

The Brookbush Institute Announces New Lessons on learning "Synovial Joints"

A better teaching approach is needed for introducing synovial joint types to fitness, sports performance, and physical rehabilitation students.

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Having gone through ACE and AFAA/NASM PT training I can say movement has never been explained in this manner. It makes so much more sense. So far I am really enjoying this and very excited!"

*Jane Reiff,
BrookbushInstitute.com
Member*

the charge with the development of a student-centered course that is far more than memorization. The course includes a video lecture, activities, tons of examples, and a bit of humor to make learning, understanding, and applying the terms a fun and rewarding experience! (Note, this course is also approved for credits toward continuing education and certification)

INTRODUCTION from "[Lesson 4: Types of Synovial Joints](#)" (from "[Introduction to Functional Anatomy Courses](#)" at [BrookbushInstitute.com](#))

Synovial Joints (Definition) : Synovial joints are the most common joint type in the human body. They have a unique

structure that includes a joint capsule, synovial fluid, articular cartilage covering bone surfaces, articular discs, intricate ligament systems to support motion, and often bursae. This unique structure allows for more motion than fibrous joints (also known as immovable joints), and cartilaginous joints (partly moveable joints).

The synovial joint type, joint shape, joint structure, cartilage, and connective tissue determine how much motion is permitted. Examples of synovial joint types include ball and socket, hinge, pivot, gliding, saddle, and condyloid. Each joint type allows motion in a specific number of planes, and the joint type and available planes of motion correspond to specific joint actions. For example, the elbow joint is a hinge joint, which only allows motion in one plane (sagittal plane), which corresponds to the joint actions of flexion and extension (e.g., biceps curls and triceps extensions). Whereas the shoulder joint is a ball and socket joint, which allows motion in all three planes (sagittal, frontal, and transverse), which correspond with the joint actions of flexion, extension, abduction, adduction, horizontal abduction, horizontal adduction, internal rotation, and external rotation (e.g., horizontal adduction during a bench press). Less commonly

mentioned joints include the gliding joints of the carpal bones (wrist bones), the saddle joint of the carpometacarpal joint (thumb), or the pivot joint of the proximal radioulnar joint (forearm). Note the lower limb has the same joint types, including a ball and socket joint (hip joint), hinge joint (knee joint), and gliding joints (transverse tarsal joints).

Synovial Joint Types:

- A hinge joint (ginglymus joint) is a joint in which the articular surfaces are shaped so that motion is permitted primarily in one plane. Usually, these joints have a structure resembling a notched surface that fits in a groove. The largest hinge joint in the body is the knee.

The ball and socket joint (or spheroidal joint) is a joint in which the ball-shaped surface of one bone fits a cup-like depression of another bone. The distal bone is capable of motion around an indefinite number of axes with one common center. This enables the joint to move in all planes. An example of a ball and socket joint is the hip.

- A pivot joint (trochoid joint, rotary joint, lateral Ginglymus) is a type of diarthrosis. In pivot joints, the axis of a convex joint surface rotates or "spins" along a perpendicular axis of another bone. These joints allow for only rotary movements. An example of a pivot joint is the atlantoaxial joint (C1 and C2).

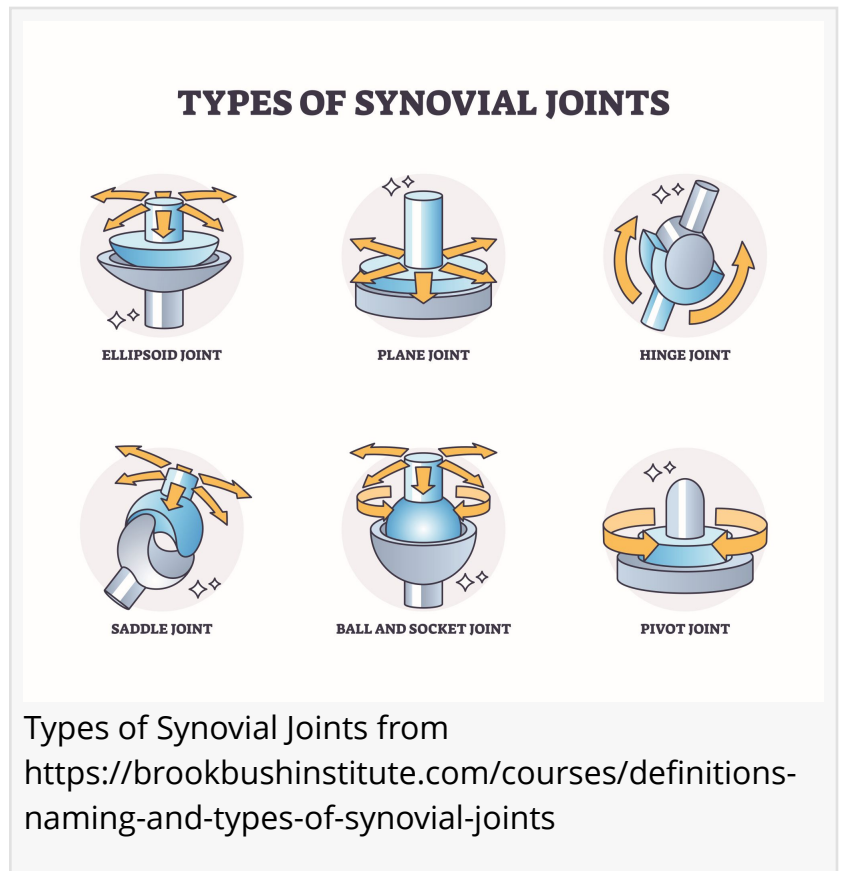
- A gliding joint (arthrodial joint or plane joint) is a synovial joint that allows only gliding movement. The surfaces of the bones are flat or almost flat and only permit sliding or gliding movements in the plane of the joint surfaces. An example of gliding joints is the facet joints of the spine.

In a saddle joint (sellar joint), the opposing surfaces are reciprocally concave-convex, similar to the way rounded "U" shapes would fit into one another. This allows motion in 2 planes, similar to how a horseback rider can move in a saddle. An example of a saddle joint is the carpometacarpal joint at the base of the thumb.

- A condyloid joint (also called a condylar, ellipsoidal, or bicondylar joint) is an ovoid articular surface that is received into an elliptical cavity. These joints permit movement in 2 planes. An example of a condyloid joint is the wrist.

This Course Includes:

- Video Lecture



- Study Guide
- Text of Material
- Learning Activities
- Practice Exam

Continuing Education and Certification Approved Final Exam

Sports medicine professionals (personal trainers, fitness instructors, physical therapists, athletic trainers, massage therapists, chiropractors, occupational therapists, etc.) must be aware of synovial joint types for the analysis of motion and the development of sophisticated exercise programs and therapeutic (rehabilitation) interventions. Note, this lesson builds on the previous lesson discussing joint actions, and will be essential knowledge for further lessons discussing the muscles of the hip joint, knee joint, ankle joint, spine, etc. Further, this course is essential knowledge for future courses discussing biomechanics, muscle synergies, movement dysfunction and pain, posture, physical therapy (physical rehabilitation), sports science, sports performance, etc.

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