What is Exercise Physiology?

Physiology is the scientific study of the body and how it works, including all of the mechanical, physical and chemical processes that take place. Exercise physiology utilises this knowledge to prescribe effective exercise programs for rehabilitation and relief from pain and discomfort as well as to treat many chronic health conditions.

The knowledge base that defines exercise physiology is central to the discipline of kinesiology. By the late 19th century, interest in physical training, physical education, and sports began to emerge in the United States. By the beginning of the 20th century, exercise physiology was being included in college physical education degree programs, and by the end of World War II had become an integral part of the curriculum. Today exercise physiology has developed into a major field of study with many sub-areas of investigation. Although the information and knowledge base in exercise physiology has increased in depth and scope, it is grounded in the fundamentals of biology and human physiology. The basic goal of an exercise physiology course designed for the kinesiology major should provide the student with an understanding of how the physiological systems involved in physical activity respond to an acute bout of exercise, and how these systems adapt to various modes of exercise training and environmental conditions. Course requirements to meet this goal are provided.

What is kinesiology?

Kinesiology, literally defined, is the study of human movement. More broadly defined, kinesiology focuses on the biological, developmental, social and behavioural bases of physical activity, recreation, sport and human performance. People with degrees in kinesiology typically specialize in one of several fields, including exercise physiology; sport and exercise psychology; motor behaviour and control; history and philosophy of sport and exercise; biomechanics; sports and exercise sociology; physical education; recreation and leisure studies; and ergonomics.

What is sports medicine?

Sports medicine deals directly with injuries sustained in sports, exercise and physical activity, including their prevention, diagnosis and treatment.

Historically, this field was dominated by physicians, but today sports medicine includes professionals from many different fields who have shared interest in preventing and treating physical activity-related injuries. This includes physicians, athletic trainers, nutritionists, exercise physiologists, physical therapists and bio-mechanists.

What is exercise physiology?

Exercise physiology is a specialization within the field of kinesiology. These medical professionals study the body's responses to physical activity as well as how the body adapts to physical activity over time. Exercise physiologists are responsible for conditioning clients to higher levels of physical fitness and improved health, while staying tuned into safety issues that can be associated with single session exercise.

How is exercise physiology different from exercise science?

Both exercise science and exercise physiology are terms that describe a field of study devoted to understanding the acute and chronic responses to exercise, physical activity and sport. Though not an absolute rule, academic programs in exercise physiology typically have more uniform and standardized physiology-based curricula. In contrast, exercise science programs can have curricula that vary widely from one program to the next and range from focuses on physical education to health and human performance to kinesiology and exercise physiology.

Abstract

Exercise physiology plays an important role in the practice of clinical sports medicine. Exercise physiology research has identified important effects of exercise on the body's systems, tissues, and cells. On-going research is investigating the role of exercise in subcellular, molecular, and chemical processes. Increasingly, sports medicine physicians and other practitioners are using the findings of this research to help athletes achieve peak performance, and nonathletes achieve better health through exercise. Many areas of sports medicine practice, including exercise testing, safety, performance evaluation, correction of training problems, and prevention of problems that affect specific populations (e.g, older athletes, women, children), benefit from the application of exercise physiology theory and research.

Definitions: Exercise Science vs. Exercise Physiology

Comparing exercise science vs. exercise physiology reveals similarities, such as a shared interest in health and wellness. It also shows differences in focus. An exercise science degree can lead the way to a career helping people create exercise routines and achieve their health and fitness goals. Pursuing an exercise physiology job will allow you to study exercise's effects and prescribe fitness plans.

Exercise Science

Exercise science examines how the body adapts to exercise. The study of exercise science includes considering human movement from a range of standpoints — from historical to psychological to physiological.

A broad term, exercise science encompasses a variety of careers in the growing field of movement and exercise. Coaches, trainers, and corporate wellness managers are among those who often have exercise science degrees.

Exercise Physiology

Exercise physiology is targeted at analyzing, enhancing, and maintaining mental and physical health. Exercise physiologists design and deliver exercise routines for those with specific fitness concerns, such as an injury, illness, or focus on athletic performance.

As with physical therapy, exercise physiology involves helping to restore movement to body parts affected by disease, injury, or other conditions. What sets exercise physiology apart is that it examines how exercise affects bodily systems and organs. Exercise physiologists assess fitness by measuring characteristics such as pulse, oxygen level, strength, and flexibility. Based on that evaluation, they develop customized exercise plans.

Similarities between Exercise Science and Exercise Physiology

Exercise science and exercise physiology careers require similar interests and degrees.

Movement and Exercise

Both exercise science and exercise physiology study movement and exercise. They call on a fitness program's basic building blocks, such as training for aerobics, strength, the core, flexibility, and balance. Both exercise science and exercise physiology are suited for those with an interest in physical activity, exercise, and sports.

Differences Between Exercise Science and Exercise Physiology

While exercise science can include many health and fitness pursuits, exercise physiology emphasizes the body's response to physical activity.