Joints

by Sophia

WHAT'S COVERED

In this lesson, you will learn about the types, structures, and movements of the joints of the human body. Specifically, this lesson will cover:

1. Types of Joints

Joints are areas of contact between bones in the body, and there are many different types**Ligaments**, a type of dense connective tissue, connect the bones at those joints and help to stabilize them as well. **Tendons** are the connective tissue holding your muscles to your bones.

There are three types of joints in the body: Synovial, fibrous, and cartilaginous.

TERMS TO KNOW

Joint

A structure that is formed by two or more bones joining together; are held together by ligaments, cartilage or dense-fibrous tissue.

Ligament

A structure composed of dense irregular connective tissue that holds bones together within synovial joints.

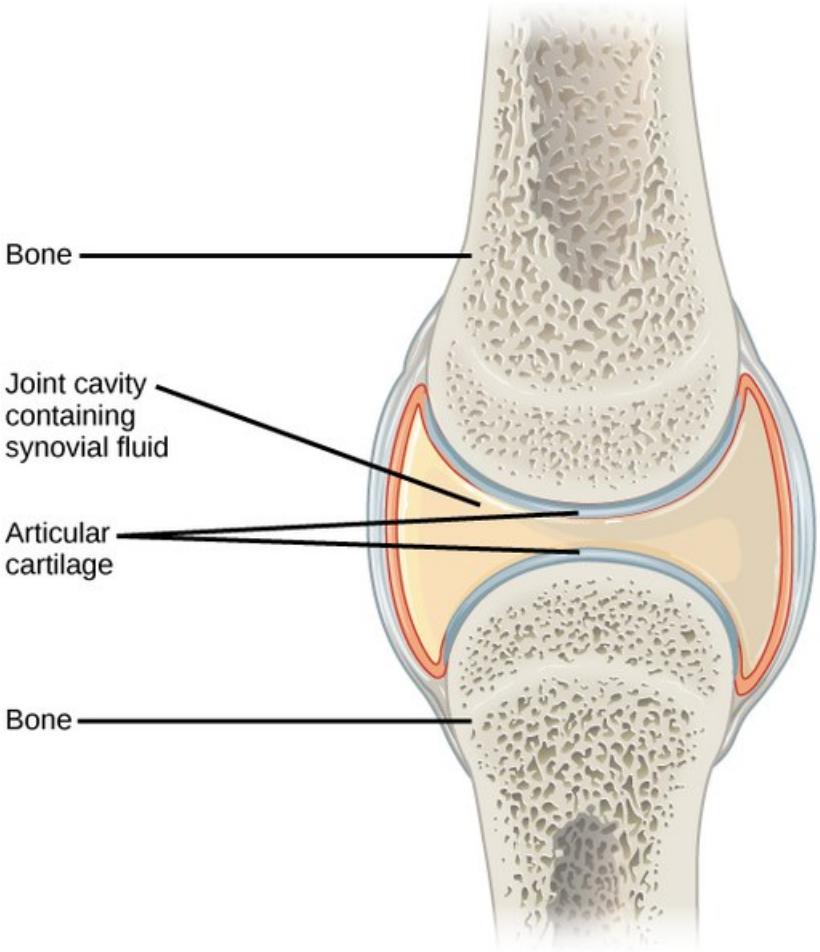
Tendon

A tough band of fibrous connective tissue that usually connects muscle to bone.

1a. Synovial Joints

Synovial joints are the most common type of joint in the body. They contain a cavity filled with**synovial fluid**, which separates the bones. Synovial joints allow for a wide range of motion.

↱ EXAMPLE You're able to flex and extend your knee. The knee joint is a type of joint that allows for that range of motion.



TERMS TO KNOW

Synovial Fluid

Fluid found within synovial joints to reduce wear and tear and to nourish the structures inside of the joint capsule.

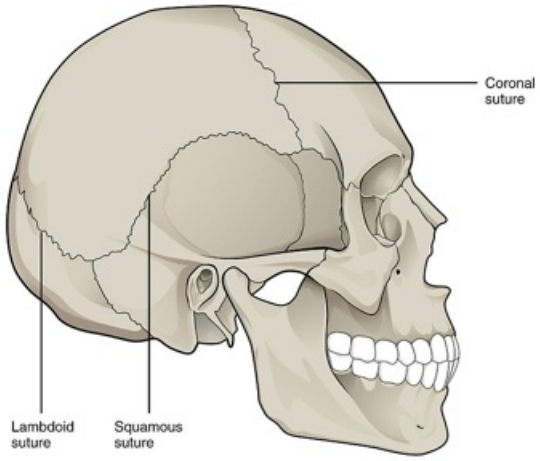
Synovial Joint

The most common joint in humans and also the most complex; contains two key characteristics: Surrounded by a joint capsule and contains synovial fluid; also the most highly moveable joint in humans.

