Hughston Health Alert

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OSTEOARTHRITIS AND YOU

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Inside...

Osteoarthritis

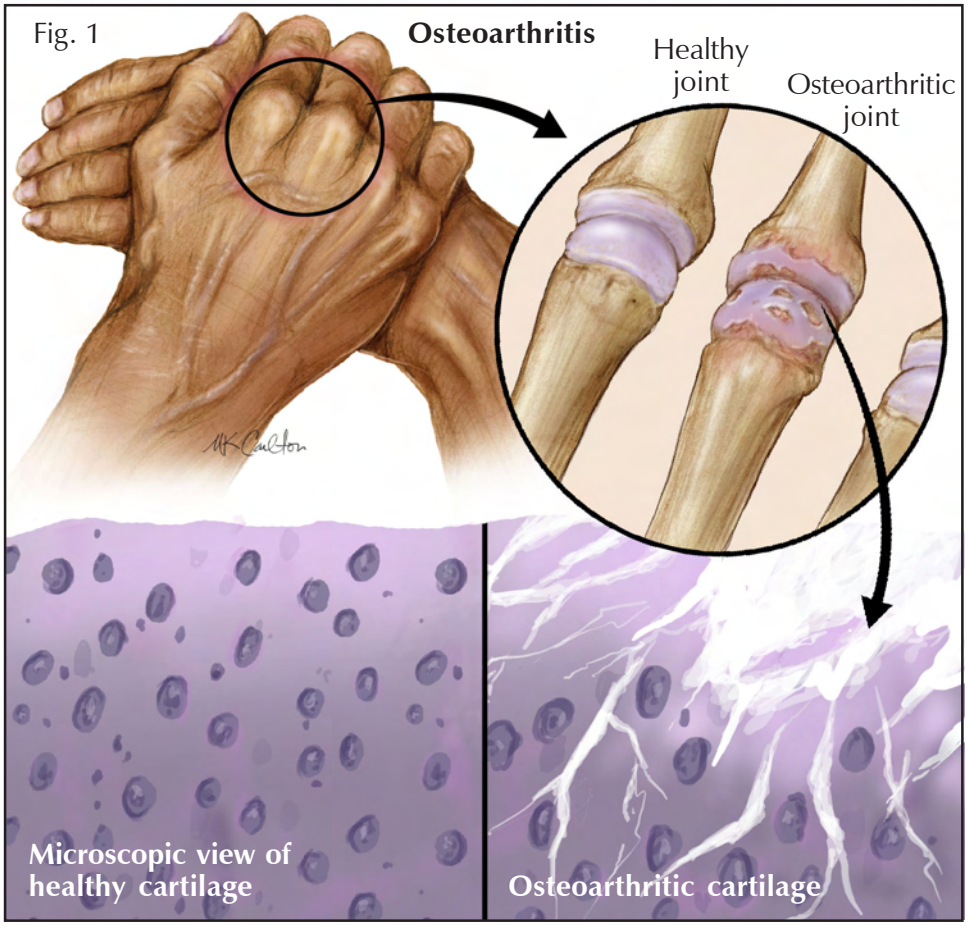
Myths and Realities

Affecting 21 million Americans, osteoarthritis is one of the most common forms of arthritis in the United States. Arthritis and related conditions such as osteoarthritis cost the US economy nearly 86 billion dollars per year in medical care and indirect expenses, including lost wages and production.[1] Thus, osteoarthritis is a serious US health concern, with great economic impact.

The good news is osteoarthritis can often be effectively treated using treatment modalities, including rest, activity modification, anti-inflammatory medications, injections of medication, braces, and canes. When these treatments are no longer effective, a variety of surgical approaches may be considered, including arthroscopic surgery (only in specific instances), limb realignment surgery, and joint replacement surgery.

Increasingly, patients are educating themselves about their disease. And while heightened patient awareness almost always leads to better patient decision making, misinformation can have the opposite effect.

So what are the myths, and what are the current realities about osteoarthritis and its treatment?



Myth 1: Osteoarthritis is "wear and tear" arthritis.

