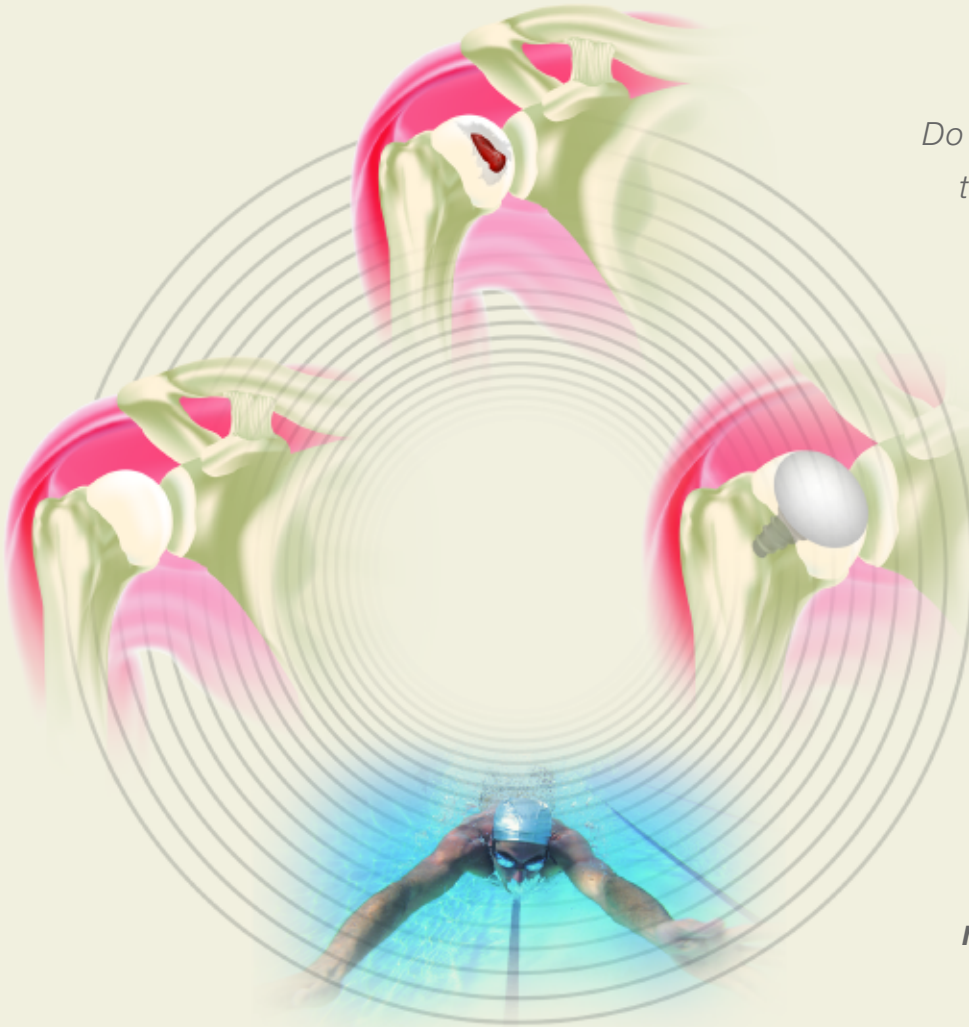


Shoulder Resurfacing & *Joint Preservation*

*Do you have pain in your shoulder
that prevents you from doing the
activities of daily life?*

*Has your doctor
told you that you
might need a joint
replacement?*

*There is a less invasive
solution that might be
right for you.*



Anatomy

Have you become frustrated because of the limitations of a painful shoulder?

Before we begin to explain a possible solution, it is important to understand the problem.

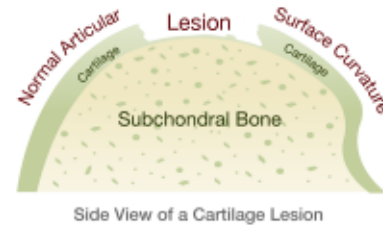
What is a joint?

Joints are the locations in your body where two bones meet. Movement of these bones at the joint permits our bodies to move. Cartilage is a specialized tissue in the joints which caps/covers our bones where they meet. Cartilage is a smooth, slippery tissue that allows the bones to slide against one another with minimal friction.



How does cartilage get injured?

A variety of events can damage cartilage, some include trauma (injury), infection, inflammation, osteonecrosis (dead bone) and malalignment. A traumatic injury can cause an isolated defect just like a golfer creates a divot in the grass. Malalignment can cause widespread damage to the joint surface similar to the way the tires on a car lose their tread if the wheels are not properly aligned. In many instances, physicians elect only to replace the side of the joint with the damaged surface rather than replacing the entire joint.



