Nature and Scope of Physical Education, Exercise Science, and Sport

Part I introduces the reader to physical education, exercise science, and sport. The first chapter sets the stage for the reader by providing definitions and an introduction to the specialized areas of study within physical education, exercise science, and sport. Chapter 1 concludes with a discussion of how to grow as a professional in physical education, exercise science, and sport. Chapter 2 includes the influences of various philosophies on programs and provides the reader with information about the objectives and assessment of physical education, exercise science, and sport. Chapter 3 describes the contribution of physical education, exercise science, and sport to society and health, and the critical role of professionals delivering services to people of all ages.

Physical education, exercise science, and sport are representative of the growing and expanding field of kinesiology. The growth of this field is reflected in the expanding knowledge base and the development of specialized areas of study. The expansion of physical education, exercise science, and sport has created a diversity of career options for professionals.
CHAPTER 1

MEANING AND SCOPE

OBJECTIVES

After reading this chapter, students should be able to—

- Discuss the nature of contemporary physical education, exercise science, and sport, and show how it has evolved over the past five decades.
- Define the following specialized areas of study: sport philosophy, sport history, sport sociology, sport and physical activity psychology, motor development, motor learning, biomechanics, exercise physiology, sports medicine/athletic training, physical education pedagogy, adapted physical activity/physical education, and sport management.
- Describe how the disciplines are interdisciplinary to the professions of physical education, exercise science, and sport relative to the field of kinesiology.
- Explain the relationship of physical education, exercise science, and sport to allied fields of study.
- Describe the different types of research reports and their application to physical education, exercise science, and sport.
- Identify social media resources that can inform the practice within the field of physical education, exercise science, and sport.

This is one of the most exciting, dynamic times in the history of physical education, exercise science, and sport. Unfolding before us is the vision of lifetime involvement in physical activity for all people. This powerful vision is compelling for physical educators, exercise scientists, and sport leaders who have the potential to put it into action, which can influence the well-being and quality of life of people of all ages.

Contemporary physical education, exercise science, and sport have evolved from a common heritage—the traditional program of physical education designed to prepare teachers to serve children and youth in the school setting. Since the 1960s, the foundation, scope, and focus of our programs have grown and changed tremendously. As physical education expanded, new disciplines of study—exercise science and sport—emerged. As the knowledge base comprising this multidimensional field grew, specialized areas of study evolved and exciting new career opportunities began to appear for qualified professionals. Today
physical education, exercise science, and sport professionals serve people of all ages in a diversity of settings within a new and reformed field of study, kinesiology.

Providing an overview of the entire field of kinesiology is, quite admittedly, a challenge as it is expanding and changing rapidly. This virtual explosion of knowledge has led to the development of new areas of study that are highly specialized and discrete and yet, at the same time, highly interrelated and vitally connected. Thus in this text, we will refer to kinesiology with a specific emphasis placed on and within the disciplines of physical education, exercise science, and sport.

We now know that leading a physically active lifestyle can help prevent disease and positively contribute to health and well-being throughout the lifespan. If the health of our nation is to improve, physical education, exercise science, and sport professionals must make certain that all people have access to programs, regardless of their age, race, ethnicity, gender, gender identity, sexual identity, ability/disability status, income, educational level, or geographic location. This is a challenge that awaits you as future professionals.

**SOCIAL JUSTICE**

**Defining Social Justice:** Professionals who are committed to social justice strive to provide opportunities for equality, to ensure access and to show sensitivity to those that are marginalized and less fortunate by challenging injustice and valuing diversity.

**Talking Points**

- Physical activity initiatives and opportunities need to be provided to all individuals regardless of one’s social identity and status (e.g., gender identity, race, sexual identity, (dis)ability, socioeconomic status, and age) if we want to increase physical activity levels and decrease chronic and hypokinetic diseases.
- All aspects of human movement need to be advocated for and supported rather than placing emphasis on judging and critiquing the level or type of an activity over others (e.g., playing a sport is better than walking or doing yoga).
- Emphasis needs to be placed on the interrelatedness of the disciplines and allied fields instead of the disciplines operating as silos or in competition with one another.
- Establishing a critical perspective through scientific-based research will allow professionals to make informed decisions that influence their clients, players, employees, or students.

Business Wire

Career opportunities in physical education, exercise science, and sport range from teaching in the school setting to instructing in nonschool settings, such as leading group exercise classes in a community or corporate fitness setting.

*Hero/Corbis/Glow Images*

Physical educators, exercise scientists, and sport leaders need to know how to read scientific and practitioner-based research. As the field continues to grow and change, this knowledge base will inform your professional practice and provide a clearer picture of all individuals across the lifespan within today’s society. As we enter the next decade
in the twenty-first century, new and more exciting opportunities and challenges await us.

CONTEMPORARY PHYSICAL EDUCATION, EXERCISE SCIENCE, AND SPORT PROGRAMS

The proliferation of physical education, exercise science, and sport programs during the last five decades has been remarkable. Programs have expanded from the traditional school setting to community, home, worksite, commercial, and medical settings. School-community partnerships bring sport instruction and fitness programs to adults in the community and offer increased opportunities for youth involvement. Community recreation programs offer a great variety of instruction and sport activities for people of all ages and abilities, such as tennis, golf, bowling, softball, yoga, and martial arts clubs.

Health club membership is booming. Today, over 61 million people belong to a health club, compared with only 20.7 million in 1990. Adults seeking the convenience of working out at home boosted the sales of home exercise equipment to $3.6 billion a year and is projected to reach 4.4 billion by 2024. Walkers, joggers, bikers, and swimmers join the millions who meet the daily recommendation of including 30 minutes of physical activity into their lives.

