

Articular hyaline cartilage covers the articular surfaces of synovial joints, providing a smooth surface to permit almost frictionless movement. Its elasticity dissipates the effects of loading, while resisting large compressive forces. Articular cartilage is highly specialized for these functions and generally achieves them throughout life without failing, despite the rigorous mechanical environment.

It varies in thickness from 1-7mm and is molded to the underlying bone. It is devoid of perichondrium, but has the synovial membrane attached to its margins. Collagen, proteoglycans and water are responsible for cartilage's mechanical properties. In adults, it is arranged in superficial, transitional, radiate and calcified zones, in which the chondrocytes and collagen fibers have different arrangements. It is avascular and aneural with nutrition being achieved by diffusion from vessels in the synovial membrane, the synovial fluid and hypochondral vessels of the adjacent bone. Cartilage allows joints to self-lubricate and the loss of this ability following damage may be an important factor in the etiology of osteoarthritis.