

# Structural Anatomy Summary Notes

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# Anatomical Terminology (Lec 1 Tut 1)

Outcomes:

- Differentiate between regions of the skeletal system
- Identify major bones of the skeletal system
- Understand and apply directional and movement terminology
- Describe and apply knowledge of the planes that divide the body

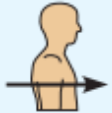
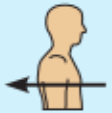
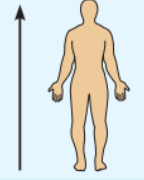
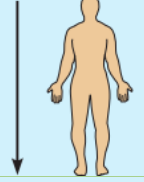
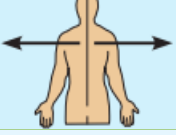
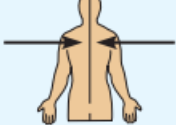
## The Skeleton

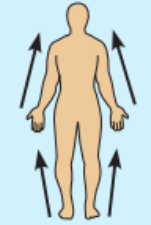
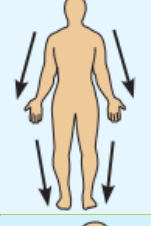
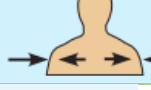

The human skeleton contains **206 bones**. The axial skeleton has 80 and the appendicular skeleton has 126.

The **axial skeleton** contains the bones on the central axis, such as the skull, vertebral column and the thoracic cage. Its main function is to protect and support many of the major organs, such as the brain, heart and lungs. It also provides sites for attachment of other bones and muscles in the body.

The **appendicular skeleton** is made up of the extremities, such as the upper and lower limbs, as well as the bones that connect the limbs to the axial skeleton, such as the pelvic and pectoral/shoulder girdle. The appendicular skeleton is essential for movement of the body.

## Directional Terminology

Term	Definition	Example
<b>Anterior</b>	Towards the front of the body; in front of	 <p>The sternum is anterior to the spine.</p>
<b>Posterior</b>	Towards the back of the body; behind	 <p>The heart is posterior to the pectoral muscles.</p>
<b>Superior</b>	Towards the head; above	 <p>The head is superior to the abdomen.</p>
<b>Inferior</b>	Towards the feet; below	 <p>The chin is inferior to the eyes.</p>
<b>Lateral</b>	Towards or on the side of the body; on the outer side of	 <p>The arms are lateral to the chest.</p>
<b>Medial</b>	Towards the midline of the body; on the inner side of	 <p>The heart is medial to the arms.</p>

<b>Proximal</b>	Towards the main mass of the body; closer to the origin of the body part/point of attachment		The elbow is proximal to the wrist.
<b>Distal</b>	Away from the main mass of the body; further from the origin of the body part/point of attachment		The knee is distal to the thigh.
<b>Superficial</b>	Towards or at the body surface; external		The skin is superficial to the skeletal muscles.
<b>Deep</b>	Away from the body surface; internal		The lungs are deep to the rib cage.

These directional terms are referring to the **anatomical position**, which means that the person is standing erect and facing the observer with their arms at the sides of the body and the palms of the hands facing forward. When using the terms proximal and distal, they are only to be used in reference to the limbs (e.g. the phalanges are distal to the humerus and the femur is proximal to the tarsals).

## Body Planes

The **sagittal** plane divides the body into right and left sides. The midsagittal (**median**) plane divides the body into equal right and left sides while the parasagittal plane divides the body into unequal right and left sides.

- E.g. an athlete running a 100m sprint is performing movement predominantly in the sagittal plane.

The **frontal** (coronal) plane divides the body into anterior and posterior sections.

- E.g. someone doing star jumps is moving in the frontal plane.

The **transverse** plane divides the body into superior and inferior sections.

- E.g. someone using a hula-hoop is moving in the transverse plane.

## Movement Terminology

Term	Definition
<b>Flexion</b>	Movement of bones together at a joint; decreasing angle size
<b>Extension</b>	Movement of bones apart at a joint; increasing angle size
<b>Adduction</b>	Movement towards the trunk/axis
<b>Abduction</b>	Movement away from the trunk/axis

<b>Supination</b>	Turning the palm up; holding a bowl of soup
<b>Pronation</b>	Turning the palm down; pro basketballer
<b>Dorsiflexion</b>	Pointing the toes up via the ankle
<b>Plantarflexion</b>	Pointing the toes down via the ankle
<b>Elevation</b>	Raising the shoulders
<b>Depression</b>	Lowering the shoulders
<b>Eversion</b>	Placing weight on the inner edge of the foot; showing sole of foot outwards
<b>Inversion</b>	Placing weight on the outer edge of the foot; showing sole of foot inwards
<b>Hyperextension</b>	Movement of arms posteriorly past vertical; e.g. cricket bowl
<b>Hyperflexion</b>	Movement of arms anteriorly past vertical; e.g. backstroke
<b>Circumduction</b>	Circular movement of bone around a joint

## Bony Landmarks

A **bony landmark** is a structure or sport on a bone used as a reference point for identifying structure.

Term	Description
<b>Process</b>	General term for an <u>outgrowth of bone</u> from a larger body; any bone prominence
<b>Foramen</b>	Round or oval opening through a bone, a <u>hole</u>
<b>Facet</b>	Small, smooth and <u>flat articulating surface</u>
<b>Head</b>	Rounded bony expansion from a <u>narrow neck</u>
<b>Condyle</b>	Rounded bony expansion
<b>Epicondyle</b>	Raised area on or above a <u>condyle</u> ; 'epi' = ' <u>upon</u> '
<b>Tubercle</b>	<u>Small round</u> process
<b>Tuberosity</b>	<u>Broad rough</u> process
<b>Trochanter</b>	Very large, blunt, irregularly shaped process; <u>only on femur</u>
<b>Fossa</b>	<u>Shallow</u> basin-like <u>depression</u>

## Skeletal Tissue and Bones (Lec 2)

### Connective Tissue

**Connective tissue** (CT) is an important and abundant substance within the body that connects other tissues or organs together, especially in the musculoskeletal system.