Corporations offer employees comprehensive onsite health promotion programs, encompassing a wide range of fitness activities as well as cardiac rehabilitation and nutritional counseling. Many worksites offer smoking cessation, stress management, and occupational safety courses to their employees, who find it convenient to fit these health-enhancing opportunities into their busy schedules. Hospitals sponsor cardiac rehabilitation programs and increasingly offer fitness programs to community members. Sports medicine clinics treat injured sport and fitness participants of all ages, no longer limiting their practice to the elite adult athlete.

People of all ages are seeking out sport opportunities in many different settings. Youth sports involve more than 45.7 million children a year. Almost 8 million athletes participate in interscholastic sports and over 611,000 participate in intercollegiate sports. Sport events such as AAU

![Ryan McVay/Getty Images](image1)

People of all ages enjoy athletic competition. Courtesy of Sarah Rich
basketball and travel teams, Senior Games, running events, Tough Mudders, and master’s swimming competitions involve millions of adults in sport competitions. Community recreational leagues for basketball, softball, soccer, and volleyball provide increased opportunities for participation. Sport events such as the Super Bowl, the Olympics, the World Cup, and the National Collegiate Athletic Association basketball tournament capture the enthusiasm of millions of spectators. Girls and women are participating in sports and physical activities in record numbers.

School physical education programs focus on promotion of lifespan involvement in physical activity. Students learn the skills, knowledge, and attitudes that will enable them to participate in various physical activities throughout their lives. At the collegiate level, young adults enroll in courses in CrossFit or tennis, work out at fitness centers, join wellness and fitness classes, and take part in recreational sports programs. Intercollegiate athletic programs for men and women continue to expand, involving more participants and attracting greater interest from the public.

People are engaging in physical activity in record numbers. There is increased public recognition that being active is good for your health. Several national reports, such as the 2016 National Physical Activity Plan, Healthy People 2020, and The Physical Activity Guidelines present overwhelming evidence that people of all ages can improve their health and quality of life by including moderate amounts of physical activity in their daily lives. Although most people know that physical activity is good for them and participation in physical education, exercise science, and sport programs is at an all-time high, a closer look at the participation by children, adolescents, and adults reveals much cause for concern.

Despite the documented health benefits of physical activity, 80% of adults do not meet the recommended amount of aerobic and muscle-strengthening
physical activity. Young children and adolescents are more active than adults are, but their activity levels decrease with age. Only 27% of high school students met the recommendation for aerobic capacity and muscle-strengthening activity. In today’s society, many children and youth are inactive, unfit, and overweight, placing them at increased risk to develop many chronic diseases.

Further examination of health status and physical activity patterns in the United States reveals health disparities and fitness inequities among different population groups. Age, socioeconomic status, race, ethnicity, gender, educational attainment, and geographic location were found to influence physical activity levels. Inactivity is greatest among women, minorities, the economically and educationally disadvantaged, people with disabilities, and the aged. These populations have less access to services and face other barriers to the adoption and maintenance of physically active lifestyles. Their limited opportunities for physical activity adversely affect their health, their quality of life, and, ultimately, their lifespan.

Involvement in physical activity should begin at an early age and continue throughout one’s life. School physical education programs are the primary avenue for helping children and youth learn the skills, knowledge, and attitudes to lead a healthy, physically active lifestyle. Health policy reports recognize the important contribution physical education can make to health and call for daily, high-quality physical education for all students K–12. Unfortunately, the number of children and youth participating in daily physical education programs has declined. Daily participation in physical education by high school students decreased from 42% in 1991 to 25% in 1995 and rose slightly to 29% in 2013. Many lifelong habits (e.g., drug and alcohol abuse, smoking/vaping, lack of physical activity) and many diseases (e.g., type 2 diabetes, heart disease) have their roots in childhood. That is why it is important to develop positive health habits early in life. Over 50 million students are enrolled in public and private elementary and secondary schools in the United States and are projected to reach 56.5 million by the 2025–2026 academic year, with a slight increase in public schools and a significant decrease in private schools. Imagine the health benefits if each of these students had access to daily quality physical education pre-K–12. Increasing the number of children and youth that have the opportunity to participate in quality physical education programs on a daily basis is an important priority.

The main challenges facing professionals are increasing the level of physical activity by people across the nation and addressing inequities in physical activity opportunities. As physical education, exercise science, and sport professionals, we must make a greater commitment to reach out to these populations and involve them in our programs. We must address the specific barriers that inhibit the adoption and maintenance of physical activity by different population groups, utilize new approaches that are sensitive to the needs of increasingly diverse populations, and improve access by developing quality public programs in schools, recreation centers, worksites, and health care settings. All people have the right to good health and the opportunity to be physically active throughout their lifespan.

As you begin your professional career, make a commitment to service. Commit yourself to creating opportunities for all people—regardless of age, income, education, race, ethnicity, gender, sexual identity, geographic location, or ability—to enjoy and to benefit from lifespan participation in physical activity.

Physical Education, Exercise Science, and Sport Defined

Physical education, exercise science, and sport share a common focus—human movement or, more generally, physical activity. Yet, each discipline offers a unique approach as to how human movement and physical activity are learned, enhanced, or achieved. Each of these disciplines is defined in this section as well as in the Definitions of Terms box on page 9.

Physical education is an educational process that uses physical activity as a means to help individuals acquire skills, fitness, knowledge, and attitudes that contribute to their optimal development.
and well-being. In this definition, the term education refers to the ongoing process of learning that occurs throughout our lifespan. Education, just like physical education, takes place in a variety of settings and is not limited to a specific age group. Homeschooling, continuing education through distance learning, worksite health promotion programs, and preschools are just some of the expanded settings for education and physical education programs. Teachers today may be called instructors, leaders, directors, or facilitators. Today’s students span the age range, from the very young exploring movement skills in a preschool program to the older adults learning how to play golf through a community recreation program.

