Journal of Athletic Enhancement

Perspective A SCITECHNOL JOURNAL

An Overview on Athletic Physiology and its Applications

Christina Cameron*

Department of Health, Deakin University, Geelong, Australia

***Corresponding author:** Christina Cameron, Department of Health, Deakin University, Geelong, Australia; E-mail: cameron_christina@kin.edu.au

Received date: 20 February, 2023, Manuscript No. JAE-23-93014;

Editor assigned date: 23 February, 2023, Pre QC No. JAE-23-93014 (PQ);

Reviewed date: 09 March, 2023, QC No. JAE-23-93014;

Revised date: 16 March, 2023, Manuscript No: JAE-23-93014 (R);

Published date: 23 March 2023, DOI: 10.4172/JAE.100052.

Description

Athletic physiology is the scientific study of the functions and adaptations of the human body in response to physical exercise and training. It involves the study of how the body's various systems, such as the muscular, cardiovascular, respiratory, and nervous systems, work together to support physical activity and how they respond to training stimuli to improve athletic performance.

The muscular system is one of the primary systems involved in physical activity, and athletic physiology focuses on how the muscles generate force and power, and how they adapt to training. Muscle fibers are classified into two types: slow-twitch fibers (type I) and fast-twitch fibers (type II). Slow-twitch fibers are used in activities that require endurance, such as distance running, while fast-twitch fibers are used in activities that require power and speed, such as sprinting and weightlifting. Training can cause changes in the size and number of muscle fibers, and can also improve their ability to produce energy and contract forcefully.

The cardiovascular system is also important in athletic physiology, as it delivers oxygen and nutrients to the working muscles and removes waste products. During exercise, the heart rate increases to pump more blood to the muscles, and the blood vessels dilate to increase blood flow. Training can cause adaptations in the cardiovascular system, such as an increase in the size and strength of the heart, which can improve its ability to pump blood and deliver oxygen to the muscles.

The respiratory system is also involved in physical activity, as it brings oxygen into the body and removes carbon dioxide. During exercise, breathing rate and depth increase to bring in more oxygen and remove more carbon dioxide. Training can cause adaptations in the respiratory system, such as an increase in lung capacity and the efficiency of gas exchange, which can improve endurance performance.

The nervous system plays a key role in athletic performance, as it controls the activation of muscles and the coordination of movements. It also plays a role in regulating the cardiovascular and respiratory systems during exercise. Training can cause adaptations in the nervous system, such as an improvement in the ability to activate and coordinate muscle fibers, which can improve power and speed performance.

In addition to the physiological systems, athletic physiology also considers other factors that can affect athletic performance, such as nutrition, hydration, and sleep. Proper nutrition is essential for providing the body with the energy and nutrients needed for physical activity and for supporting the adaptations that occur during training. Adequate hydration is also important for maintaining performance and preventing heat-related illness. Sleep is important for recovery and for supporting the physiological adaptations that occur during training.

Athletic physiology has practical applications in the fields of sports performance and exercise science. Athletes and coaches can use the principles of athletic physiology to design training programs that target specific physiological systems and improve performance. For example, a distance runner may use aerobic training to improve the efficiency of the cardiovascular and respiratory systems, while a sprinter may use resistance training to improve the strength and power of the muscular system. Exercise scientists can use athletic physiology to study the effects of different types of exercise on the body and to develop interventions to improve health and prevent disease.

Citation: *Cameron C (2023) An Overview on Athletic Physiology and its Applications. J Athl Enhanc 12:2.*