

# SUPPORT AND MOVEMENT

*Ball and Socket joint*

## Learning outcomes

*Students will be able to*

1. define joints;
2. differentiate between movable and immovable joints;
3. state the role of ligaments and tendons;
4. describe the location and movement of hinge joints;
5. identify ball and socket joints in the human body.
6. describe ball and socket joints.

# Joint

A **joint** is the location at which two or more [bones](#) make contact. They are constructed to allow movement and provide mechanical support, and are classified structurally and functionally.

## Classification of joints

Joints are mainly classified structurally and functionally. Structural classification is determined by how the bones connect to each other, while functional classification is determined by the degree of movement between the articulating bones.

## **Classification continued**

Joints are classified in terms of their structure as fibrous, cartilaginous, or synovial.

In terms of their operation, they are classified as immovable or movable.

Fibrous and cartilaginous joints can be either immovable or movable, while all synovial joints are movable.

## Fibrous joints

Fibrous joints are immovable or fixed joints in which no movement between the bones is possible. These joints do not allow movement because the bones are held firmly together by bundles of strong white collagen fibres.

## Cartilagenous joints

**Cartilaginous joints** are connected entirely by [cartilage](#)([fibrocartilage](#) or [hyaline](#)).<sup>[1]</sup> Cartilaginous joints allow more movement between bones than a [fibrous joint](#) but less than the highly mobile [synovial joint](#).

## Synovial joints

A **Synovial joint**, is the most common and most movable type of [joint](#) in the body of a mammal. As with most other joints, synovial joints achieve movement at the point of contact of the articulating [bones](#).

The main structural differences between synovial and fibrous joints are the existence of capsules surrounding the articulating surfaces of a synovial joint and the presence of lubricating synovial fluid within those capsules (synovial cavities).

## Ligaments

Most commonly, it refers to fibrous [tissue](#) that connects [bones](#) to other [bones](#)

## Tendons

A **tendon** is a tough band of [fibrous connective tissue](#) that usually connects [muscle](#) to [bone](#)<sup>[1]</sup> and is capable of withstanding [tension](#).

## Hinge joints

A **hinge joint** is a [bone joint](#) in which the articular surfaces are molded to each other in such a manner as to permit motion only in one plane—backward and forward—the extent of motion at the same time being considerable.

The best examples of hinge joints are the [interphalangeal](#) joints and the joint between the [humerus](#) and [ulna](#); the [knee](#)- and [ankle-joints](#) are less typical, as they allow a slight degree of rotation or of side-to-side movement in certain positions of the [limb](#). The knee is the largest hinge joint in the human body.