Most physical education programs today are based on a developmental model. This model purports that physical education, through the use of carefully structured physical activity, contributes to the development of the whole person. Physical education includes the acquisition and refinement of motor skills, the development and maintenance of fitness for optimal health and well-being, the attainment of knowledge about physical activities, and the fostering of positive attitudes conducive to lifelong learning and lifespan participation.
Within the last five decades, there has been an increase in the scholarly study of physical education. Research continues to expand our knowledge with respect to the preparation of physical education teachers, teacher effectiveness, teaching methods, and improvement of student learning; it also provides us with new insights on coaches’ and athletes’ behaviors. Exercise science is the scientific analysis of exercise or, more inclusively, physical activity. To study physical activity, exercise scientists draw upon scientific methods and theories from many different disciplines, such as biology, biochemistry, physics, and psychology. The application of science to the study of physical activity led to rapid expansion of the knowledge base of exercise science. As the knowledge base of exercise science grew, so did our understanding of the effects of physical activity on various systems of the body. The significant role that physical activity plays in preventing disease and promoting health became clearer. Exercise’s value as a therapeutic modality in the treatment of disease and rehabilitation of injuries became better known.

Exercise science is a very broad area of study, encompassing many different aspects of physical activity. Through research, scholars gain new insights into how people’s movements develop and change across their lifespan and further expand their understanding of how people learn motor skills. Analysis of the performance of motor skills using biomechanics leads to improvement in skill efficiency and effectiveness. Researchers’ exploration of the limits and capacities of performers has enabled athletes of all abilities to perform at higher levels of achievement. The psychological effects of physical activity on well-being and strategies to enhance adherence to exercise and rehabilitation programs are some other areas of study within exercise science.

Sports are highly organized, competitive physical activities governed by rules. Rules standardize the competition and conditions so that individuals can compete fairly and achieve specified goals. Sports provide meaningful opportunities to demonstrate one’s competence and to challenge one’s limits. Competition can occur against an opponent or oneself.

People of all ages and abilities engage in sports for enjoyment, personal satisfaction, and the opportunity to attain victory and/or obtain rewards. The level of competition ranges from recreational sport to elite sport. When sport is highly developed, governing bodies regulate sport and oversee its management. Athletics refers to highly organized, competitive sports engaged in by skillful participants. At this level, coaches play a significant role, athletes are highly skilled, specially trained officials ensure the fairness of the competition, records are kept, events are promoted through the media, and spectators assume an important role. Sports occupy a prominent position in our society.

Since the early 1970s, there has been an enormous interest in the scholarly study of sport. These sport studies have focused on the significant role of sport in our society, its tremendous impact on our culture, and its effects on the millions of people who play sports and the millions more who watch and read about them. Scholars study the philosophical, historical, sociological, and psychological dimensions of the sport experience. Examples of areas of investigation include sport ethics, the influence of significant historical events on the sport experience, the inequities in sport opportunities for minorities, and the control of anxiety by athletes during performance. Other researchers have directed their attention to investigating the management of sport and its promotion. The growing popularity of sport and its prominent role in our society makes sport a vital area of study.
The realm of physical education, exercise science, and sport today embraces many different programs, diverse settings, and people of all ages. This recent growth of physical education, exercise science, and sport has been accompanied by an increased interest in its scholarly study. This research has led to the development of specialized areas of knowledge. The subsequent increase in the breadth and depth of knowledge provides a foundation for professional practice. The expansion of physical education, exercise science, and sport has led to a tremendous growth of career opportunities for enthusiastic and committed professionals.

**Physical Education, Exercise Science, and Sport**

Corbin defines a field as a “combination of a well-established discipline and one or more professions that deliver a social service” and are “focused on common goals.” Disciplinarians engage in research and scholarly endeavors to advance a knowledge base. This knowledge serves as a foundation for the professionals who deliver services to people. Professionals use this knowledge and their skills to design and deliver programs to meet the unique and changing needs of the people they serve. As we continue to grow and become increasingly specialized, we must keep sight of our common focus on physical activity. Both the professional and disciplinary dimensions of the field enrich our understanding and ability to promote lifespan involvement in regular physical activity for all people.

**The Profession**

Physical education, exercise science, and sport can be described with reference to their status as a profession. A profession is an occupation requiring specialized training in an intellectual field of study that is dedicated to the betterment of society through service to others. Professionals provide services to others through the application of knowledge and skills to improve people’s well-being.
Physical educators, exercise scientists, and sport leaders possess a bachelor’s degree and frequently pursue advanced study via graduate programs in the field. Their professional preparation programs include extensive study in the theoretical aspects of the field, skill and content knowledge development, and often practical experiences that allow them to apply their knowledge and use their skills under the guidance of qualified professionals. Additional requirements and certifications may be necessary to engage in professional practice.

Today there is increased recognition by society of the valuable contribution professionals in our field make to the lives of others. Our commitment to promoting lifespan physical activity for all members of society benefits the health of the nation. The expansion of physical education, exercise science, and sport programs to different settings and the involvement of people of all ages in our programs offer professionals increased opportunities to serve others and enhance their well-being.

The emergence of new professional opportunities has created a need for highly qualified professionals who possess a high level of skill, an appreciation and understanding of the needs of an increasingly diverse population, and a sound grasp of the knowledge of physical education, exercise science, and sport. Throughout the remainder of this text, the term professionals will be used in place of “physical educators, exercise scientists, and sport leaders.”

The Academic Discipline

In the 1960s, the field of physical education advanced its status as an academic discipline. Henry\(^\text{16}\) defines an academic discipline as

an organized body of knowledge collectively embraced in a formal course of learning. The acquisition of such knowledge is assumed to be an adequate and worthy objective as such, without any demonstration or requirement of practical application. The content is theoretical and scholarly as distinguished from technical and professional.

