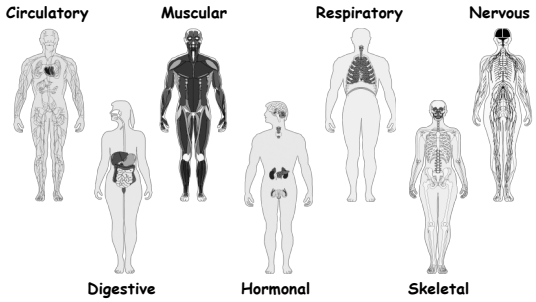
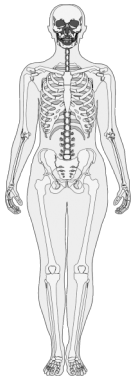
**Bones**
and
**Joints**

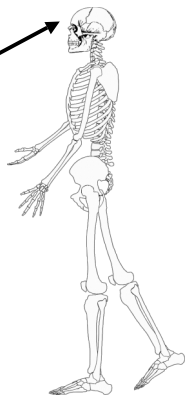
**Body Systems involved in Exercise**



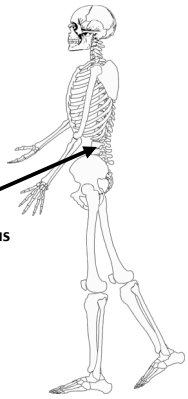
# Skeletal And Bones

## Functions of the Skeleton



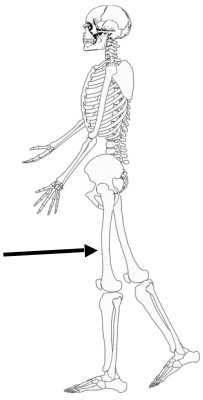
**1. Protection**
The cranium protects the soft tissue of the brain.

## Functions of the Skeleton



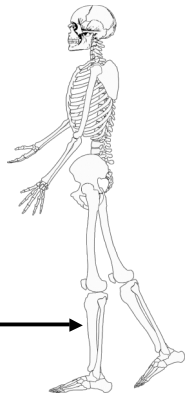
**2. Movement**
The vertebrae allow us to bend, stretch and rotate our body.

## Functions of the Skeleton



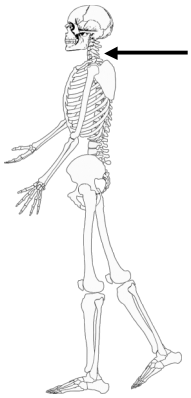
**3. Blood Production**
Red blood cells are made in the ribs and limb bones.

## Functions of the Skeleton



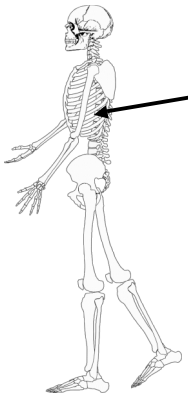
**4. Support**
The bones of the legs support the body.

## Functions of the Skeleton



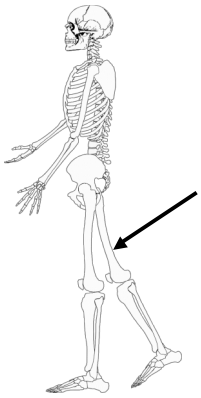
**5. Support**
The vertebrae support the head.

## Functions of the Skeleton



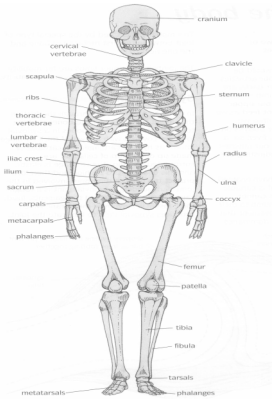
**6. Protection**
The rib cage protects the delicate heart and lungs.

