



Careers in Sports Medicine and Exercise Science

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Career decisions are always difficult to make, especially when you need answers to questions you cannot easily put into words. The American College of Sports Medicine hopes this guide will assist you in making these difficult career decisions.

What is Sports Medicine and Exercise Science?

Sports Medicine is the field of medicine concerned with injuries sustained in athletic endeavors, including their prevention, diagnosis, and treatment. The purpose of injury prevention and treatment is to maintain optimal health and maximize peak performance. Traditionally, sports medicine was the sole domain of the team doctor, who worked mostly with college, professional, and Olympic athletes. Today, however, the sports medicine team is comprised of many disciplines including, for example, athletic training, biomechanics, exercise physiology, and nutrition. Sports medicine specialists also work with non-professional athletes and those participating in various recreational activities, for example children involved in youth sports or older adults training for foot races.

Exercise Science is the study of movement and the associated functional responses and adaptations. In this context, an exercise scientist must understand the scientific basis underlying exercise-induced physiological responses. The field of exercise science involves a range of disciplines similar to those in sports medicine; consequently, it is common for exercise science professionals to work in sports medicine facilities. The field of exercise science, however, is typically much broader than sports medicine, ranging from the study of how organ systems work at the cellular level when confronted with disease, to improving the biomechanical efficiency of an employee working on an assembly line.

Strict categorizing of a specific discipline (for example, exercise physiologist, dietitian, biomechanist) to either sports medicine or exercise science is difficult. It simply depends on the emphasis and application of the setting in which one works. What is important to understand is that many different disciplines comprise what is called sports medicine and exercise science. And they work together as a team in order to understand and ultimately improve the health and performance of the whole individual. Without this multidisciplinary approach to the whole person, the end result tends to be less than optimal. A rigorous training program, for example, may have little impact on the health or performance of an individual if nutritional considerations are neglected.

What Can I Do With a Degree in Sports Medicine or Exercise Science?

The list below is not all-inclusive, but does identify and discuss some of the most common fields of study, career and job opportunities, and specialty areas under the umbrellas of sports medicine and exercise science. Typical employment opportunities and minimal educational requirements are included.

Aerobics/Group Exercise Instructor

An aerobics instructor leads exercise sessions for a group of participants. The group may be heterogeneous, including individuals with different fitness levels, medical concerns and ages, or homogeneous, with individuals who have similar characteristics such as arthritis, frail and elderly, or pregnancy. Examples of group exercise instruction include land- or water-based dance/step aerobics, chair aerobics, and cycling. Aerobics instructors can be employed in a variety of settings including commercial fitness centers, employee fitness programs, or hospitals. Minimal requirements are an undergraduate degree and some type of recognized certification, such as that from the American College of Sports Medicine.



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Athletic Trainer

Athletic trainers work with team physicians, exercise physiologists, physical therapists and coaches in the care and prevention of illness and injury related to sports and exercise. An undergraduate degree from an accredited program by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) is required to sit for the National Athletic Trainers' Association (NATA) certification examination beginning in the year 2004. In most states licensure is required. One of the requirements for licensure is to successfully pass the NATA certification examination. Athletic trainers typically work with athletes at the high school, college, or professional level. They might also be employed in sports medicine clinics.

Biomechanist

Biomechanics is the study and explanation of the laws of physics as applied to physical activity, exercise and sport. Biomechanics can be used to explain how muscles, bones, and joints are injured under certain conditions and to improve performance using motion analysis techniques. Biomechanists are typically employed in research settings and clinical sites, but future growth appears to be in industrial ergonomic settings. Minimal requirement is a master's degree.

Cardiopulmonary Rehabilitation Specialist

This exercise specialist provides both immediate and long-term guidance for the physical rehabilitation of individuals who have one or more cardiac or pulmonary-related conditions or diseases, such as heart attack, heart surgery, or emphysema. A major component of this physical rehabilitation is to administer and supervise exercise testing and training sessions. Hospitals hire exercise specialists and require at least an undergraduate degree. However, opportunities for employment improve with an advanced degree and some type of recognized certification, such as that by the American College of Sports Medicine.