The truth is we do not know the exact cause of osteoarthritis. But we do know it is more than just mechanical wear and tear. Mechanical, biochemical,and genetic factors probably all play a role in the disease (Fig. 1).

In addition to mechanical forces, cartilage is destroyed in osteoarthritis by powerful enzymes called *metalloproteinases*. These substances slowly destroy the interior framework of cartilage. The role of genetics in osteoarthritis is still being defined. Osteoarthritis has been known to run in families, and occurs routinely in certain patients with known genetic defects of cartilage.

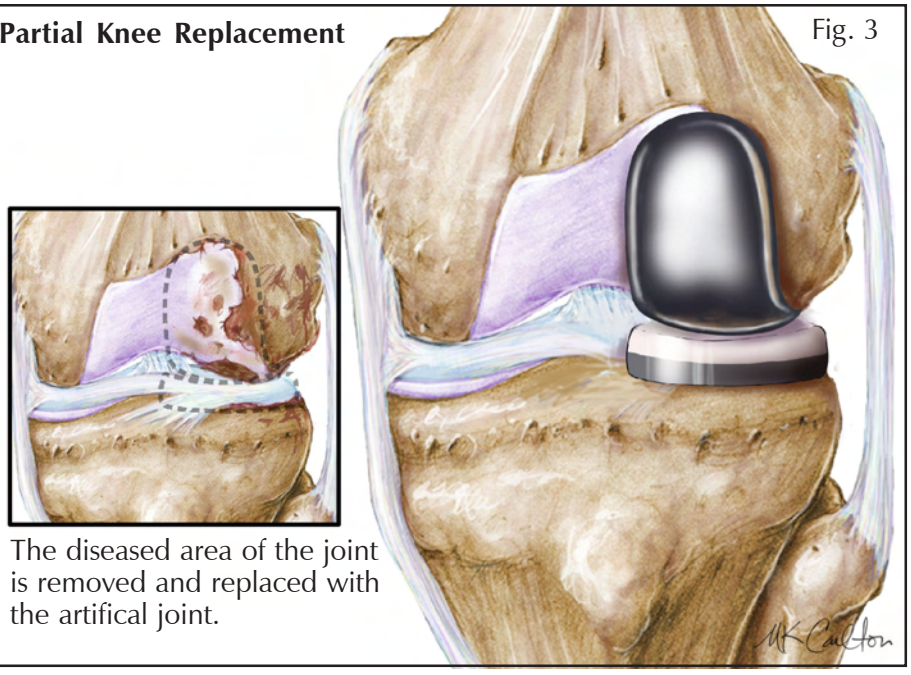
Myth 2: Osteoarthritis is potentially reversible.

There is little scientific evidence of treatment approaches for osteoarthritis that halt the progression of the disease. And there is *no* scientific evidence that the disease process can be reversed. Limiting excessive impact loading of the joints may slow disease progression, and reduce pain. Therefore, weight control and exercise is an important factor in slowing the progression of the disease.

Myth 3: Cartilage "protective" agents: The truth about glucosamine and chondroitin sulfate.

Glucosamine and chondroitin sulfate are nutritional supplements available over-the-counter. Many patients believe these agents halt the progression of arthritis, or can cause cartilage to grow back in their joints. Current scientific evidence suggests that these agents are only effective in alleviating arthritic pain. Evidence that they change the course of arthritis is scant and questionable. I recommend trying the medications for 4 to 6 weeks, and then continuing them only if they are relieving pain.

Partial Knee Replacement Fig. 3



The diseased area of the joint is removed and replaced with the artifical joint.

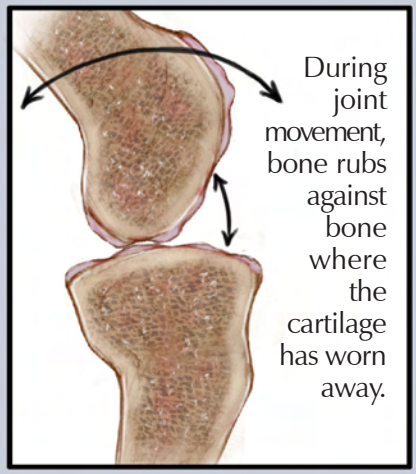
Myth 4: Non-steroidal anti-inflammatory medications (NSAIDS) are dangerous and should be avoided.

