Locomotor system

Summary

- The skeleton and skeletal muscles work together to allow movement.
- The brain oversees motion, with feedback from the body.

The skeleton and skeletal muscles 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 bicep and tricep muscles of the upper arm.

Muscle fibres

Skeletal muscles operate under voluntary control. An example of involuntary muscles are those 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.

Working 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

Some of the more common problems of the locomotor system include:

- **Arthritis** - problems within the joints, such as inflammation
- **Broken bones** - caused by falls or accidents
- **Slipped disc** - when cartilage in the spinal column shifts out of position.
Things to remember

- The skeleton and skeletal muscles work together to allow movement.
- The brain oversees motion, with feedback from the body.

This page has been produced in consultation with and approved by:

Australian Rheumatology Association (Vic Branch)