What is Osteoarthritis?

Osteoarthritis is a disease process causing the deterioration of the articular cartilage usually occurring in the major joints.

Arthritis = Deterioration of Cartilage

Osteoarthritis is noted by joint pain and stiffness usually after activity

Can arthritis get worse?

Any event that injures the cartilage may cause joint damage or arthritis. A small cartilage injury with time, may become larger and lead to widespread cartilage loss or degenerative joint disease.

What is Osteonecrosis?

This conditions literally means bone death (osteo=bone, necrosis=death). Also known as avascular necrosis (AVN), this condition is caused by lack of blood supply to the bone. It is triggered by a variety of factors including trauma, alcohol abuse, blood abnormalities, pregnancy, corticosteroids used in medical treatments (e.g., cancer treatments and organ transplantation), but in approximately 25% of the patients, the cause is unknown.

Osteonecrosis = Bone Death

Osteonecrosis is noted by aching joint pain

What are treatment options for injured cartilage?

Depending on the degree of cartilage injury, patients may be candidates for either a traditional more invasive joint replacement, microfracture, allograft or now with the advent of resurfacing technologies a less invasive procedure such as the ArthroSurface HemiCAP™ system.

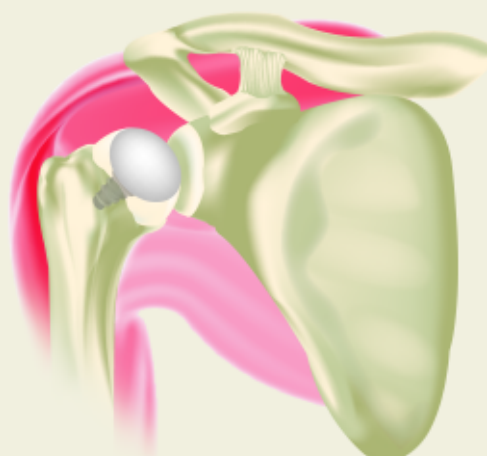
What about microfracture?

Microfracture is a technique designed to stimulate the body to form a type of “scar” cartilage. However, scar cartilage is less durable than normal cartilage and there is usually a long rehabilitation after surgery.

Well-defined cartilage defects can be problematic because they can either cause pain and/or increase the risk of spreading damage to surrounding areas of normal, undamaged cartilage. The damaged area of cartilage becomes the weak link for the rest of the joint and the damage spreads.



Damaged cartilage on one surface left untreated may lead to further joint degeneration.



Joint resurfacing with a HemiCAP™ implant creates a new congruent joint surface.

"My occupation as a mechanic is very heavy work. A few years ago, my shoulder began dislocating so often that I could not perform my job. After my first surgery, my shoulder began dislocating more than ever. In the next 2 years I had 3 more surgeries on my shoulder and at the age of 37, I was left unable to work. The effects of my chronic dislocation have damaged my bone and cartilage and started arthritic changes in my shoulder. Knowing I would never work again had a very negative impact on both me and my family. I lived a life of uncertainty and pain. I couldn't throw a baseball to my son or play with my children because at times, I only had about 10% of my strength. I could barely sleep because when my muscles relaxed, my shoulder would dislocate. It was a very difficult time for my family. To make matters worse, multiple doctors and hospitals declared I was disabled, but I was unable to receive any financial assistance.

I was very discouraged until a friend told me about a possible solution for my shoulder arthritis that he had learned about from the internet. There was a new procedure that certain doctors had been trained to perform called a HemiCAP™ resurfacing. I used the "Find the Doctor" program on the ArthroSurface™ website to find a surgeon near me. I made an appointment in the summer of 2003 and my new doctor spent a lot of time discussing my options. The doctor explained that I was a candidate for a total shoulder replacement, but he felt I was too young for that extensive of an operation. He explained the HemiCAP™ procedure to me. As a mechanic, I could immediately see how the shape of the small ArthroSurface HemiCAP™ implant would be positioned in the bone. It made sense to me. There were many different sizes of implants and the doctor would be able to choose the size that fit my bone best during the surgery. I was excited about the surgery and my operation was performed a few weeks later.