An academic discipline has a focus, a conceptual framework that provides structure for the field, a unique scope in comparison to other fields, and distinct scholarly methods and modes of inquiry leading to the advancement of knowledge and deeper understanding. This body of knowledge is worthy of study for its own sake and does not need to have any immediate application to professional practice. Traditional academic disciplines include biology, psychology, philosophy, history, and mathematics.

The seminal point in the development of the discipline movement occurred in 1964 when Franklin Henry called for the “organization and study of the academic discipline herein called physical education.”\(^\text{16}\) His clarion call came at a time when forces in society were exerting pressure for educational reform, improved educational standards, and greater academic rigor in the preparation of teachers. Then, physical education teacher preparation programs focused on the application of knowledge and endured criticism for their lack of academic rigor, their emphasis on the learning of job-related skills, and their focus on activity-based courses, such as basketball or badminton.

Henry’s call for an academic discipline stimulated greater scholarly activity by academicians at colleges and universities. Developing technologies, theoretical knowledge, and methods of scientific inquiry from other disciplines were directed to the study of physical education and increasingly to
development, motor learning, sport sociology, sport history, and sport philosophy. The rehabilitation sciences, particularly physical therapy, exerted an important influence on the development of sports medicine, athletic training, and adapted physical activity. Educational research significantly affected the development of physical education pedagogy. In the discipline of sport management, the influence of management, law, communication, and marketing is evident.

The growth of these disciplines broadens the scope of the field of kinesiology. Equally important, the interdependence between these growing areas offers us valuable knowledge and greater insight as we move toward the accomplishment of our goals. The disciplines are briefly described below.

**Exercise physiology** is the study of the effects of various physical demands, particularly exercise, on the structure and function of the body. The exercise physiologist is concerned with both short-term (acute) and long-term (chronic) adaptations of the various systems of the body to exercise. The effects of different exercise programs on the muscular and cardiovascular systems, the immune system, and the health status of different population groups such as children and the aged are just some areas of study within the field. Clinical exercise testing, design of rehabilitation programs for postcardiac patients, and planning of exercise programs to prevent cardiovascular disease are among the responsibilities of exercise physiologists. (See Chapter 7.)
### Table 1-1 Career Opportunities within the Disciplines of Physical Education, Exercise Science, and Sport

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Description</th>
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<tbody>
<tr>
<td>Exercise Physiology</td>
<td>Personal trainers, fitness directors, strength and conditioning specialists, group exercise instructor, cardiac and pulmonary rehabilitation specialists, and higher education faculty, physical therapists, and occupational therapists with advanced degrees.</td>
</tr>
<tr>
<td>Sport Medicine/Athletic Training</td>
<td>Sports medicine physician, athletic trainer, exercise physiologist, kinesiotherapist, physical therapist, nursing, doctor of osteopathy and nutrition/dietetics.</td>
</tr>
<tr>
<td>Sport Biomechanics</td>
<td>Lab technician in gait analysis and strength and flexibility; researcher, designer, and tester of sport companies, interfaces, and athletes; higher education faculty (most require an advanced degree).</td>
</tr>
<tr>
<td>Sport Philosophy</td>
<td>Coach, sport journalist, and advanced degrees could lead to becoming a lawyer and higher education faculty.</td>
</tr>
<tr>
<td>Sport History</td>
<td>Sport historian, higher education faculty (advanced degree required).</td>
</tr>
<tr>
<td>Sport and Physical Activity Psychology</td>
<td>Academic, clinical, applied with sport teams and individuals participating in physical activity (advanced degree required).</td>
</tr>
<tr>
<td>Motor Development</td>
<td>Physical/adapted physical education teacher, coach, rehabilitation specialist.</td>
</tr>
<tr>
<td>Motor Learning</td>
<td>Physical/adapted physical education teacher, coach, rehabilitation specialist.</td>
</tr>
<tr>
<td>Sport Sociology</td>
<td>Coach, journalist, higher education faculty (advanced degree required).</td>
</tr>
<tr>
<td>Physical Education Pedagogy</td>
<td>Physical education teacher, coach.</td>
</tr>
<tr>
<td>Adapted Physical Activity/Physical Education</td>
<td>Physical/adapted physical education teacher, coach, adapted physical activity director.</td>
</tr>
<tr>
<td>Sport Management</td>
<td>Account or event coordinator/director, media and public relations specialist, sales representative, sport facility operations manager, sports marking director, sports information director, sport agent.</td>
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**Sports medicine/athletic training** is concerned with the prevention, treatment, and rehabilitation of sports-related injuries. Athletic trainers’ responsibilities are broader than just administering treatment to the injured athlete on the playing field. From the standpoint of prevention, the athletic trainer works with the coach to design conditioning programs for various phases of the season, to correctly fit protective equipment, and to promote the welfare of the athlete, such as counseling the athlete about proper nutrition. With respect to treatment and rehabilitation, the athletic trainer assesses injuries when they occur, administers first aid, works collaboratively with the physician to design a rehabilitation program, provides treatment, and oversees the athlete’s rehabilitation. (See Chapter 13.)

**Sport biomechanics** applies the methods of physics and mechanics to the study of human motion and the motion of sport objects (e.g., a baseball or javelin). Biomechanists study the effect of various forces and laws (e.g., Newton’s laws of motion) on the body and sport objects. The musculoskeletal system and the production of force, leverage, and stability are examined with respect to human movement and sport object motion (e.g., spinning across the circle to throw a discus). Analysis of movements with respect to efficiency and effectiveness is used to help individuals improve their performance. (See Chapter 6.)