The potential dangers of NSAIDS have received a great deal of media attention recently. Specifically, some reports have shown an increased risk of heart attacks with some of these medications. Two medications have been taken off the market (Vioxx and Bextra). Celebrex was linked to heart attacks only in patients who already had heart disease and who were taking very high doses of the medication. The FDA has concluded that NSAIDS are generally safe at prescription strength doses but should be used with caution in patients with heart disease. Remember, all medications can have serious side effects, especially if patients take more than the prescribed dose. And patients taking NSAIDS for more than 6 months need periodic blood tests for liver and kidney function.

An Arthritic Knee

Front view of a flexed (bent) knee: the cartilage has worn away causing inflammation and arthritis pain.

Cross section of knee bones



During joint movement, bone rubs against bone where the cartilage has worn away.

Fig. 2

NSAIDS continue to play a vital role in the day-to-day treatment of arthritis. Increased awareness about the potential side effects of these medications will help patients use them wisely.

Myth 5: Cortisone shots just mask the pain and are therefore worthless.

Cortisone shots are hardly worthless. Because there is no known cure for arthritis, the goal is to alleviate symptoms and prolong joint replacement surgery. Arthritis pain comes from 2 principle sources: the irregular joint surfaces that rub together, and inflammation (Fig. 2). Cortisone relieves pain by reducing the level of inflammation. Injections may be safely administered every 3 to 4 months, with no more than 10 to 15 injections in any single joint over one's lifetime.

Myth 6: Total joint replacement is the only option for patients with severe arthritis.

Again, this depends on the specific situation. Patients with arthritis affecting only one side of the knee are potential candidates for less invasive operations. Young patients desiring to be physically active can consider a realignment osteotomy of their knee, which changes the weight-bearing axis of the leg, and transfers much of the forces of weight bearing away from diseased cartilage. Partial knee replacement involves replacing only that portion of the joint that is diseased, leaving the unaffected portion intact (Fig. 3). Using modern instruments, this procedure can now be performed through a small incision with a much shorter hospital stay of 1 to 2 days.

The cure for arthritis has proven to be as elusive as the cure for cancer, but medical researchers are hard at work searching for solutions. New directions for treatment include the use of cartilage cells to reconstitute damaged cartilage, and gene therapy. In the mean time, treating the symptoms of arthritis using a well-reasoned, balanced approach continues to be our best treatment option.

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References:

1. Osteoarthritis Fact Sheet. Arthritis Foundation. www.arthritis.org/conditions/Fact_Sheets/OA_Fact_Sheet.asp. Accessed July 31, 2006.

Drug Therapy and Arthritis

Non-Steroidal Anti-Inflammatory Drugs

There are over 100 medications that are being used in the treatment of arthritis. Non-Steroidal Anti-Inflammatory Drugs, or NSAIDS, are the most common and are available as over-the-counter products, in generic form, and by prescription. Over-the-counter medications are good options to use for minor pain caused by osteoarthritis. Prescription strength NASIDS may be required in chronic or rheumatoid arthritis.

