

SYRACUSE ORTHOPEDIC SPECIALISTS THE NEXT FRONTIER IN SPORTS MEDICINE:

Cartilage Restoration

By Michael Ferguson

EXPERTS AT SYRACUSE ORTHOPEDIC SPECIALISTS' CARTILAGE CENTER OF NEW YORK PROVIDE INNOVATIVE TREATMENTS TO TREAT CARTILAGE INJURIES IN YOUNGER, MORE ACTIVE PATIENTS.



ALTHOUGH CARTILAGE INJURIES are among the most common reasons for visits to orthopedic specialists, treatment options have traditionally been limited to bracing, medications and steroid injections that provided short-term relief until patients chose to undergo joint replacement.

Those patients considered too young — typically under 55 years old — or too active for joint replacement faced even fewer options.

“For decades, the only options we had for injuries to articular cartilage — which is the Teflon-like surface coating over the bones inside each joint — were medications, cortisone shots or activity modification to manage symptoms until patients were ready for joint replacement,” says Todd Battaglia, MD, MS, Director of the Cartilage Center of New York for Syracuse Orthopedic Specialists (SOS). “That meant patients had to live with pain — sometimes for decades.

“We have long had effective treatments for tears of the meniscus cartilage,” he continues. “But when we speak of injuries to the surface cartilage, we have had little to offer.”

This is because that type of cartilage is not vascularized and therefore has very limited healing potential.

“Treating these injuries isn’t as simple as putting a patient on crutches for a time or prescribing medication,” Dr. Battaglia says. “Surgical intervention has to compensate for the lack of blood supply and absence of the body’s typical healing processes, so we’ve developed cartilage transplantation procedures and other strategies to encourage cartilage growth.”

On the Forefront

Such cartilage restoration procedures are not widely available, but they are revolutionizing treatment for focal cartilage injuries. These issues can result

from overuse or from trauma caused by cutting, jumping or twisting, and they often accompany other injuries, such as anterior cruciate ligament tears and patellar dislocations. Occasionally, treating the cartilage defect can be as simple as removing a loose body within a joint. Many injuries, however, require more complex strategies, such as stimulating new cartilage growth in the area of the defect or performing cartilage transplantations. Orthopedic specialists at the Cartilage Center of New York use traditional and leading-edge techniques to treat the entire spectrum of cartilage injuries.

+ Microfracture surgery stimulates cartilage growth by encouraging stem cell production in the area of the defect. Using arthroscopic approaches, surgeons create small holes in the bone near the cartilage defect, through which stem cells release and build new cartilage. This procedure may be further augmented with cartilage pastes and concentrated blood products to stimulate growth of healthier and more robust cartilage.

+ Osteochondral autograft transfer is a transfer of cartilage and its underlying bone plug from a non-weight-bearing area to the injury site. Surgeons typically use this method to treat injuries covering relatively small areas.

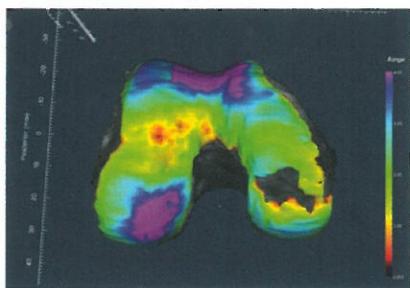
+ Osteochondral transplant is the transfer of living donor cartilage, processed through tissue banks, to the site of injury. This is typically used for larger defects.



SOS Cartilage Center of New York surgeons: (L-R) Nathan G. Everding, MD, SOS upper extremity specialist, Todd Battaglia, MD, MS, Director of the SOS Cartilage Center of New York, and Naven Duggal, MD, SOS foot and ankle specialist

+ Autologous chondrocyte implantation is another advanced technique for repairing larger cartilage injuries. Surgeons arthroscopically harvest a small amount of the patient's articular cartilage and, using cell culturing techniques, increase the number of cells available. Surgeons implant the autologous cells into the injured area.

+ Osteotomies are bone realignment procedures often used in combination with cartilage procedures to unload or remove stress from the site of cartilage injury.



Kuvia3D for Knees provides 3-D renderings developed from the MRI of a patient's knee to facilitate a better understanding of imaging study results. The renderings are intuitive and contain information that is difficult for patients to appreciate in traditional 2-D MRI images. SOS Cartilage Center of New York is one of a select few beta sites internationally to have this product available to their practice.

