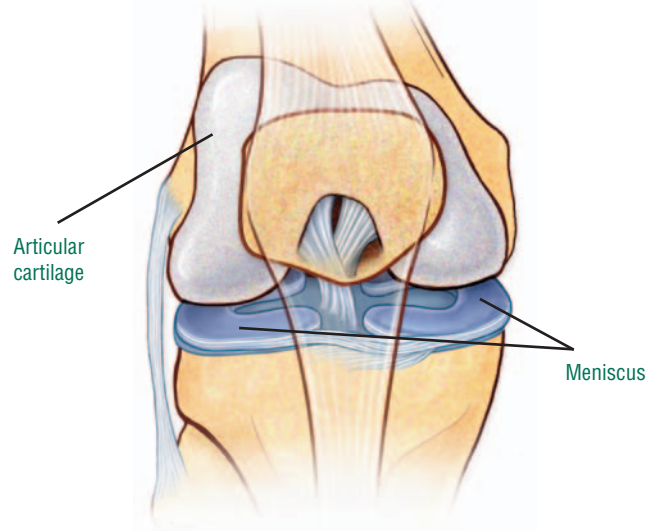


Restoring injured cartilage: ending knee pain and returning function

By Kevin B. Freedman, MD, Medical Director
Bryn Mawr Hospital Cartilage Restoration Program



Cartilage damage is the most common cause of knee pain and disability, affecting two million Americans each year, from injured athletes to arthritis sufferers. Sometimes the problem begins with a single trauma; often it's the result of progressive degeneration.

The Bryn Mawr Hospital Cartilage Restoration Program specializes in the latest techniques to restore, repair or replace damaged knee cartilage to resolve pain, swelling and disability. Developed over the last decade, these treatments use highly-advanced technology and biological engineering to improve cartilage function. The procedures may be an option for patients who have certain types of cartilage damage and whose alternatives had been to live with pain or consider joint replacement.



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The exact procedure recommended to a patient depends on several factors—patient age; activity level; type, extent and age of the injury; and personal preferences. For patients with complex problems, the Cartilage Restoration Program provides the unique expertise to combine procedures—to repair articular and meniscal cartilage simultaneously, for example.

Cartilage injuries fall into two categories: damage to the meniscus, the cartilage rings that sit between the thigh and shin bones on both sides of the knee and act as shock absorbers, and damage to the articular cartilage, which covers the ends of the bones that come together at the knee joint and allows the joint to move smoothly. The orthopedic surgeons at

Bryn Mawr Hospital are skilled in the repair and replacement of both types of cartilage.

Meniscal damage usually occurs by a twisting motion to the knee. Depending on the type of tear, the defective part of the meniscus may be removed or repaired. In cases of severe meniscus damage or prior removal, donor cartilage from a cadaver may be used to replace the entire meniscus, restoring the cushion and stability of the knee joint. This is called a meniscus transplant.

When the articular cartilage is damaged from injury or arthritis, patients have several options for repair. Small holes, or microfractures, can be poked in the bone adjacent to the damaged cartilage to stimulate new cell growth into the cartilage defect.

For more severe damage, the cartilage can be restored entirely with a transplant. In autologous chondrocyte implantation, healthy cartilage cells taken from the patient's knee are cultivated in a laboratory and then implanted in the area of the damaged or missing cartilage. These cells then mature into nearly normal cartilage. Another option for cartilage restoration is osteochondral grafting, which replaces the cartilage and bone beneath it with either the patient's own tissue (autograft) or a donor graft from a cadaver (allograft).

These new procedures, usually performed with arthroscopic or minimally invasive techniques, mark the most promising developments in orthopedic surgery since total joint replacement and arthroscopy. Advances in these techniques will continue to revolutionize the treatment of cartilage damage in joints throughout the body. For young and active patients from their teens to approximately age 40, cartilage restoration can halt further degeneration and may delay or even prevent the need for a total joint replacement.

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