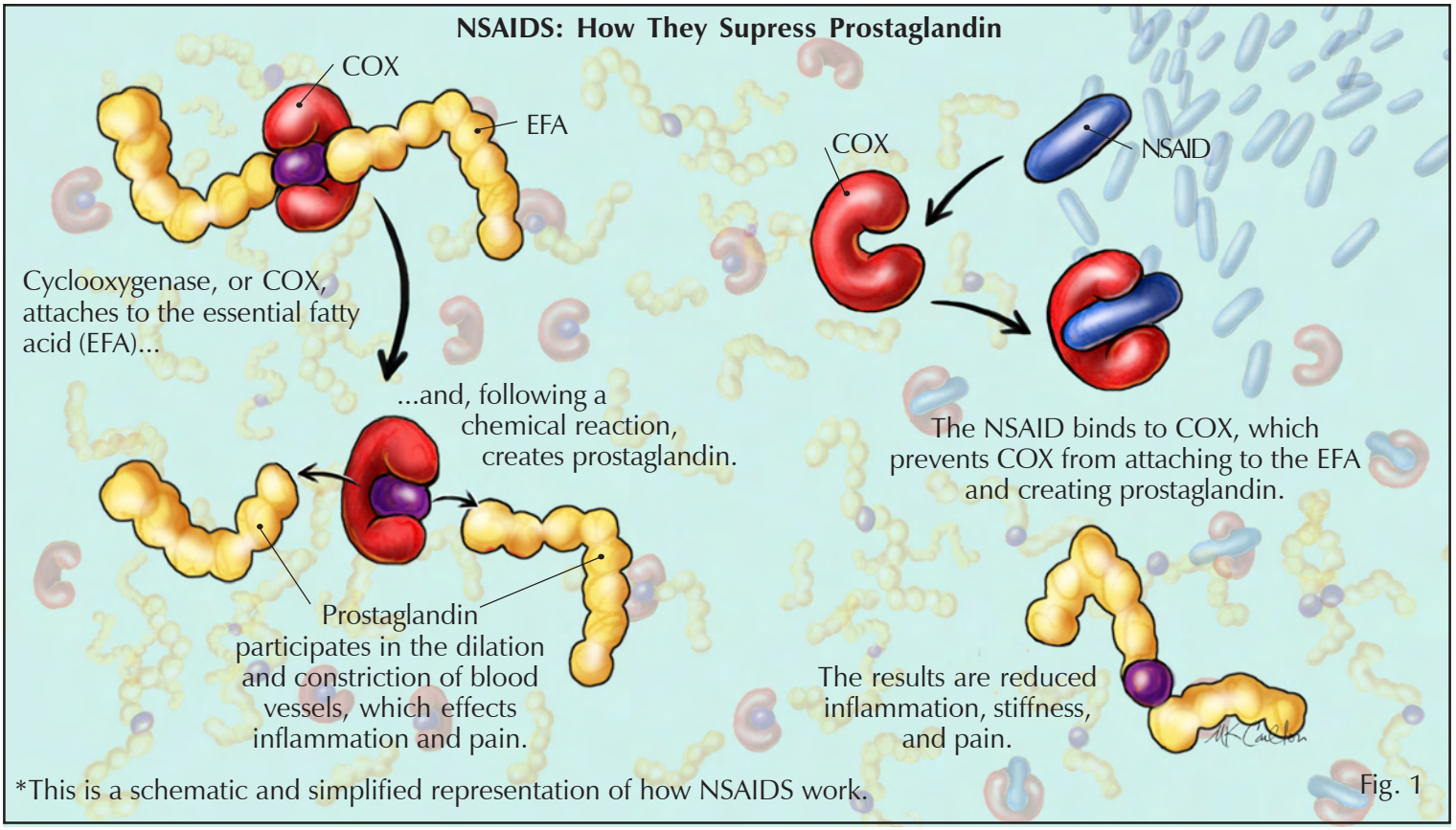
How do they work?

NSAIDS work by suppressing the production of fatty acids called prostaglandins that cause inflammation and pain. The medication does this by blocking the action of an enzyme called cyclooxygenase (COX) that helps produce prostaglandins (Fig. 1).

There is no evidence that NSAIDS alter the natural course of osteoarthritis but they treat the symptoms of pain, stiffness, and inflammation and, thus, provide a better quality of life for individuals with arthritis.

What about the side effects?

Because NSAIDS are similarly effective, they can have similar side effects. Chronic use can be associated with ulcer development. Watch for signs and symptoms of stomach pain and blood in the stool. Elderly patients should



*This is a schematic and simplified representation of how NSAIDS work.

Fig. 1

have a kidney function test regularly for long term use of the medication to prevent reversible kidney damage. Here are some general steps to reduce side effects:

• Take your medication as prescribed or recommended on the label. Know about how much medication you should take and when to take it. If you have problems with the medicine, call you doctor. He or she may be able to change your dosage schedule or type of drug to better suit your needs.

