Synovial Joints Encyclopedia Article

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Contents

Synovial Joints Encyclopedia Article.....1

Contents.....2

Synovial Joints.....3

Synovial Joints

Synovial joints are lubricated by a synovial fluid and have a coating of **cartilage** to reduce the friction between the adjacent bones and to provide shock absorption. These joints hold the skeletal together while permitting a range of motions. As such, they are important for proper locomotion of the body.

The name synovial derives from synovium, meaning "like the white of a egg," referring to its visual appearance. A so-called synovial membrane, a very thin and delicate cell layer, lines the cavity containing the synovial fluid. Some of the cells in this membrane produce the synovial fluid.

Synovial joints vary in mobility (freedom of movement) and stability. Very mobile joints, such as the shoulder, are not stable and are easily dislocated. The elbow is not nearly as mobile, having a restricted range of movement, but it is much more stable and is seldom dislocated.

There are six ways that a synovial joint can move. The first, exemplified by the shoulder and the fit between the hipbone and the femur, is a ball-and-socket arrangement. Back-and-forth and rotational movements are possible with this type of joint.

A condyloid joint allows for a pivoting motion. The joint accommodates convex and concave shapes of adjacent bones, allows them to fit together and to pivot against each other. Examples are the fingers and the jaw.

Synovial joints can glide over each other and rotate against each other in one plane. This can be best visualized as two blocks moving against each other in a back-and-forth or a twisting fashion. An example of this joint is in the carpus region of the lower hand.

A hinge joint offers movement in one plane, with no twisting, sliding or side-to-side motion. The elbow and the knee contain hinged synovial joints.

A pivot joint allows one bone is able to spin around on the spindle of another bone. The elbow is also a pivot joint. Another example is the first two vertebrae in the spinal column, whose back-and-forth capability allows for the "no" movement of the head.

The final type of synovial joint is called the saddle joint. This is similar to a condyloid joint, except that the fit between adjacent bones is not concave-to-convex. In a saddle joint the shapes can be distinctive, but they are still complimentary. The name derives from the saddle shape of the fit between the trapezium and first metacarpal bones of the hand.