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Study of Kinesology and Biomechanics

Nadeem Ahmed, Masters In Physical Education

Abstract

Most people are extremely skilled at standing, walking or climbing stairs in many daily movements. When children are two, they are skilled and not emotionally encouraged walkers with little instruction from their parents. Sadly, modern living does not require sufficient movement to prevent several chronic illnesses associated with low physical activity. Fortunately, many occupations of the human movement help people to take part in good physical activities. The benefit of physical activity is derived from physical educators, coaches, atletic trainers, strength and conditioning coaches, personal trainers and physical therapists. The professions of human movement rely on a degree in kinesiology and usually require training in biomechanics. Kinesiology refers to the whole academic field of the study of human movement, whereas biomechanics study movement and its causes in living organisms. Biomechanics provides the most effective and safest movement patterns, equipment and exercises for improving human movement.

Key words: kinesiology, biomechanics, physical activity movement etc.

Introduction

Kinesiology is the study of human movement from the point of view of the physical science, as it has been recognised in physical education, sports training, physical therapy, orthopaedics and physical medicine. The study of the human body as a working machine is based on three key areas of research: mechanics, anatomy and physiology; and, in particular, biomechanics, musculoskeletal anatomy and neuromuscular physiology. The knowledge accumulated in these three areas forms the basis for the study of human movement.

Some jurisdictions refer to kinesiology as a science of their own; others claim that it should be called a study rather than a true science because the foundations it is based on are the fundamental sciences, such as anatomy, physiology and physics. In any case, his unique contribution is that he selects and systematises the principles that are relevant to human movement from many sciences. However, it can be classified as a door to a whole new world

of discovery and appreciation for the inquiring student. Human motion, which most of us took for granted throughout our lives, is seen with new eyes. Anyone who makes him think anything cannot help him to be struck not only by the beauty of human action, but also by the seemingly endless possibilities, its significance, his orderliness, his adaptation to the surroundings. There is nothing haphazard; there is nothing left to chance. Each structure that participates in the body's movements is based on physical and physiological principles. The student of kinesiology can only look at the intricate mechanism of the body, like students of anatomy, physiology, psychology, genetic and other biological sciences.

Kinesiology

Kinesiology is the scientific study of the movement of the human or non-human body. Physiology addresses dynamic principles and movement mechanisms in physiology, biomechanics and psychology. Physiology applications in human health (i.e., human kinesiology) encompass biomechanics and orthopaedics; strength and conditioning; sport psychology; rehabilitation methods, like physical and activity therapy; and sport and practise. The study of human and animal movement includes measurements of motion pursuit systems, muscle electrophysiology and brain activity and numerous methods of physiological observation and different methods of activity and psychological feature analysis. Kinesiology could be a non invasive technique, muscle feedback on victimisation and awareness of the body that helps to reduce stress and pain, enhance class, work and residential, sport, relationships, and promote health and improvement. Physiology helps you access inner knowledge and notices once again the ability to choose in your life.

Kinesiology allows you to charge the resources that relate to the past, the circumstances of your donation and the future. Therefore kinesiology might also be understood as a system of natural health that mixes muscle observation and Chinese medication principles with energy evaluation and body functioning by applying a variety of mild yet powerful healing techniques to boost health, upbeat and vitality. Kinesiology is the most extensive and wholistic natural treatment and combines the knowledge of every Japanese and Western traditions Kinesiology can be a feedback tool that enables a person to assess and improve their performance in all areas. Kinesiology is the science of energy reconciliation and is based on anatomical and physiological studies.

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Kinesiology-Definition

"Kinesiology is a whole scholarly field of motion analysis that analyzes the movement on the basis of anatomical(osteology,arthrology,myological,etc.), physiological and associated mechanical principle relevant to it."

Biomechanics- Meaning

Technical and scientific development in the field of kinesiology led to the need to refine the subject in 1960.

- This leads to "biomechanics" development.
- Biomechanics= organic(life)+ mechanical engineering (branch of physics).
- 'Studying the locomotion of living systems using mechanical principles and concepts.

Biomechanics-Definition

" Biomechanics is a field of knowledge that is concerned with studying the motion of a living organism via analyzing, assessing and describing it via the application of mechanical principles."

Importance of Biomechanics in Physical Education

I. Biomechanical knowledge helps the basic principle of the effective structure of competitive sport performance to be understood and realised.
II. Biomechanical knowledge helps to improve engine qualities.
III. Biomechanics knowledge helps an athlete conduct self-assessment
IV. Biomechanical knowledge contributes to developing and understanding new rules, regulating sport, games and facilities, etc. iv.
V. Biomechanical knowledge helps to develop and to accept new techniques and skills.
VI. Biomechanics knowledge assists in the selection of athletes/players for specific games sports.

Elements of Biomechanics

These are the main fields of biomechanics:

movement systems in motion with acceleration and deceleration are studied

The effects of forces on the system are described, movement patterns are examined including linear and angular changes in speed over time as well as position, displacement, speed and acceleration.

Kinetics: study what causes movement, forces and working moments

Statics: Systems that are in balance, either rest or move at a constant speed

Sports Biomechanics

During exercise and sports, sport biomechanics studies human movement. Athletic performance is subject to physics and mechanics laws. Here are a few different applications for biomechanics:

Equipment: biomechanics can be used in the design of sports equipment, clothing, footwear, sports fields and facilities. For example, a shoe can be designed for a mid-range rider or a racket for the best grip.

Individuals: Biomechanics can be used for people, analysing their movement and coaching them in training and sports movement for more effective movement. For example, a person can plot the running gait or golf swing and recommendations for changes and improvements can be made.

Injuries: Biomechanics can be used for the study of the causes, therapy and prevention. The research can analyse the forces at work which can lead to an armpit and how the design or the play surface reduces the risk of injury.

Training: Biomechanics can study and develop sport techniques and training systems to make them efficient. Training: This can include fundamental research into how the position of the hand affects swimming propulsion. It can propose and analyse new training techniques based on the sport's mechanical requirements with a view to improving performance.

Careers in Biomechanics

Specialties within biomechanics include:

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Biological science: Studies of human, animal, cell, and plant biomechanics

Engineering and applied science: Applying the research of biomechanics to various situations

Ergonomics and human factors: Using biomechanics in human-machine interfaces, workplace, and functional designs and processes

Exercise and sports science: Applying biomechanics to human performance in athletics

Health sciences: Researching causes, treatment, and prevention of injury and using biomechanics to design rehabilitation programs and equipment

A master of science or doctorate in kinesiology can lead to a career in a biomechanics field, such as research and design by sports companies, athletic research and testing, workplace testing, and design of interfaces between humans and equipment.

A student of biomechanics will do coursework in physics, biology, anatomy, physiology, mathematics, and statistics. Laboratory equipment used includes force plates, electromyography, high-speed video motion analysis systems, digitizing equipment, accelerometers, pressure sensors, potentiometers, computer analysis programs, and modeling programs.

Conclusion

Kinesiology is the scholarly study of human movement, and biomechanics is one of the many academic subdisciplines of kinesiology. Biomechanics in kinesiology involves the precise description of human movement and the study of the causes of human movement. The study of biomechanics is relevant to professional practice in many kinesiology professions. The physical educator or coach who is teaching movement technique and the athletic trainer or physical therapist treating an injury use biomechanics to qualitatively analyze movement. The chapters in part I demonstrate the importance of biomechanics in kinesiology and introduce you to key biomechanical terms and principles that will be developed throughout the text. The lab activities associated with part I relate to finding biomechanical knowledge and identifying biomechanical principles in action.

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