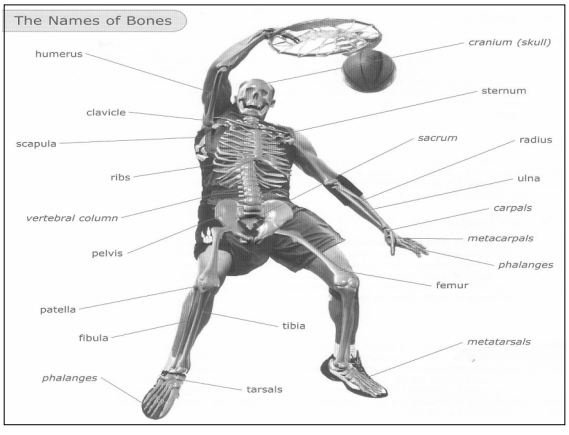
## Functions of the Skeleton



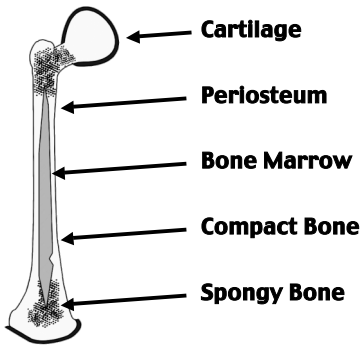
**7. Movement**
The bones and joints work with muscles to enable us to walk, run and sprint.

## Name of the Bones



## Bones




## Bones

Bones start to grow inside the womb, where they begin as cartilage.

As you get older this turns into hard bone by a process called ossification.

Bones will only grow properly as long as certain minerals and vitamins are eaten:

- Vitamin D helps build bone.
- Calcium is a mineral which helps keep bones strong.

## Bones

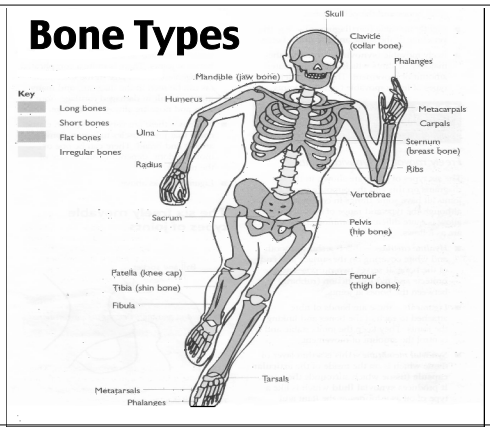
Even as a fully-grown adult, the bone structure is always changing, as vitamins and minerals are constantly replaced.

A poor diet will result in soft bones, while a balanced diet and exercise will make bones strong.

# Bone Types

1. **Flat Bones (Protection)**
2. **Irregular Bones (Protection)**
3. **Long Bones (Levers)**
4. **Short Bones**

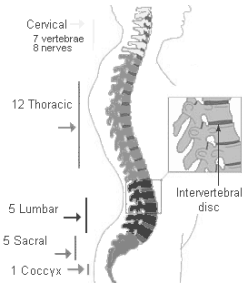
# Bone Types



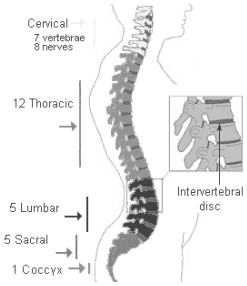

# The Vertebral Column

**The vertebral column, Known as the spine or spinal column**

- **protects spinal cord**
- **supports upper body**
- **allows wide range of movement**
- **is important for posture**
- **transmits force to body parts**



## The Vertebral Column



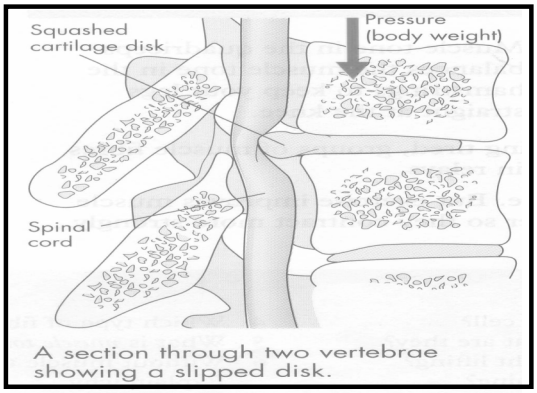

**The 33 specialized vertebrae are made up of:**

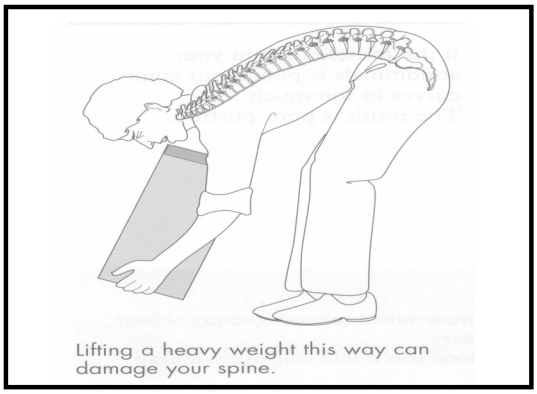
**7 cervical vertebrae**
**12 thoracic vertebrae**
**5 lumbar vertebrae**
**5 sacral vertebrae**
**4 Bones fused together to make up the coccyx**

