2018. www.ihrsastore.com.

Chapter 3: Emergency Planning and Policies

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APPENDIX H

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