I immediately knew the HemiCAP™ implant had accomplished more than all the other surgeries combined. I began to enjoy activities I hadn't done for a long time and my shoulder kept improving and not dislocating. I now have almost all my strength back. When I visited my doctor in September of 2004, I reached out and nearly picked him up off the floor. Both he and I were on cloud nine. I am back to working two jobs and enjoy life again and I can't say enough about my doctor and the HemiCAP™ implant in my shoulder."

GR-Massachusetts

What about Allografts?

Allografts are donor tissues. This can be a difficult surgery because it is very hard to reconstruct the existing joint surface curvatures. There are also risks of disease transmission and a lengthy waiting list for grafts.

I've heard of injecting cartilage cells to regrow normal cartilage. Does that work?

It has been tried in certain patients but is expensive, requires two surgeries and has long and difficult rehabilitation. Today it is used primarily in the knee and is not commonly used in the shoulder.

What about Joint Replacement?

This is major surgery designed to relieve the pain of widespread arthritis. It is poorly tolerated by young, athletic and active patients. It removes all of the cartilage in the shoulder and a significant amount of bone from the joint. Joint replacement was originally indicated for patients aged 70 years and older.

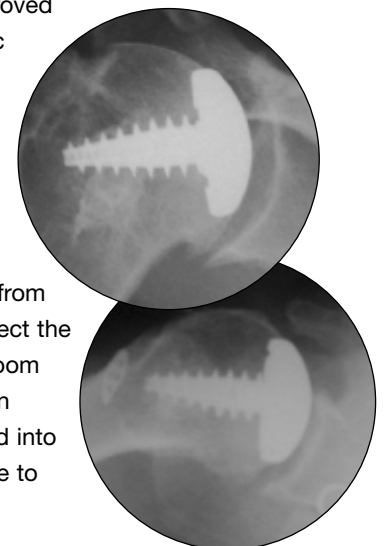
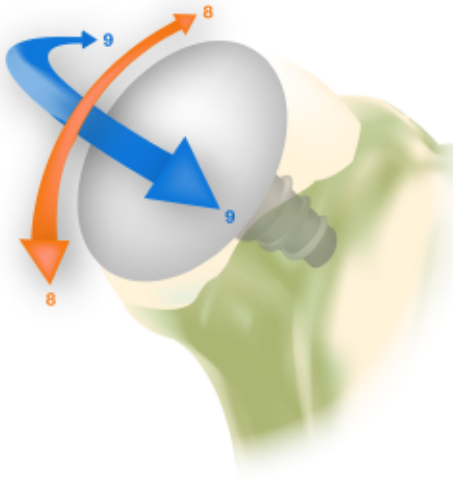


Hemiarthroplasty

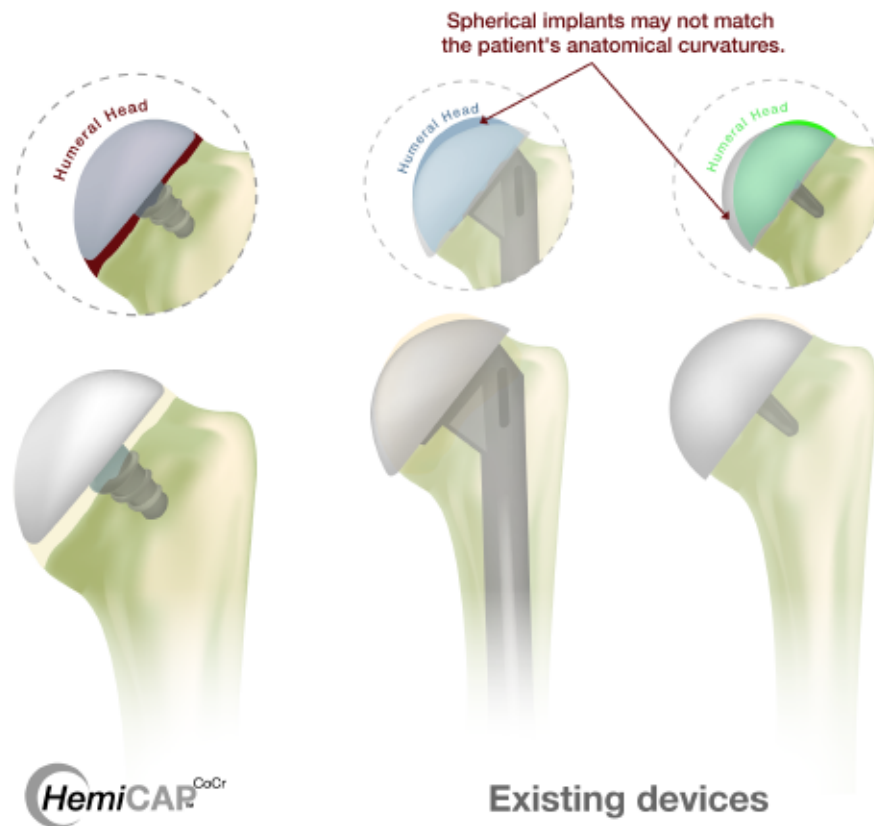
What about the ArthroSurface HemiCAP™ implant?

