



Kinesiology, the study of human movement, is a multidisciplinary field that blends anatomy, physiology, biomechanics, psychology, and exercise science to better understand how our bodies function and perform various physical activities. From the way we walk and run to the intricacies of professional sports performance, kinesiology plays a crucial role in enhancing our overall well-being and physical capabilities [1].

The term "kinesiology" comes from the Greek words "kinesis" (movement) and "logia" (study). The roots of kinesiology can be traced back to ancient civilizations like Greece, where philosophers and physicians began examining the mechanics of the human body. However, it wasn't until the 19th and 20th centuries that kinesiology evolved into a formal academic discipline. Kinesiology initially focused on the mechanics of basic movements and the correction of physical abnormalities. Over time, the field expanded to encompass sports science, exercise physiology, and rehabilitation. Today, it serves as a

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movements efficiently. The degrees of freedom problem explores how the nervous system simplifies complex tasks by organizing and controlling various body segments [8].

Exercise physiology is integral to understanding how the body responds to physical activity, whether in the form of exercise, sports, or rehabilitation. It includes theories related to energy systems, adaptation, and performance enhancement:

The theory of energy systems categorizes how the body produces energy for different types of activities, such as aerobic and anaerobic