• Some drug labels warn: "Do not take on an empty stomach" or "Take with food". To reduce stomach upset with NSAIDS, take the medication with meals. Additionally, spicy and acidic foods may cause additional stomach upset. Food can slow down or speed up the medicine's effect on the body. Ask your doctor or pharmacist if you have questions.

• Drinking alcohol can increase or decrease a drug's effectiveness. If the medication causes stomach upset, adding alcohol can increase the discomfort. It may be best to reduce alcohol intake or to eliminate it altogether.

• Monitor yourself. Know what benefits to expect and when they are likely to occur. Find out the side effects of your medications and what to do.

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Drugdex Database: In: Gelman CJ, Rumack BH, editors. Denver: Micromedex Inc. 2000.
Drug Facts and Comparisons, 56th ed. St. Louis, MO:Facts and Comparisons; 2002.
American College of Rheumatology. Public facts sheet. Thitinan Srikulmontree. 2005.
Drug Digest.org. printable pages. www.drugdigest.org/. Accessed July 31, 2006.

NSAIDS Chart

Drug Name[1]	Trade Name	Dosage Range[2]	Daily Cost[3] (estimated)	RX or OTC
Aspirin	EntericCoated ASA	325-975mg 4xday	0.08-0.24	OTC
Celecoxib	Celebrex	100-200mg 2xday	3.60-6.50	RX
Diclofenac	Voltaren, generic	25-50mg 3xday	1.50-3.03	RX
Diclofenac/Misoprostol	Arthrotec	50-200mg 3xday	5.73-22.93	RX
Diflunisal	Dolobid, generic	250-500mg 2xday	1.32-2.64	RX
Etodolac	Lodine	200-400mg 2xday	1.85-3.70	RX
Fenoprofen	Nalfon	300-600mg 3xday	0.72-2.36	RX
Flubiprofen	Ansaid, generic	50-100mg 3xday	3.15-6.31	RX
Ibuprofen	Advil, generic	200-600mg 3xday	0.11-0.33	OTC
Indomethacin	Indocin, generic	25-50mg 3xday	1.14-1.17	RX
Ketorolac	Toradol	10mg 4xday	2.72	RX
Mefenamic	Ponstel	250mg 4xday	6.60	RX
Meloxicam	Mobic	7.5-15mg daily	3.00-3.75	RX
Nabumetone	Relafen	1-2G daily	2.04-4.08	RX
Naproxen	Naprosyn, generic	125-500 2xday	0.12-0.46	OTC
Piroxicam	Feldene, generic	10-20mg daily	0.46-0.78	RX
Salsalate	Disalcid	0.75-1.5G 2xday	0.70-1.40	RX
Sulindac	Clinoril, generic	150-200mg 2xday	2.46-6.00	RX
Tenoxicam	Mobiflex	20mg daily	1.04	RX
Tolmetin	Tolectin	200-600mg 3xday	1.20-3.60	RX

1. **IMPORTANT:** consult your physician before taking this or any other medication.
2. Common strengths and dosage ranges. **IMPORTANT:** only take what is prescribed by your doctor.
3. Please note that prices may vary depending on the drug company, generic brand, and pricing agreements.

Symptoms of Osteoarthritis

How do I know if I have osteoarthritis?

When a joint is affected by osteoarthritis, there are 3 telltale signs you should recognize.

- **STIFFNESS** can occur while getting out of bed in the morning or after sitting for long periods of time.
- **SWELLING** can be evident in the stiff joint as well.
- The **SOUND** of bone rubbing on bone is often heard or a crunching feeling can be felt in the joint.

The symptoms of osteoarthritis come on gradually and are often dismissed until the joint becomes painful and proves difficult to move. Symptoms also vary depending on the joint affected. See your physician before your symptoms progress.

Osteoarthritis Pain

Should you give injections a shot?

Osteoarthritis causes pain, swelling, stiffness, and can limit your use of a joint. It is the most common form of arthritis, and can affect any joint, but it most often occurs in the knees, hips, lower back, neck, and fingers. Risk factors for the disease includes heredity, being overweight, muscle weakness, or sustaining a joint injury.

