How to repair cartilage

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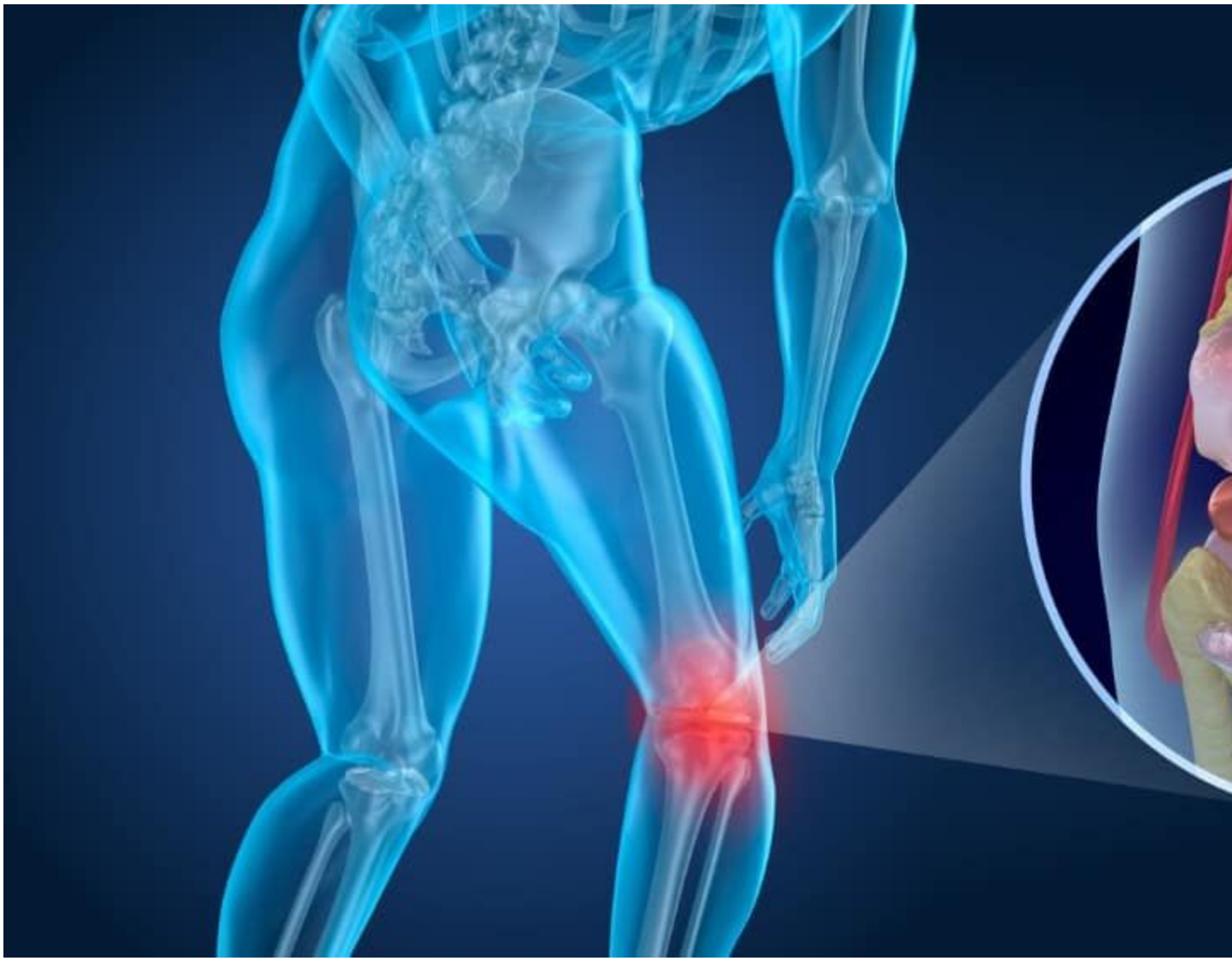

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Cartilage is essentially a white shiny material that helps cushion and cover the area where the bones meet the joints. It serves as a lubricating surface as well as a shock absorber. Cartilage damage can be seen as a hole or crater on the otherwise smooth surface of the joint. **If left untreated, the joint can become stiff, swollen and painful.** It may even progress to a stage that requires a total joint replacement with metal and plastic components.

Cartilage regeneration is a procedure that attempts to restore damaged cartilage by harnessing the body's cells to regrow or replace lost cartilage.

Before your doctor decides which **cartilage repair** approach is best for you, you will have a magnetic resonance imaging (MRI) test to determine the severity, size and location of your cartilage injuries. Most of these treatments can be done by arthroscopy (more commonly known as keyhole surgery), providing benefits of less pain, less bleeding, and faster recovery. However, some injuries will still require a traditional open incision technique where a bigger cut is made to expose the cartilage damage.

While it may not be an easy problem to treat, here are treatments available to repair or regenerate damaged cartilage.

Use of Supplements for Joint Pain

Choosing a supplement for joint pain can be overwhelming with the number of products available. Many of these products contain multiple ingredients. Keep in mind that a long ingredient list doesn't always make for a better product.

Pain relievers such as nonsteroidal anti-inflammatory drugs are usually the first choice for joint pain relief after cartilage damage. There are also dozens of supplements that claim to treat joint pain, but which ones actually work?

Joint Fuel 360 is a **cartilage repair supplement** developed by Jupiter Laboratories. The ingredients in **Jointfuel360** are scientifically proven to be most effective in alleviating pain, reducing inflammation, improving flexibility and reducing stiffness in joints which include knees, shoulders, elbows, ankles and every other joint in the body. The supplement is 100% drug-free and works from within to promote stronger joints.

