
Locomotor system

Summary

- The locomotor system is also known as the musculoskeletal system.
 - It is made up of the skeleton, skeletal muscles, ligaments, tendons, joints, cartilage and other connective tissue.
 - These parts work together to allow your body to move.
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The locomotor system is also known as the musculoskeletal system. It is made up of the skeleton, the skeletal muscles, tendons, ligaments, joints, cartilage and other connective tissue. These parts work together to allow movement.

The brain controls the movements of the body, using information from:

- the eyes
- the ears, including special canals which give us a three-dimensional sense of motion
- the muscles themselves, called 'muscle sense' or kinaesthesia.

The skeleton

The skeleton is made up of 206 **bones**. Bones are a form of connective tissue reinforced with calcium and bone cells. Bones have a softer centre, called marrow, where blood cells are made. The three main functions of the skeleton are:

- support – the body is supported and shaped by the skeleton; for example, upright posture would be impossible without a spine
- protection – our internal organs are protected by our skeleton, such as the brain inside the skull, the heart and lungs inside the ribcage
- movement – most skeletal muscles are attached to bones in opposite working groups, like the biceps and triceps muscles of the upper arm.

The skeleton also stores minerals (such as calcium) and lipids (fats), and produces blood cells in the **bone marrow**.

Skeletal muscles

Skeletal **muscles** operate under voluntary control – this means that we ask them to move, and they do. (Involuntary muscles (smooth muscle) work whether we consciously ask them to or not – for example, the muscles that line the digestive system.)

Skeletal muscles are made up of muscle fibres, bundled together. Each fibre can contract or relax on demand. All fibres contract together to shorten a muscle. The command to contract or relax is given by the brain and relayed to the muscle by nerves.

Skeletal muscles work in pairs

Generally, muscles move the skeleton by working in opposite pairs. For instance, if you bend your elbow, your biceps (muscles on the front of the upper arm) contract and the triceps (muscles on the back of the upper arm) relax. It works the other way if you straighten your arm - the triceps contract while the biceps relax. In some joints, like the shoulder joint, many different muscles are attached. This allows even greater freedom of movement.

Common problems of the locomotor system

Some common problems of the locomotor system include:

- **arthritis** – problems within the joints, such as inflammation
- **osteoporosis** – occurs when bones lose minerals such as calcium more quickly than the body can replace them. They become less dense, lose strength and break more easily
- **bone fractures** – caused by falls or accidents
- **back pain** and **neck pain**
- inflammatory disease.

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