**Sport philosophy** examines sport from many different perspectives. Sport philosophy encompasses the study of the nature of reality, the structure of
knowledge in sport, ethical and moral questions, and the aesthetics of movement. Sport philosophers critically examine the meaning of sport for all participants involved and enjoin us to question our beliefs and assumptions about sport. Sport philosophers engage in systematic reflection, use logic as a tool to advance knowledge and arrive at decisions, and seek to understand the relationship between the mind and the body. Sport philosophers debate questions of ethics, morals, and values. (See Chapter 2.)

Sport history is the critical examination of the past, with a focus on events, people, and trends that influenced the development and direction of the field. History is concerned with the who, what, when, where, how, and why of sport. These facts, when placed in the social context of the time, help us better understand the present and gain insight regarding the future. (See Chapter 4.)

Sport and physical activity psychology uses principles and scientific methods from psychology to study human behavior in sport. Sport psychologists help athletes improve their “mental game,” that is, develop and effectively apply skills and strategies that will enhance their performance. Achievement motivation, regulation of anxiety, self-confidence, rehabilitation adherence, cohesion, and leadership are among the topics studied by sport psychologists. Recently, physical activity psychology has attracted greater attention from researchers. Physical activity psychology is concerned with exercise addiction, adherence, and other psychological issues affecting the well-being of people who are physically active. (See Chapter 9.)

Motor development studies the factors that influence the development of abilities essential to movement. The motor development specialist uses longitudinal studies (i.e., studies that take place over a span of many years) to analyze the interaction of genetic and environmental factors that affect the ability of individuals to perform motor skills throughout their lifespan. The role of early movement experiences, heredity, and maturation on children’s development of motor skills is an important focus of study. Professionals use theories of development to design appropriate movement...
experiences for people of all ages and abilities. (See Chapter 5.)

**Motor learning** is the study of changes in motor behavior that are primarily the result of practice and experience. The effect of the content, frequency, and timing of feedback on skill learning is a critical area of study. Motor learning is concerned with the stages an individual progresses through in moving from a beginner to a highly skilled performer. The most effective conditions for practicing skills, the use of reinforcement to enhance learning, and how to use information from the environment to modify performance are investigated by motor learning specialists. Motor control, intimately related to motor learning, is concerned with the neurophysiological and behavioral processes affecting the control of skilled movements. (See Chapter 5.)

**Sport sociology** is the study of the role of sport in society, its impact on participants in sport, and the relationship between sport and other societal institutions. Sport sociologists examine the influence of gender, race, and socioeconomic status on participation in sports and, more recently, physical activity. Drug abuse by athletes, aggression and violence, the effect of the media on sport, and player-coach relationships interest sport sociologists. The experiences of the millions of children involved in youth sport has also drawn the attention of sport sociologists. (See Chapter 8.)

**Physical education pedagogy** can be defined broadly to include the study of teaching and learning in school and nonschool settings. Physical education pedagogy studies how physical educators and sport leaders provide an effective learning environment, achieve desired learning goals, and assess program outcomes. Physical education pedagogy seeks to determine the characteristics and skills possessed by effective teachers and coaches and how these influence student/athlete activity and student/athlete learning. Curricular development, its implementation, and the preparation of teachers are major foci in physical education pedagogy. (See Chapter 10.)

**Adapted physical activity/physical education** is concerned with the preparation of teachers and sport leaders to provide programs and services for individuals with disabilities. Specialists modify activities and sport to enable people with different abilities to participate. By federal law, adapted physical educators
Physical education pedagogy studies the behaviors of teachers and coaches, identifying those that contribute to an effective learning environment.

Erik Isakson/Getty Images

Sport sociologists study the behavior of people in sport situations—athletes, coaches, and fans—as well as the impact of sport on the community.

Design Pics/Don Hammond
have a role in designing an individualized educational plan (IEP) for students with disabilities so that they can participate to the fullest extent they are able in school physical education. Advocacy to secure services and leadership to create more opportunities in physical education and sport are important aspects of this field. (See Chapters 10 and 12.)

Sport management encompasses the many managerial aspects of sport. These include personnel management, budgeting, facility management, and programming. Other aspects of sport management are law, policy development, fundraising, and media relations. Knowledge from this area can be used by professionals in many different aspects of the sport enterprise, including interscholastic and intercollegiate sports, professional sports, fitness and health clubs, community sport and recreation programs, and sporting goods sales. (See Chapter 14.)

ALLIED FIELDS

Health, recreation and leisure, and dance are frequently referred to as allied fields. These allied fields share many purposes with physical education, exercise science, and sport, namely the development of the total individual and concern for quality of life. However, the content of the subject matter of the allied fields and the methods used to accomplish their goals may vary from the subject matter and methods of physical education, exercise science, and sport.

Health

Health education concerns itself with the total well-being of the individual, encompassing physical, mental, social, emotional, occupational, and spiritual health. Three areas within health education are health instruction, provision of health services, and environmental health.

Health instruction focuses on teaching the basics of healthy living in many areas, including disease prevention, mental health, nutrition, physical fitness, stress management, and dealing with abuse of drugs and alcohol. Health services is concerned with developing and maintaining a satisfactory level of health for all people through services such as routine eye examinations, cholesterol and blood pressure monitoring, and cancer screening. Environmental health focuses on the development of healthful and safe environments where individuals are not needlessly exposed to hazards such as toxic chemicals and infectious materials.

Americans are becoming increasingly conscious of the instrumental role physical activity plays in one’s health-related quality of life. Data supporting the health benefits of participation in appropriate physical activity on a regular basis continue to mount. Accrued benefits of regular physical activity include the prevention of coronary heart disease, hypertension, noninsulin-dependent diabetes mellitus, osteoporosis, obesity, and mental health problems. Other benefits may include the reduction of the incidence of stroke and the maintenance of the functional independence of the elderly. Additionally, it has been found that, on average, individuals who are physically active outlive individuals who are physically inactive. The strong role regular and appropriate physical activity plays in the health and well-being of individuals further confirms the allied nature of health and physical education, exercise science, and sport.

