Muscle Study Guide

Skeletal muscle

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Skeletal muscle (commonly referred to as muscle) is one of the three types of vertebrate muscle tissue, the others being cardiac muscle and smooth muscle. They are part of the voluntary muscular system and typically are attached by tendons to bones of a skeleton. The skeletal muscle cells are much longer than in the other types of muscle tissue, and are also known as muscle fibers. The tissue of a skeletal muscle is striated – having a striped appearance due to the arrangement of the sarcomeres.

A skeletal muscle contains multiple fascicles – bundles of muscle fibers. Each individual fiber and each muscle is surrounded by a type of connective tissue layer of fascia. Muscle fibers are formed from the fusion of developmental myoblasts in a process known as myogenesis resulting in long multinucleated...

Arrector pili muscle

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The arrector pili muscles, also known as hair erector muscles, are small muscles attached to hair follicles in mammals. Contraction of these muscles causes the hairs to stand on end, known colloquially as goose bumps (piloerection).

Cardiac muscle

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Cardiac muscle (also called heart muscle or myocardium) is one of three types of vertebrate muscle tissues, the others being skeletal muscle and smooth muscle. It is an involuntary, striated muscle that constitutes the main tissue of the wall of the heart. The cardiac muscle (myocardium) forms a thick middle layer between the outer layer of the heart wall (the pericardium) and the inner layer (the endocardium), with blood supplied via the coronary circulation. It is composed of individual cardiac muscle cells joined by intercalated discs, and encased by collagen fibers and other substances that form the extracellular matrix.

Cardiac muscle contracts in a similar manner to skeletal muscle, although with some important differences. Electrical stimulation in the form of a cardiac action potential...

Progressive muscle relaxation

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Progressive muscle relaxation (PMR) is a method of deep muscle relaxation that does not involve any medications, meaning it is a non-pharmacological intervention. The idea behind progressive muscle relaxation is that there is a relationship between a person's mind and body. The body responds to its environment by creating certain mind or body states such as anxiety, stress, and fear. When the body is in these states, the muscles tense up. Progressive muscle relaxation aims to reverse these body states back to more neutral, relaxed states.

The technique is a two-step process. It involves learning to relieve the tension in specific muscle groups by first tensing and then relaxing each muscle group. When the muscle tension is released, attention is directed towards the differences felt during...

Muscle memory

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Muscle memory is a form of procedural memory that involves consolidating a specific motor task into memory through repetition, which has been used synonymously with motor learning. When a movement is repeated over

time, the brain creates a long-term muscle memory for that task, eventually allowing it to be performed with little to no conscious effort. This process decreases the need for attention and creates maximum efficiency within the motor and memory systems. Muscle memory is found in many everyday activities that become automatic and improve with practice, such as riding bikes, driving motor vehicles, playing ball sports, musical instruments, and poker, typing on keyboards, entering PINs, performing martial arts, swimming, dancing, and drawing.

Electrical muscle stimulation

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Electrical muscle stimulation (EMS), also known as neuromuscular electrical stimulation (NMES) or electromyostimulation, is the elicitation of muscle contraction using electrical impulses. EMS has received attention for various reasons: it can be utilized as a strength training tool for healthy subjects and athletes; it could be used as a rehabilitation and preventive tool for people who are partially or totally immobilized; it could be utilized as a testing tool for evaluating the neural and/or muscular function in vivo. EMS has been proven to be more beneficial before exercise and activity due to early muscle activation. Electrostimulation has been found to be ineffective during post exercise recovery and can even lead to an increase in delayed onset muscle soreness (DOMS).

The impulses...

Applied kinesiology

studies of AK-specific procedures and diagnostic tests concluded: "When AK is disentangled from standard orthopedic muscle testing, the few studies evaluating

Applied kinesiology (AK) is a pseudoscience-based technique in alternative medicine claimed to be able to diagnose illness or choose treatment by testing muscles for strength and weakness.

According to their guidelines on allergy diagnostic testing, the American College of Allergy, Asthma and Immunology stated there is "no evidence of diagnostic validity" of applied kinesiology. Another study indicated that the use of applied kinesiology to evaluate nutrient status is "no more useful than random guessing." The American Cancer

Society has said that "scientific evidence does not support the claim that applied kinesiology can diagnose or treat cancer or other illness".

Muscle reading

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Muscle reading, also known as "Hellstromism", "Cumberlandism" or "contact mind reading", is a technique used by mentalists to determine the thoughts or knowledge of a subject, the effect of which tends to be perceived as a form of mind reading. The performer can determine many things about the mental state of a subject by observing subtle, involuntary responses to speech or any other stimuli. It is closely related to the ideomotor effect, whereby subtle movements made without conscious awareness reflect a physical movement, action or direction which the subject is thinking about. The term "muscle reading" was coined in the 1870s by American neurologist George M. Beard to describe the actions of mentalist J. Randall Brown, an early proponent of the art.

Muscle dysmorphia

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Muscle dysmorphia is a subtype of the obsessive mental disorder body dysmorphic disorder, but is often also grouped with eating disorders. In muscle dysmorphia, which is sometimes called "bigorexia", "megarexia", or "reverse anorexia", the delusional or exaggerated belief is that one's own body is too small, too skinny, insufficiently muscular, or insufficiently lean, although in most cases, the individual's build is normal or even exceptionally large and muscular already.

Muscle dysmorphia affects mostly men, particularly those involved in sports where body size or weight are competitive factors, becoming rationales to gain muscle or become leaner. The quest to seemingly fix one's body consumes inordinate time, attention, and resources, as on exercise routines, dietary regimens, and nutritional...

Pelvic floor

from attending group-based education about pelvic floor muscles: a longitudinal qualitative study". Journal of Physiotherapy. 67 (3): 210–216. doi:10.1016/j

The pelvic floor or pelvic diaphragm is an anatomical location in the human body which has an important role in urinary and anal continence, sexual function, and support of the pelvic organs. The pelvic floor includes muscles, both skeletal and smooth, ligaments, and fascia and separates between the pelvic cavity from above, and the perineum from below. It is formed by the levator ani muscle and coccygeus muscle, and associated connective tissue.

The pelvic floor has two hiatuses (gaps): (anteriorly) the urogenital hiatus through which urethra and vagina pass, and (posteriorly) the rectal hiatus through which the anal canal passes.