Dietitian/Sports Nutritionist

Dietetics is the study of nutrient intake and how foods are digested and metabolized in order to provide the necessary energy to fuel muscular activity. Dietitians also study dietary patterns in order to maximize performance and to prevent disease and improve health. To become a registered dietitian, you must complete an undergraduate degree in dietetics, complete a nine-month American Dietetics Association (ADA) approved internship and pass the ADA certification examination. Dietitians can be employed in a variety of settings including hospitals, clinics, school systems, and public health facilities.

Employee Fitness Director

Employee fitness programs are common in the workplace, especially in large companies. Along with conducting

exercise programs, the exercise scientist may also be trained as a wellness specialist to provide broad-based health

promotion and wellness education programs. These may include stress management and nutrition education programs. Traditionally, workplace exercise programs have been for healthy individuals only. However, to reduce health care costs, employee fitness centers are becoming more clinically based in terms of exercise training all employees, including those with cardiac, pulmonary or musculoskeletal problems. At least an undergraduate degree is required. It is also recommended to obtain a recognized certification, such as that by the American College of Sports Medicine.

Exercise Physiologist

An exercise physiologist studies the acute and chronic physiological responses and adaptations resulting from physical activity. They can apply this knowledge to improve or maintain health, fitness or performance. Traditionally, exercise physiologists worked and studied only with athletes to improve performance. Today, however, exercise physiologists also work and study in commercial, clinical, and workplace settings to increase health, fitness, and quality of life of the general population. For example, an exercise physiologist may work as a cardiopulmonary rehabilitation specialist, a personal trainer, or direct an employee fitness program. At least an undergraduate degree is required.

Medical Physician

A medical physician is highly trained in the art and science of the diagnosis and treatment of disease and the maintenance of health. Medical schools require a minimum of four years after a basic college degree. Beyond medical school there are many specialties to choose from in order to be part of a sports medicine or exercise science team. Such specialties might include primary care sports medicine, orthopedic surgery, or cardiology. Each specialty has from three to five years of intern and residency training and perhaps an additional one to two years of fellowship training. Most medical doctors are employed in clinics or hospitals.

Occupational Physiologist

Occupational physiologists work with many different professionals to improve the performance of workers by enhancing their health and occupational abilities, preventing or rehabilitating workplace injuries, and redesigning the work environment to fit the worker. They may also develop and administer pre-employment physical capacity tests to determine if the worker is fit to perform the job. An advanced degree beyond the undergraduate level is typically required, and it is helpful to be certified by the Board of Certification in Professional Ergonomics.



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Personal Trainer

A personal trainer typically works one-on-one with an individual and is generally paid by the hour or exercise session. The exercise session can take place at the client's home, the trainer's place of employment or business, or at a third-party fitness facility. In reality, all exercise scientists who work with exercising adults are personal trainers because of the individual exercise prescription that is given to each client based upon their health status, goals, and the like. At least an undergraduate degree and recognized certification, such as that by the American College of Sports Medicine, is recommended.

Physical/Occupational Therapist

A physical therapist helps people recover from injuries or diseases of the muscles, joints, nerves or bones. An occupational therapist works more with fine motor skills and dexterity. Both therapists use various physical modalities and exercise, focusing on movement dysfunction. There are many areas of specialization in physical therapy including cardiopulmonary rehabilitation, sports medicine and biomechanics. Most physical and occupational therapy schools require two to three years after a four-year undergraduate degree. Following formal training one must pass a national examination to become a licensed physical or occupational therapist. Most employment opportunities are in hospitals and clinics.

Researcher

Researchers conduct studies from either a basic or applied scientist's perspective. Basic researchers usually conduct studies with a focus on the cellular and molecular levels, such as how organ systems work, adapts or respond to various factors. Sometimes this is referred to as bench research, especially if animal models are used. Applied researchers usually conduct studies with a focus on more practical questions that appear to be more applicable for immediate use, such as ways to increase athletic performance or how to improve health and reduce disease. Either career requires getting a terminal degree, such as a Ph.D., which involves at least four to five years beyond the undergraduate level. Most researchers are employed in universities and hospitals.

Strength (Sport) and Conditioning Coach

Sports teams at the high school, college and professional level employ strength and conditioning coaches. Their role is to develop and supervise specific conditioning programs to increase athletic performance such as speed, agility, strength, endurance, flexibility and power. Positions usually require a master's degree and certification by the National Strength and Conditioning Association.