1b. Fibrous Joints

In a **fibrous joint**, there is no cavity between the bones. The bones are joined by a connective tissue that doesn't allow for very much movement.

↱ EXAMPLE Your skull is made up of over a dozen type of bones, but those bones are connected by fibrous joints called sutures.



TERM TO KNOW

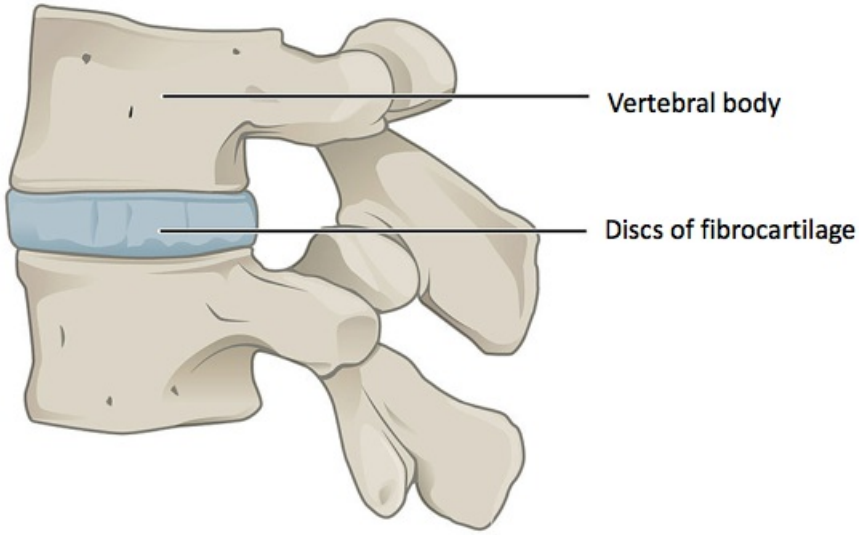
Fibrous Joint

A joint where two or more bones are fused together by tough, fibrous connective tissue (example: skull sutures); this is the least moveable joint of the body.

1c. Cartilaginous Joints

A **cartilaginous joint** is a type of joint in which cartilage fills the space between bones. This allows for slight movement.

↱ EXAMPLE Think of the bones in the spine. In between each of those, there are little pads of cartilage. This eliminates some of the friction between the bones and also allows for a slight bit of movement.



TERM TO KNOW

Cartilaginous Joint

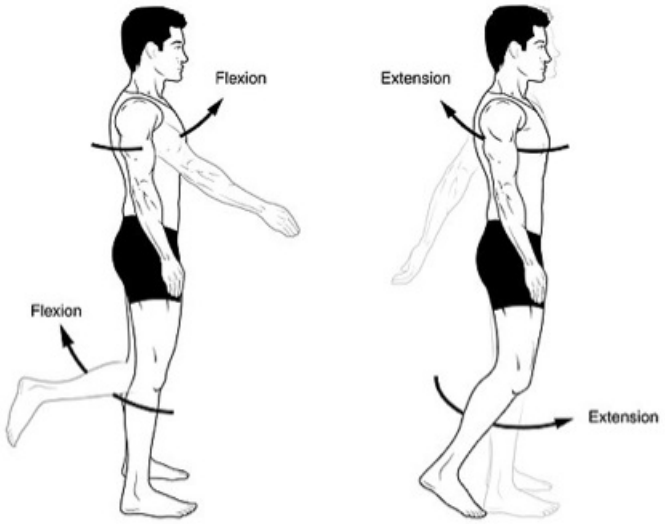
A joint where two or more bones are held together by a piece of cartilage (example: vertebrae or pubic bones); these joints are slightly moveable.

2. Types of Motion

Let's take a more in-depth look at synovial joints. This type of joint allows for a wide range of motion. The different types of motion are:

2a. Flexion and Extension

Flexion and extension are the motions made when bending and straightening.**Flexion** happens when you flex a muscle to bend a joint. **Extension** happens when you relax the muscle and let the joint straighten.