Expanding Treatment Focus

Most cartilage restoration procedures are currently focused on treatment of knee injuries.

"For better or worse, most of our existing research, and therefore most of our current knowledge, revolves around use of these techniques in the knee joint," Battaglia says.

As these techniques develop, however, they are also being applied to other sites of cartilage damage, particularly the elbow, shoulder and ankle. Surgeons at SOS, including foot and ankle specialist Naven Duggal, MD, and upper extremity specialist Nathan G. Everding, MD, are now performing cartilage procedures in these joints, as well.

Regardless of where the injury occurs, the foundational principle of treatment remains the same.

"For optimal results, we have to address the primary cause," Dr. Duggal says. "Specific to ankles, this is often instability. Loose ligaments in and around the ankle

joint can cause more ankle sprains, which cause more cartilage damage with each sprain. Addressing the underlying cause prevents re-injury of the cartilage after we treat it."

Assessing the Patient

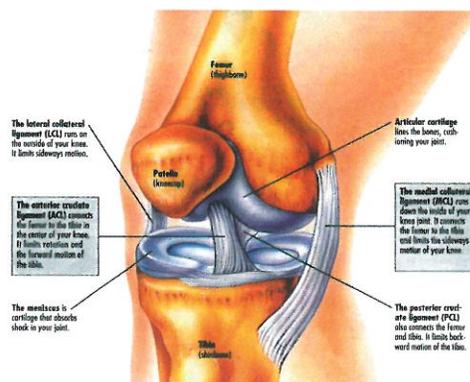
With a number of effective options available, patient selection is critical to success.

"Young patients are better candidates for these procedures because the body is more accepting of transplantation and more apt to regrow cartilage earlier in life," Dr. Everding says. "But we also have to factor in the injury, as remaining cartilage is often not optimal. Success heavily depends on identifying the right patients for these procedures."

The injury itself plays a key role in determining the most beneficial procedure. Surgeons assess the size and location of the injury, as well as the patient's age and postoperative activity goals. Thorough evaluation and discussion with patients allow specialists to develop successful patient-specific treatment plans.

"In the appropriate patients, results for these cartilage procedures range from good to excellent," Dr. Battaglia says. "Between 70 and 90 percent of individuals will still report excellent outcomes five to eight years following surgery."

In some instances, patients may not be candidates for these types of surgeries.



"We are very excited to have these new options to offer younger and high activity patients who are not ideal candidates for joint replacement," says Timothy Izant, MD, joint replacement specialist. "However, many patients, particularly older patients, will still be best served by joint replacement."

For these patients, the SOS joint replacement team of fellowship-trained surgeons who perform more total joint replacements than anyone else in the region are readily available.

For patients who do undergo these innovative cartilage restoration procedures, rehabilitation is a lengthy process that can last anywhere from a few months to as long as one year before full return to activities. Patients follow a standard progression from range of motion and muscle strengthening exercises to stationary bike riding, and then jumping and running as they draw near to their return to unrestricted activity.

For more information about these treatments, visit soscartilagecenterofny.com or call 315-883-5880. ■

GOING TO EXTREMITIES

PATIENTS WITH GLENOHUMERAL arthritis may benefit from a biological shoulder resurfacing procedure that utilizes human tissue to address more wide-scale loss of cartilage in the shoulder, according to Nathan G. Everding, MD, upper extremity specialist at the Syracuse Orthopedic Specialists' Cartilage Center of New York. The procedure can be performed arthroscopically or through an open incision, depending on the size of the defect.

Biological shoulder resurfacing also provides long-term benefits for younger patients who aren't ready for joint replacement.

"This procedure replaces the shoulder components with allograft tissue — as opposed to man-made metal and plastic prostheses — that promotes cartilage growth," Dr. Everding says. "If patients develop arthritis again and require revision surgery, biological shoulder resurfacing maintains bone stock, which is better than performing a revision procedure with a prosthesis in place."

To treat cartilage injuries in the talus — which range from blistering and wear to osteochondral lesions — similar implant procedures and biologic materials may replicate the body's own cartilage. While microfracture surgery produces a cartilage-like substance, newer treatment methods hold the promise of a long-lasting development of hyaline cartilage with improved healing capacities.

"These are new techniques to treat ankle defects orthopedists couldn't provide a few years ago," says Naven Duggal, MD, orthopedic foot and ankle surgeon at SOS' Cartilage Center of New York. "It's an exciting time because we can offer alternatives other than waiting for ankle replacement or fusion."