The HemiCAP™ implant is a technologically advanced system designed to match the shape and contour of the individual patient's cartilage surface. It is a "patch" for an area of damaged cartilage designed to protect the remaining, normal cartilage in an attempt to prevent further damage. The HemiCAP™ system is approved for disabled shoulder joints resulting from post-traumatic degenerative disease or avascular necrosis.

The HemiCAP™ system matches not only the diameter of the damaged area but also the precise radius of curvature of the patient's joint surface in two planes. The technology for mapping the joint curvatures comes from eye surgery where it was used to make products to protect the corneal surface. The mapping is done in the operating room by the surgeon. Once the mapping points are defined, an appropriately sized implant is chosen and then implanted into the patient. Different diameters & curvatures are available to provide a proper fit for each patient.



HemiCAP™ Implant



Is this different than a joint replacement?

The HemiCAP™ implant is matched and fit to a patient's joint size and shape. It removes a much smaller amount of cartilage and bone than traditional joint implants. It is placed "into" the surface leaving the joint less surgically altered. Simply put "This is not your grandparent's joint replacement."

Being a former Senior Power lifting Champion and owner of a prestigious power lifting gym, it is crucial to my work and life to be able to use my shoulder. Over the years, I have spent a lot of time dealing with different injuries but this was the worst. For the last 11 years, I have had to live everyday with pain in my shoulder. In the last few years, it got so bad that I couldn't sleep more than a few hours at a time without being awakened by the pain. In fact, when I would drive my truck, I would have to use my left arm to change the gears or even the radio station because it hurt so much to use my shoulder. I went to see several shoulder surgeons and they all told me the same thing "you need a total shoulder replacement" For me, that meant that I wouldn't be able to lift again and that just wasn't an option. Finally someone referred me to a doctor who might be able to help me. He had trained on this device called the HemiCAP™ implant that would just resurface o of my joint. Using the HemiCAP™ implant on one side and an allograft on my other side he was able to reconstruct my shoulder without compromising any of the muscles and tendons. Not only did the pain go away in a matter of weeks but also for the first time in over 10 years my shoulder works like normal. Given my history that's nothing short of fantastic!! My pain is gone, I sleep through the night and I am back to full time lifting and working out. Without my surgeon and this technology from ArthroSurface I would have had to stop doing what I love the most-lifting and training athletes to get powerful and strong."

-L.S., Ohio

How long will the HemiCAP™ implant last?

Your surgeon expects the devices to last as long as existing devices but it will depend on your general health, activity level, and adherence to your doctor's orders following surgery.

What happens if it fails?

If it ever fails, it can be replaced with another HemiCAP™ device or, if necessary, it may be converted to a joint replacement.

Does it “burn any bridges?”

Compared to existing joint replacements there is minimal bone loss with the HemiCAP™ implant. With a joint replacement, the entire bony surface, sometimes even both sides of the joint, are surgically removed to facilitate the implant being placed. This means there is far less of the natural bone to work with if future surgery is required. The HemiCAP™ System leaves more bone intact therefore leaving more options should future surgery be required.

Will I feel it?

No. The implant is surgically placed so there are no protruding edges. The bone and the implant become a smooth surface you will not feel.

Will it set off airport security alarms?

It should not. However after receiving the HemiCAP™ implant you can ask your surgeon to give you an implant identification card (similar to your driver's license) that can be shown to anyone should there be any question.

How long will I be off of work?

This will be dependent on your muscle strength, range of motion and the type of work you do. Many patient's have experienced a rapid return to daily activities. However, as with all medical treatments, your results may vary.

What type of physical therapy will I need to do?

Your doctor and therapist will design a rehabilitation protocol to return strength to your muscles so that you can return to your original lifestyle.

Due to its general applicability, do not rely on information in this brochure to assess any particular patient condition. Seek professional medical advice for specific personal care. Do not delay seeking professional medical advice or disregard professional medical advice because of something you have read in this brochure.



HemiCAP™ Implant



Hemiarthroplasty




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To *Find a Doctor* visit our website:

www.arthrosurface.com

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