TERMS TO KNOW

Flexion

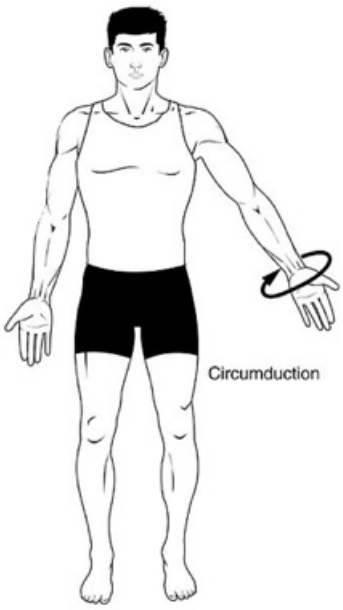
A type of movement allowed primarily by synovial joints in which an appendage is able to bend; for example, flexion of the bicep muscle pulls the forearm upward by allowing it to bend at the elbow.

Extension

A type of movement allowed primarily by synovial joints in which an appendage is straightened from a flexed position; for example, extension of the arm from a flexed position will return it to its normal resting position.

2b. Rotation and Circumduction

Rotation can occur at synovial joints. To get an example of this type of movement, hold your arm straight out and twist it around its axis. Circumduction happens when an appendage moves in a circular motion. If you do an arm circle, this is an example of **circumduction**.



TERMS TO KNOW

Rotation

A type of movement allowed primarily by synovial joints in which an appendage pivots about its axis; holding the arm straight out and twisting it on its axis is an example of rotation.

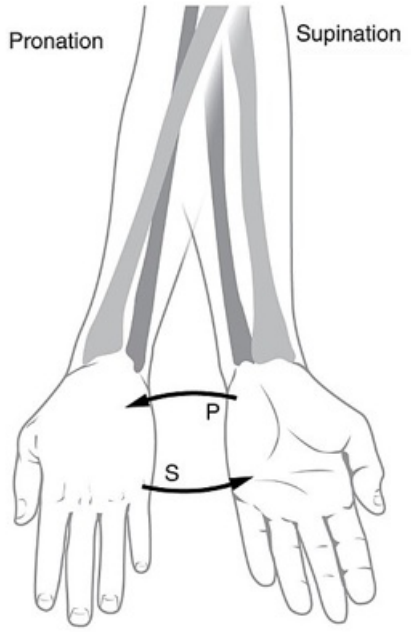
Circumduction

A type of movement allowed primarily by synovial joints in which an appendage moves in a circular motion; doing arm circles in which the arm moves in a large circular pattern like a windmill is an example of circumduction.

2c. Supination, Pronation & Gliding

Pronation and supination can be demonstrated by your hands and forearms. When you turn your palm and forearm to face upwards or toward your front, this is **supination**. When you turn them to face down or toward your back, this is **pronation**.

The joints in your wrist also allow for gliding. You can wave your hand back and forth as the joints in your wrist enable this gliding motion.



TERMS TO KNOW

Supination

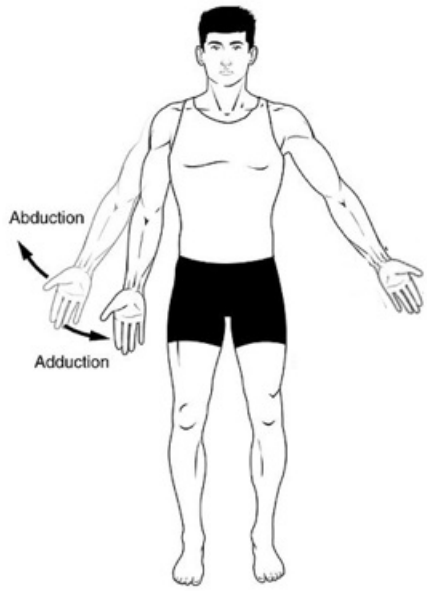
A type of movement allowed primarily by synovial joints in which the forearm and palm face upward or toward your front.

Pronation

A type of movement allowed primarily by synovial joints in which the forearm and palm face downward or toward your back.

2d. Abduction and Adduction

Abduction and adduction are also possible. If you lift your arm straight up away from your center, you are **abducting** it. If you lower it back down to your side, you are**adducting** it.



TERMS TO KNOW

Abduction

A type of movement allowed primarily by synovial joints in which an appendage is moved away from the body's center; lifting your arm up and away from your side is an example of abduction.

Adduction

A type of movement allowed primarily by synovial joints in which an appendage moves closer to the body's center; lowering your arm closer to your side from a lifted position is an example of adduction.

SUMMARY

The contact points between your bones are called **joints**. There are three main types of joints in your body: Synovial, cartilaginous, and fibrous joints. Synovial joints allow for the widest **range of motion**. Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND

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