Recreation and Leisure

Another allied field is recreation and leisure. Recreation and leisure are generally thought of as self-chosen activities that provide a means of revitalizing and refreshing one’s body and spirit. The spectrum of activities ranges from active to passive and from group to individual in nature.

It is within recreation and leisure opportunities that individuals of all ages can simply play. The notion of play, whether formal or informal, is often lost after early childhood and youth. Ask yourself, when was the last time that you played? How do you feel when you simply play? Most often, individuals have fun and feel a sense of enjoyment when they are free to play, create their own games and activities, and have the opportunity to express themselves through physical movement (or other forms of play).
Schools, communities, and businesses offer a wide range of activities to meet the fitness and leisure needs of individuals. Worksite fitness programs, industrial sport leagues, commercial fitness programs, competitive recreational leagues, instructional clinics, and open facilities for drop-in recreation are increasing in number. During nonschool hours, school facilities are the site for various recreational offerings for people of all ages. Many individuals and families pursue recreational activities independently as well.

Therapeutic recreation focuses on providing a broad range of services for individuals of all ages who have disabilities. Through a diversity of interventions, the individual’s quality of life is enhanced, the development of leisure skills is encouraged, and the integration of the individual into community recreational opportunities and life is emphasized.

Recreation and leisure can contribute to the quality of an individual’s life. They provide opportunities for individuals to engage in freely chosen activities, including physical activities that will yield beneficial health outcomes, during their leisure time.

**Dance**

The third allied area is dance. Dance is a popular activity for people of all ages and is both a physical activity and a performing art that gives participants an opportunity for aesthetic expression through movement.

As a form of recreation, dance provides opportunities for enjoyment, self-expression, and relaxation. Dance also can be used as a form of therapy, providing opportunities for individuals to express their thoughts and feelings. It provides a means to cope with the various stresses placed on individuals. Dance is increasingly used as a means to develop fitness.

There are many forms of dance that are enjoyed by individuals—including ballet, ballroom, folk, clog, modern (e.g., salsa and hip-hop), square, and tap. Cultural heritage is reflected in and passed on through dance activities.

Physical activity contributes to health and fitness throughout life. Bicycling is an excellent activity for people of all ages.

Ariel Skelley/Blend Images LLC
Health, recreation and leisure, and dance are allied fields to physical education, exercise science, and sport. The overall focus of these fields of endeavor is the development of the total individual and the enhancement of each person’s quality of life. attainment of these aims involves health promotion, pursuit of worthy leisure-time activities, and creative expression through dance. These experiences, coupled with the movement activities that compose the realm of physical education, exercise science, and sport, offer the potential to enhance the lives of people of all ages. Fulfillment of this potential will depend on the quality of leadership provided by professionals in health, recreation and leisure, dance, physical education, exercise science, and sport.

GROWING AS A PROFESSIONAL IN PHYSICAL EDUCATION, EXERCISE SCIENCE, AND SPORT

As a future professional, it is important that you make a commitment to your discipline that goes well beyond your academic course work and practical experience. You might ask why it is important for professionals with bachelor’s and graduate degrees to continue professional development throughout their careers. The primary reason is that our field and your specialized area of study is constantly changing, placing us in a position to continue our knowledge development based on the latest research, both scientific and practitioner-based. Research findings create opportunities for professionals to inform, change, modify, and enhance their practice. If you do not want to be that professional that is deemed “old school,” then it is your ethical duty to stay current in the latest research, practice, and technologies to provide your students, clients, and players with the most accurate and effective instruction and practice.

Do you believe everything that you hear and read or do you draw your own conclusions? How do you know what to believe or not to believe (i.e., what is fact and what is falsified interpretation)? In the first part of this text, we are going to educate you on how to read and critique research by guiding you through the 12 Steps to Understanding Research Reports (see box). In the Self-Assessment Activities found at the end of
### 12 STEPS TO UNDERSTANDING RESEARCH REPORTS

<table>
<thead>
<tr>
<th>Steps</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1—Citation</td>
<td>What is the name of the study, who is the author(s), and where and when was it published? Report the complete reference citation using APA format.</td>
</tr>
<tr>
<td>Step 2—Purpose and General Rationale</td>
<td>What was the purpose of the study and how did the author(s) make a case for its importance? Is the study quantitative or qualitative in nature?</td>
</tr>
<tr>
<td>Step 3—Fit and Specific Rationale</td>
<td>How does the topic of the study fit into the existing research literature, and how is that information used to make a specific case for the investigation?</td>
</tr>
<tr>
<td>Step 4—Participants</td>
<td>Who was studied (give number and characteristics), and how were they selected to participate in the study?</td>
</tr>
<tr>
<td>Step 5—Context</td>
<td>Where did the study take place? Describe important characteristics of the environment and setting (e.g., group demographics).</td>
</tr>
<tr>
<td>Step 6—Steps in Sequence</td>
<td>In the order performed, what were the major procedural steps in the study? Describe or diagram in a flowchart. Show a sequential order and any important relationships among the steps.</td>
</tr>
<tr>
<td>Step 7—Data Collection</td>
<td>What data sources were used (e.g., test scores, questionnaire responses, or frequency counts for a quantitative study or field notes, interview transcripts, photographs, or diaries for a qualitative study), how were the data collected, and what was the role of the author(s) throughout the process?</td>
</tr>
<tr>
<td>Step 8—Data Analysis</td>
<td>What form(s) of data analysis was used, and what specific questions was it designed to answer? What statistical operations and computer programs, if any, were employed?</td>
</tr>
<tr>
<td>Step 9—Results</td>
<td>What did the author(s) identify as the primary results (products or findings produced by the analysis of data)? In general, “what was going on there?”</td>
</tr>
<tr>
<td>Step 10—Conclusions</td>
<td>What did the author(s) assert about how the results in step 9 responded to the purpose(s) established in step 2, and how did the events and experiences of the entire study contribute to that conclusion?</td>
</tr>
<tr>
<td>Step 11—Cautions</td>
<td>What cautions does the author(s) raise about the study itself or about interpreting the results? Add here any of your own reservations, particularly those related to methods used to enhance validity and credibility (quantitative) or trustworthiness and believability (qualitative).</td>
</tr>
<tr>
<td>Step 12—Discussion and Application</td>
<td>What interesting facts or ideas did you learn from reading the report? Include here anything that was of value in regard to results, research designs and methods, references, data-collection instruments, history, useful arguments, or personal inspiration. How can the information learned be applied to improve professional practice? Or, what were the implications of this study for a practitioner?</td>
</tr>
</tbody>
</table>