## The Vertebral Column

**All the vertebrae fit neatly together to protect the spinal chord.**

**Between each vertebrae is an Intervertebral disc. These discs are very delicate and if put out of action by slipping out of place or tearing, the patient is said to have "slipped a disc".**

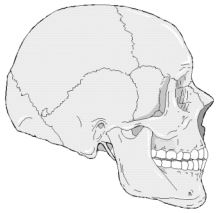





## Joints of the Body

**A place where two or more bones meet.**

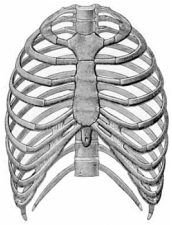
## Joints of the Body



**Fibrous**

**Fibrous joints connect bones without allowing any movement. The bones of your skull and pelvis are held together by fibrous joints. The union of the spinous processes and vertebrae are fibrous joints.**

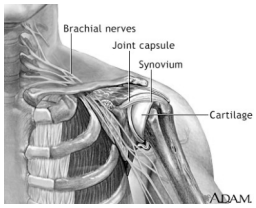
# Joints of the Body



**Cartilaginous**

**Cartilaginous joints are joints in which the bones are attached by cartilage. These joints allow for only a little movement, such as the spine or ribs.**

# Joints of the Body



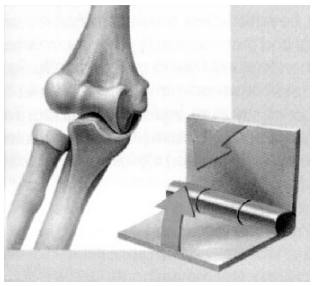

**Synovial**

**Synovial joints allow for much more movement than cartilaginous joints. Cavaties between bones in synovial joints are filled with synovial fluid. This fluid helps lubricate and protect the bones.**

# Synovial Joints

**Hinge**

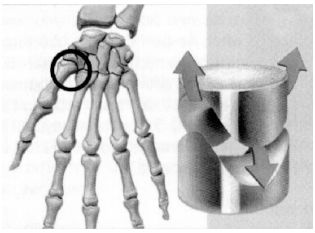
**A hinge joint allows extension and retraction of an apendage.**



## Synovial Joints

**Saddle**

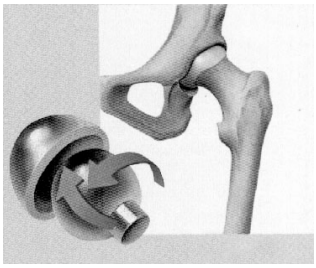
**A saddle joint allows movement back and forth and up and down, but does not allow for rotation like a ball and socket joint.**



## Synovial Joints

**Ball and Socket**

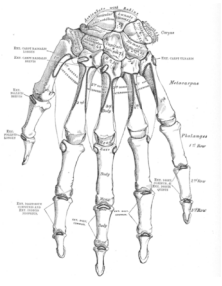
**A ball and socket joint allows for radial movement in almost any direction. They are found in the hips and shoulders.**



## Synovial Joints

**Ellipsoid**

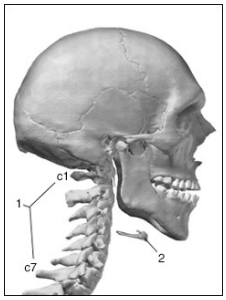
**Ellipsoid joints are similar to a ball and socket joint. They allow for same type of movement to a lesser magnitude. The wrist is an ellipsoid joint.**



## Synovial Joints

**Pivot**

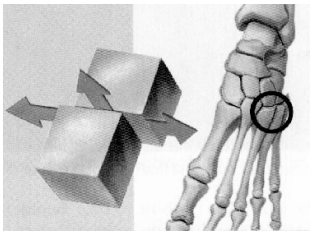
**Pivot joints allow rotation around an axis. The neck and forearms have pivot joints. In the neck the occipital bone spins over the top of the axis. In the forearms the radius and ulna twist around each other.**




## Synovial Joints

**Gliding**

**In a gliding or plane joint bones slide past each other. Madcarpal and midtarsal joints are gliding joints.**



## Joints