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Health: Crash Course in Cartilage



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Each year, millions of people injure the cartilage in their knees, shoulder and other joints. Whatever the cause, the result is the same: pain that makes it difficult or impossible for you to lead the active lifestyle you wish to enjoy.

Unfortunately, these injuries happen to people considered too young to undergo artificial joint

replacement surgery. Many people have been living with joint pain for years. Some cannot remember a time when **their knee didn't throb or swell with every step up a flight of stairs or short jog.** Fortunately, there are new treatment options – many of them available only in the last five years.

Cartilage is the slippery material that coats, cushions, and slides to make bones move smoothly against one another. It covers and protects the ends of bones in almost every joint in our bodies and is slipperier than ice rubbing against ice. Even more amazing is that the cartilage doesn't have a blood supply of its own; it is nourished by

the fluid in our joints.

Cartilage damage can occur slowly over time causing stiff, painful, arthritic joints, usually in the elderly. **Replacing the joint with an artificial joint** does a good job of decreasing pain and allowing more mobility.

Acute damage to cartilage happens with traumatic events, like car crashes, falls or sports injuries – and can happen just twisting a knee. Usually the joint will swell and be tight and/or painful to move. Occasionally, a piece of cartilage will be knocked off the bone and become a "loose body." This may even get caught between bones and cause the joint to "lock."

Cartilage damage can be a very difficult problem to treat, because of the lack of a blood supply. This means that cartilage has a poor capacity to heal on its own. If a "divot or pothole" in cartilage is left alone, the edges may continue to degrade and erode making a once smooth joint surface now rough and irregular. This can lead to early arthritis, pain, and loss of motion.

Several surgical methods have been developed over the past two decades to treat cartilage injuries like divots or potholes:

* **Microfracture** is a method of punching small holes in the bones that underlies missing cartilage. Bleeding from the bone fills the divot and forms a clot. This clot, if protected and rehabbed correctly, can cover the bones in the divot and become scar cartilage.

* **OAT's (Osteochondral Autograft**

Transplantation) is a method of taking good cartilage/bone plug from a low pressure area of the joint and refilling a "divot" or damaged area of cartilage/bone.

* **ACI (Autologous Chondrocyte**

Transplantation) is a two-stage method of taking normal cartilage cells, growing and expanding their number in a lab, and re-implanting them in the cartilage "divot or pothole."

* **Fresh osteochondral allografting** is a method of taking mature cartilage and bone from a tissue/organ donor and transplanting it into the cartilage defect in another person.

Each of the described cartilage treatments is an attempt to restore the normally smooth surface of the joint. While the surgery is important, proper rehabilitation is vital.

Rehab usually involves a period of protected weight bearing, followed by stretching and then strengthening. The rehabilitation focus is to allow time for the "new" cartilage to heal, and then progressively rehabilitate the joint.

Cartilage injuries can take you out of your game, but with these new technologies, these injuries can be very successfully treated. Early diagnosis and evaluation by an orthopedic surgeon is the best way to recognize and properly treat these injuries for you to lead the active lifestyle you wish to enjoy.