each chapter, a specific activity will be provided that centers on how to find research articles as well as the 12 steps as you learn how to read research reports found in professional journals. We will also emphasize how research can inform professional practice and provide you with opportunities to apply research findings to your future profession.

**Reading Research**

Before you begin to read research reports, it is important for you to understand research terminology that will provide different perspectives from which you will analyze and critique reports in professional journals. First, it is important to distinguish between scientific and practitioner-based research. *Scientific research* is based on a systematic approach to gathering information that potentially answers an investigated question, whereas *practitioner-based research* focuses on how to apply the information learned within your instruction or area of practice.

Second, research reports are usually based on two paradigms (i.e., types) of research: quantitative and qualitative. *Quantitative research* is based on numbers, primarily the statistical analysis of numeric data that were gathered. Quantitative reports typically describe, correlate, predict, or explain a hypothesis that was posed at the beginning of a study. In contrast to quantitative research, *qualitative research* answers questions through words, images, and sounds. The purpose of this research is to learn more about the social context in which the participants live, which is conducted through the lens and interpretation of the researcher(s). As you read quantitative and qualitative reports, Locke, Silverman, and Spirduso suggest that you attempt to answer five basic questions:

1. What is the report about?
2. How does the study fit into what is already known?
3. How was the study done?
4. What was found?
5. What do the results mean?

Quality research that is scientific and practitioner-based within the quantitative and qualitative paradigms has the potential to provide the reader with new knowledge that can inform the practice of all professionals.

**Staying Up to Date with Technology**

In today’s society, technology influences many aspects of our lives and will play an important role in your professional endeavors. Technology helps professionals stay abreast of new developments in the field, facilitates communication among professionals, and plays a role in professional activities such as teaching, assessment, and research.

Electronic databases such as ProQuest, Academic Search Premier, and SPORTDiscus provide ready access to professional journals. RSS, Really Simple Syndication, lets you subscribe and receive up-to-date information from online newspapers, some electronic journals, and government initiatives. Additionally, professionals can subscribe to updates from the US Department of Health and Human Services (http://www.hhs.gov; click on the icon to subscribe to updates) to get the most current information and decisions on issues such as obesity, morbidity, nutrition, physical activity, and hypokinetic diseases. Smartphone applications can deliver this information directly to your fingertips.

Through the World Wide Web and the Internet, communication with other professionals can occur rapidly. E-mail is one of the most common ways to communicate. Real-time communication between professionals can occur using LinkedIn, instant messaging programs, and other applications, such as FaceTime, Zoom, and Skype, let professionals engage in phone and video chat. Live web conferencing programs, such as Adobe Connect, allow professionals to share presentations and multimedia from their desktops and receive feedback from other professionals. Although having such readily available information is convenient, you need to be critical consumers about the information that you get from the World Wide Web and the Internet. To help guide your critical analysis of web pages, see the Critiquing the Web box.
Social media, such as Facebook, Twitter, Ning, and Tapped In (http://www.tappedin.org), lets professionals communicate with each other, form groups around common interests, and readily exchange ideas. Blogging (e.g., Tumblr), the posting of commentary, video, and photos (e.g., Instagram, Pinterest), gives professionals the opportunity to stay cognizant of current trends and issues as well as contribute to the discussion. Wikis, collaboratively built web pages, allow professionals to work together to develop new websites of professional interest. Social bookmarking sites, such as Digg, invite people to bookmark websites of interest, tag them with descriptors, and choose to share them with other people.

Sharing of ideas, best practices, and research is easy and convenient. Websites such as PE Central and PHE America invite professionals to voice their opinions, share lesson plans, and post best practices, while providing a multitude of resources. YouTube provides individuals all over the world with video clips that range from children engaged in daily activity to the latest fitness techniques. Consumers (i.e., you) need to analyze and critique the information to determine what is and is not accurate or appropriate practice.

Continuing your professional development is an important responsibility of professionals. Webinars and podcasts offer the opportunity to stay on top of professional development opportunities. Online courses and degrees allow you to continue your education without having to be physically present in a classroom or educational institution.

There are also many computer applications that help professionals work more efficiently and effectively. Word processing, spreadsheet, and statistical applications facilitate writing and data collection and analysis. Smartphone applications conveniently provide professionals with access to a myriad of programs that help them perform their work. Sample applications include exercise prescription, tracking of client or student performance, and physical activity information.

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**CRITIQUING THE WEB**

These are tips for evaluating the quality of content on the web. In recent years, the web has become a rich environment of pages, blogs, wikis, social networking sites, free research services, media, and more. It can be a challenge to figure out which content to trust. This information will help you identify the type of site you are visiting and evaluate its content.

Here are a few general tips for evaluating content on the web. Check that the...