The formula includes only science-backed ingredients that are proven to work together to promote long-term pain relief and improve joint health. **Joint Fuel 360 can be used to repair cartilage without surgery procedures.**

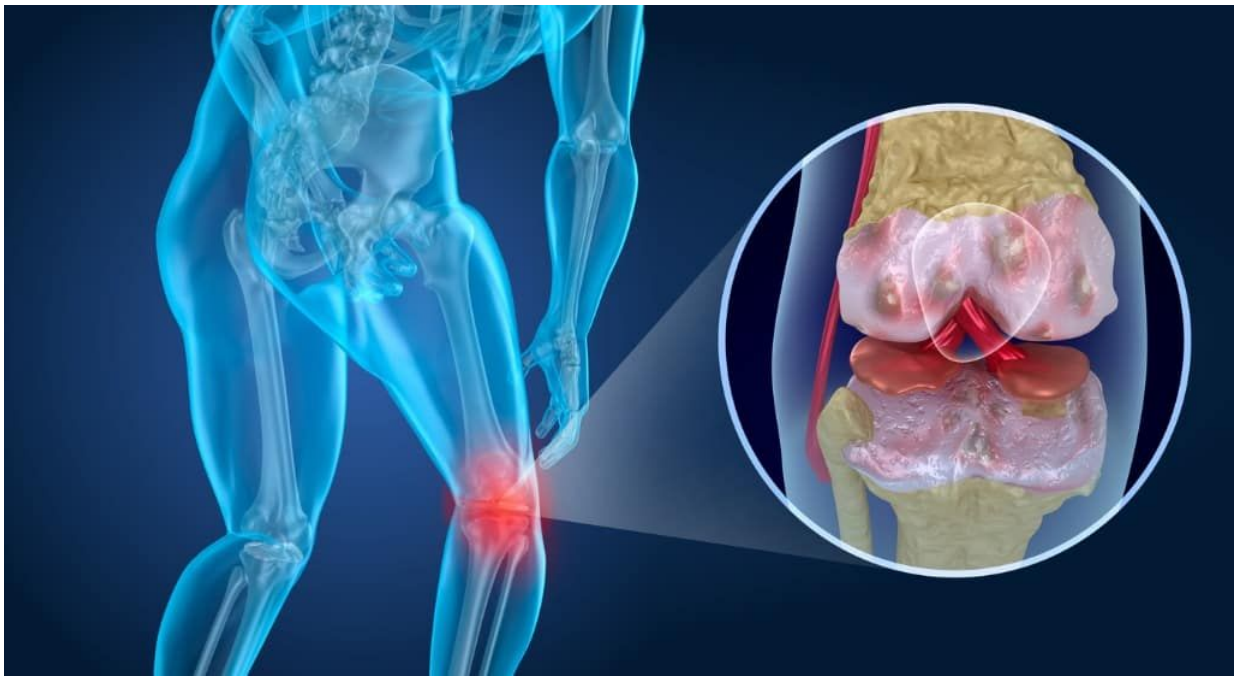
Autologous Chondrocyte Implantation (ACI)

ACI is a two-step procedure. New cartilage cells are grown and then implanted in the cartilage defect.

First, healthy cartilage tissue is removed from a non-weightbearing area of the bone. This step is done as an arthroscopic procedure. The tissue which contains healthy cartilage cells, or chondrocytes, is then sent to the laboratory. The cells are cultured and increase in number over a 3- to 5-week period.

An open surgical procedure, or arthrotomy, is then done to implant the newly grown cells. The cartilage defect is prepared. A layer of bone-lining tissue, called periosteum, is sewn over the area. This cover is sealed with fibrin glue. The newly grown cells are then injected into the defect under the periosteal cover.

ACI is most useful for younger patients who have single defects larger than 2 cm in diameter. ACI has the advantage of using the patient's own cells, so there is no danger of a patient rejecting the tissue. It does have the disadvantage of being a two-stage procedure that requires an open incision. It also takes several weeks to complete.



Arthroscopic debridement

For the less severely damaged cartilage, all that is needed is a ‘clean up’ procedure. During this procedure, a video camera is inserted through a small incision and saline is introduced to wash out the joint. Washout expels any loose debris. Debridement involves removing the damaged cartilage, and this is often performed concurrently with the washout.

Osteochondral Allograft

If a cartilage defect is too large to be treated by an autograft, an osteochondral allograft may be required. Performed through an open incision, this procedure is similar to mosaicplasty, but the graft is taken from a cadaver donor, or a donor who has died. The graft is carefully sterilized and prepared before implantation and must match the anatomy of the patient. It is then shaped to fit the exact contour of a patient’s defect.

Microfracture

This procedure is performed arthroscopically. During microfracture, small holes are created in the knee bone. The surface layer of the bone, called the subchondral bone, is hard and lacks good blood flow. Creating holes in the bone allows bleeding. Blood contains bone marrow cells that stimulate cartilage growth and form fibrocartilage, which covers the injured area.

Follow-up Care

After **cartilage repair**, you will be on crutches for six to eight weeks. It takes several months to make a full recovery. Some patients require a continuous passive motion machine (CPM), a

device that is used to gently flex and extend the knee, after surgery.

Patient will be subjected to close monitoring of how the new cartilage is developing and integrating with existing cartilage using advanced quantitative MRI imaging. This advanced MRI imaging is the most effective and non-invasive way of charting your progress. You may be a candidate for an evaluation study on cartilage resurfacing procedures using advanced MRI scans.