Teacher

Teachers can be employed at the elementary through college level. If you desire to teach physical education or

coach at the elementary or secondary level, an undergraduate degree is required, and you must be certified by the state in which you teach. With a master's degree you may be able to teach at a college or university, especially if coupled with practical experience. However, these opportunities are limited. In higher education, it is customary to hire those with a terminal degree, such as a Ph.D., which is four to five years beyond the undergraduate level. Teachers at the college or university level often conduct research.

As you can tell from this partial list there is a diversity of career and job opportunities, fields of study, and specialty areas in sports medicine and exercise science. What may be of importance to you is that most undergraduate degrees in the sports medicine or exercise science field require a strong background in the basic sciences. This provides a strong foundation to meet the requirements for an advanced degree or for a professional school (for example, to become a physician assistant or physical therapist). Check with schools that interest you to identify the specific requirements for admission to these type of advanced or professional-degree programs.

What Starting Salary Can I Expect?

With an undergraduate degree and no experience, a starting salary of \$18,000 to \$30,000 per year is probably a good guess. However, understand that the starting salary for sports medicine and exercise science professionals is difficult — nearly impossible — to predict because of such factors as experience, geographic location, employment setting and market demand. It can also depend upon licensure and certification. An advanced degree may pay more. The best way to gauge what salary you can expect is to speak with professionals who currently work in your field of interest. Since geography can heavily dictate salary, it is important that you speak with those who work where you are job seeking. Again, it is important to emphasize that many factors, including those mentioned above, can impact this salary range.

Attaining A Career in Sports Medicine or Exercise Science

Now that you know a little more about sports medicine and exercise science, how do you know whether a career in this profession is for you? Answering the questions and following the advice provided below may be helpful.

1. Assess your interests.

Do you enjoy and participate in exercise as it relates to health, fitness or athletics? Are you interested in any of the specialty areas, career opportunities or fields of study mentioned in the previous section such as medicine, teaching, research or leading exercise classes? Have you enjoyed classes in high school or college such as physical

fitness, health and wellness, or nutrition? Do you enjoy reading health and wellness magazines? Do you enjoy helping and working with people? When you read job opportunities and job descriptions in sports medicine or exercise science classifieds, do you get excited about the possibility of working in these environments?

2. Determine your career goals and the education requirements necessary to achieve them.

Where do you see yourself in five years? Are you willing to commit to the necessary education, academic training and professional preparation that is required? Can you afford it financially? Will you enjoy taking courses in anatomy and physiology, chemistry, physics, and math? How about courses such as exercise physiology, nutrition, behavior modification, kinesiology and exercise prescription? Do the colleges and universities that are of interest to you offer the coursework and preparation that will help you to achieve your goals? (You can purchase a copy of the ACSM's *Directory of Undergraduate Programs in Sports Medicine and Exercise Science* or ACSM's *Directory of Graduate Programs in Sports Medicine and Exercise Science* from the American College of Sports Medicine to assist you in finding a program that meets your needs).

3. Volunteer, observe, and ask questions.

Have you talked to people who currently work in your field of interest, including college professors who teach in sports medicine or exercise science degree programs? You can also ask your teachers or guidance counselors to invite sports medicine or exercise science professionals to your school's career fairs. Have you volunteered or observed at least 50 hours in various sports medicine or exercise science settings? If not, ask your teachers, guidance counselors, parents, relatives or friends to arrange for you the opportunity to shadow sports medicine and exercise science professionals.

4. Enroll in an "Introduction to the Profession" survey course.

Most degree programs in sports medicine and exercise science have an "introduction to the profession" survey

course. They are usually open to any student enrolled at the institution and can be taken during the freshman year. The course will provide much more information about the field than what can be given in a brochure such as this one. More than likely, you will be required to volunteer and observe at various sports medicine and exercise science facilities in the area. You will also become knowledgeable about the degree program at that school in terms of coursework, specific degree requirements, minors or tracks of specialization that are offered, and much more. You will also be able to ask a lot of questions and get them all answered by a sports medicine or exercise science professional.

Getting Started

Sports medicine and exercise science are exciting and growing career paths. If you are interested in pursuing a career in these areas, the best advice is to obtain as much information as you can about the profession. Reading this brochure is a start. Only then can you decide which of the many specialties closely match your needs, talents and expectations. Good luck!

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