- author has expertise on the topic.
- source of the content is stated, whether original or borrowed, quoted, or imported from elsewhere, and that the content can be independently verified from other sources. This is especially important if you cannot check on the expertise of the author or if the author is not identified.
- level and depth of the information meets your needs.
- site is currently being maintained. Check for posting or editing dates.
- information is up to date.
- links are relevant and appropriate, and in working order.
- site includes contact information.
- top-level domain in the site address is relevant to the focus of the material, e.g., .edu for educational or research materials, .org for profit or nonprofit organizations, .gov for government sources. Note that the top-level domain is not necessarily a primary indicator of site content. For example, some authors post their content on blog or wiki platforms hosted by companies with .com addresses.

Source: Adapted from: http://library.albany.edu/usered/eval/evalweb.
Current technology, as well as new and emerging technologies, means that it is easier for professionals to remain abreast of developments in the field. Communicating and collaborating with colleagues, sharing ideas and resources, and taking advantage of professional development opportunities are just some of the ways in which technology helps professionals fulfill their responsibilities.

CURRENT TRENDS: MOVING TOWARD THE FUTURE

- The disciplines within the field of kinesiology will continue to be interdisciplinary, yet also align with other areas within the medical, health, and business fields.
- Advanced degrees are increasingly required for many professions within the disciplines.
- The disciplines of exercise physiology, sport medicine/athletic training, and sport management are rapidly expanding.
- Physical activity levels, nationally and worldwide, will continue to decline if access and opportunity are not provided to all individuals.
- Physical activity and health initiatives and policy will begin to make a positive impact on people's longevity and quality of life.
- Empirical research will continue to provide us with valuable information that will allow us to make informed decisions about our health and wellness.

SUMMARY

Contemporary physical education, exercise science, and sport are rapidly changing within the broader field of kinesiology. Physical education is defined as an educational process that uses physical activity as a means to help individuals acquire skills, fitness, knowledge, and attitudes that contribute to their optimal development and well-being. Exercise science is the scientific analysis of exercise or, more inclusively, physical activity. Sport is a highly organized, competitive physical activity governed by rules where the outcome is largely determined by skill and strategy. Rules standardize the competition and conditions so that individuals can compete fairly.

Physical education, exercise science, and sport includes both disciplinary and professional dimensions. The discipline is the body of knowledge of the field. Scholars and researchers engage in activities designed to provide greater scientific understanding and insight. The professional dimension of the field focuses on providing services to people of all ages in many different settings. Professionals use the body of knowledge and specialized skills to meet the unique needs of people and help them improve their health and quality of life.

The growth of knowledge in physical education led to that change in the "field" to kinesiology as well as to specialized areas of study, such as sport and physical activity psychology, sport sociology, physical education pedagogy, sport philosophy, sport biomechanics, exercise physiology, motor development, motor learning, adapted physical activity/physical education, sport history, and sport management. Each practitioner should be knowledgeable about these specialized areas of study as well as appreciate their interrelatedness and their contribution to the discipline as a whole.

The field of kinesiology, and specific to this text, the professions of physical education, exercise science, and sport is continuously changing. To grow as a professional, it is important to stay up to date with the latest research, both scientific and practitioner-based, and technological tools. Understanding research reports, learning about research findings, and utilizing the newest technology allow professionals the opportunity to provide best practices and instruction to students, clients, and athletes within physical education, exercise science, and sport programs.
DISCUSSION QUESTIONS

1. More and more individuals of all ages engage in physical activity, yet the number of overweight, obese, and unhealthy individuals continues to rise. Discuss how professionals in physical education, exercise science, and sport can continue to educate and find ways to engage people in physical activity in an attempt to combat the poor health issues that plague individuals of all ages.

2. In this text, we have named kinesiology as the “field” and refer to physical education, exercise science, and sport as professions within this field. In today’s society, should kinesiology be considered the field? Is there a different name that should be considered for the field of human movement and physical activity? Or, should there be multiple fields? Explain your reasoning behind your decision. What factors can you use to support your stance?

3. Of the disciplines, which one most closely aligns with your desired profession? Why have you chosen to go into that profession?

GET CONNECTED

Newsletters, RSS feeds, and podcasts are just some of the ways to stay abreast of current news, research, and developments related to physical education, exercise science, and sport.

US Department of Health and Human Services—this site offers access to RSS feeds, podcasts, videos, and newsletters related to health. There are instructions on the site explaining how to watch, listen, or subscribe to a wide variety of information on health and physical activity.

https://www.hhs.gov/

American College of Sports Medicine—ACSM Fit Society electronic newsletter for the general public, focusing on popular health, sport, nutrition, and fitness topics.

https://www.acsm.org/ > Fit Society Page > sign up to subscribe.

PHE America Newsletter—sponsored by PHE America, this website offers a monthly newsletter and articles on a variety of topics, primarily related to the teaching of physical education and the promotion of active lifestyles. It also offers a directory of e-mailing lists and newsgroups for sport sciences, athletic training, wellness, and health.

http://www.pheamerica.org/

SELF-ASSESSMENT ACTIVITIES

These activities are designed to help you determine if you have mastered the materials and competencies presented in this chapter.

1. Without consulting your text, describe the disciplines of the field of kinesiology. Discuss how these areas are interrelated. Use examples to illustrate why it is important to be knowledgeable about the various specialized areas within the discipline.

2. Compare and contrast the definitions of exercise, physical activity, physical education, physical fitness, and sport. Describe how they are interrelated and whether one supersedes the others.

3. Refer to the 12 Steps to Understanding Research Reports box. Search for two scientific journals in which you can find research articles that focus on contemporary physical education, exercise science, and
sport or one of the disciplines. Within these journals, you must be able to identify at least one original research article. This means that the authors of the article conducted the research study and are not referencing or analyzing data found in other research articles.

4. The Get Connected box lists resources for physical education, exercise science, and sport. Subscribe to a newsletter. Discuss the benefits the Internet offers to professionals in the field. For the semester, keep copies of your resources and summarize what you have learned at the end of the semester.

REFERENCES