

THE SKELETAL MUSCLES

(Collated by Michelle Wilkinson www.movingnaturally.co.uk)

The skeletal muscles are muscles which are attached to the bones of the skeleton. They are also referred to as striated muscles due to their striped appearance.

This kind of muscle is made up of thousands of elongated muscle cells often described as fibres which resemble elastic threads.

These fibres are enclosed by a protective sheath known as fascia. Parallel bundles of fibres are grouped together and bound with fascia. The many fibre bundles are then held together by yet another fascia covering.

A muscle attaches to the skin (fascia) of a bone known as periosteum, by strong resilient tendons. These tendons extend from either end of the muscle, one attaching to one bone, and the other or others, to another bone usually around a joint.

The biceps muscle, at the front of the upper arm, has two tendon attachments originating from the shoulder blade (scapula). At the other end of the muscle there is a tendon attachment which inserts into the radius bone.

Muscles tend to work in pairs and groups. For instance, the biceps muscle has a small muscle beneath it called the brachialis and this pair work with the triceps and anconaeus muscles at the back of the upper arm to flex the elbow.

The brachialis starts the flexion by contracting (concentric contraction) stimulating the triceps to lengthen (eccentric contraction). The biceps muscle continues the elbow contraction, leaving the anconaeus to lengthen and complete the flexing action.

There are around 700 individual muscles which are paired and/or grouped. Due to their fascia covering they are not in isolation but create one integrated system. Whatever is happening with an individual muscle affects the whole muscular system.

The muscles contract via nervous system stimulation. Motor and sensory nerve cells connect to several muscle fibres via a long nerve fibre which travels to the spinal cord and into the brain, the central nervous system (CNS).

Motor nerves stimulate the muscular activity while the sensory nerves convey messages back to the CNS regarding muscular activity and condition.

The peripheral nervous system (PNS) which connects the muscle fibres to the CNS has two branches one that operates muscles automatically, underneath conscious control, the autonomic nervous system (ANS). The other branch, the somatic nervous system (SNS), is under conscious control allowing voluntary muscle movement.

The skeletal muscles can operate unconsciously like the small continual muscular adjustments required to keep a person in an upright stance. They can also be under conscious control such as deciding to pick up a book.

When lying down support is given to the muscles so that they become free of the tension required to continually adjust to the gravitational pull of the Earth.

The relationship between muscles and the nervous system enables visualisation techniques and imagery to change movement patterns. Try raising and lowering your arms at the side of your body. Now imagine your arms are bird wings. How does this change the movement?

Another way to change habitual movement which no longer is beneficial is to slow a movement down so that there is a delay between the thought and the action. This creates space for a new way of moving to emerge.

These muscles are the most metabolically active system in the body and 70% of the body's energy is created via muscular activity. As such it provides the largest proportion of the body's heat.

Muscles make up 70%-85% of the weight of the body and their movement creates a pump to enable the flow of vital fluids such as the lymph.

The skeletal muscles have an extensive network of blood vessels which provide the required oxygen and nutrients to produce energy in the cells. They also remove waste products.

In the Traditional Chinese Medicine (TCM) the spleen organ is responsible for the blood's ability to transport nutrients (Food Ki) around the body. As such it fuels and creates the muscles forming the flesh of the body.

A healthy spleen forms resilient, firm well-circulated flesh neither too fat nor lean. When it is under functioning there may be loose, flabby or wasted flesh. Obstruction in the blood circulation can create lumpy, fatty and congested flesh.

The nature of muscle allows a person to be active and express themselves in a journey towards self-fulfilment. They develop endurance and the body's strength and vitality.

Muscles engage humans with the environment. They can via extension, reach a person outward into the world or through flexion, draw a person into themselves. As children muscles develop in relationship with the outer environment as they advance, retreat, and interact with space, people and objects around them.

With a muscular action there may be an emotional response which can become stored within the muscle tissue. Sensing muscles may restore the emotional situation and/or the position and posture of a past point in time. This self-awareness gives access to memory, repressed impulses, and traumas.

Muscular rigidity could be viewed as a repression process whereby the tension forms a body armour which binds or blocks fearful feelings, displeasure, unmet needs, or sexual impulses. It can carry a person's history and meaning. Acknowledging tense muscles gives them validation, respect and a chance for their stories to be heard if they so wish.