Sometimes called degenerative joint disease, osteoarthritis affects the cartilage of a joint. Cartilage is a hard, slippery tissue that covers the ends of bones. Healthy cartilage absorbs energy from the shock of physical movement and allows smooth articulation of the bones at the joint. In osteoarthritis, however, the surface layer of cartilage breaks down and wears away. Eventually, the bones beneath the cartilage begin to rub together, causing pain, swelling, and loss of motion of the joint. Osteophytes, or bone spurs, can grow on the edges of the joint and pieces of bone or cartilage can break off and float inside the joint space, causing more pain and damage to the joint (Fig. 1). With the breakdown of cartilage, over time the joint can lose its normal shape.

Why get a shot?

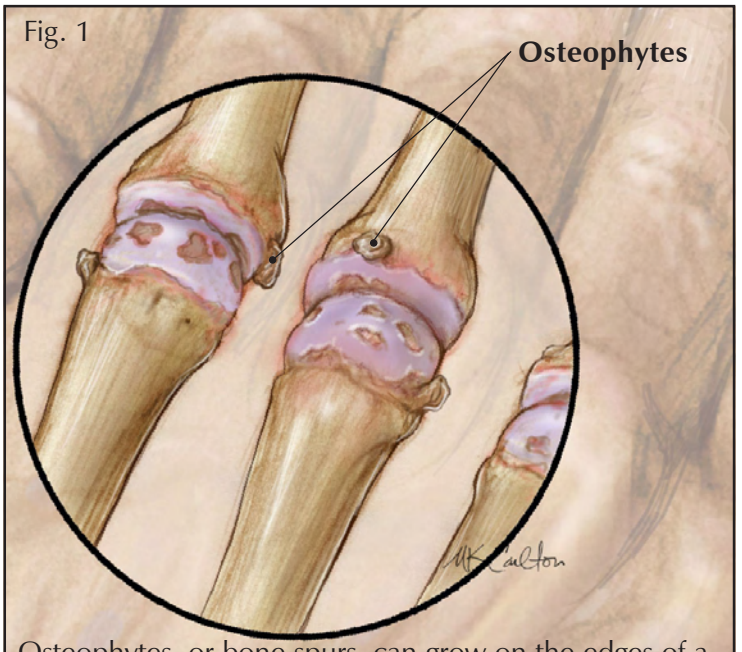
An injection can help relieve the pain and inflammation caused by osteoarthritis and it can help improve joint movement. Before prescribing an injection, your physician may recommend exercise, physical therapy, or other pain medication. If your symptoms continue, however, he or she may recommend an injection to help reduce the inflammation and to help ease your pain.

Corticosteroid medication

Corticosteroid injections are often prescribed for different types of arthritis and can be prescribed after an injury or after surgery to help alleviate pain. Corticosteroid medications imitate the effects of the hormones cortisone and hydrocortisone, which are naturally produced by your adrenal glands.

Corticosteroids can be injected into affected joints, such as the shoulder, elbow, hip, and knee (Fig. 2, pg. 6). The procedure is performed under fluoroscopy (a visual diagnostic examination using a screen or monitor) while the patient lies on the fluoroscopic table. The injection area is cleaned with iodine and alcohol, and the needle is advanced into the joint. After joint aspiration (withdrawing fluid from the joint), the corticosteroid medicine is injected. Then the needle is slowly withdrawn. Often, your physician will prescribe 1 injection a week for 3

Fig. 1



Osteophytes, or bone spurs, can grow on the edges of a joint, causing pain and inflammation. Bone spurs can cause additional damage to the joint if they break off and enter the joint space.

weeks. The procedure only takes minutes to complete, but the pain relief can last for 4 to 6 months.

Hyaluronic acid therapy

Hyaluronan molecules are found in the joint fluid that lubricates and cushions your joint (Fig. 3). With osteoarthritis, inflammation causes hyaluronan to break down. For patients with osteoarthritis in the knee, hyaluronic acid can be injected to improve the levels of joint fluid and improve lubrication of the joint. Hyaluronate and G-F20 are 2 types of drugs injected to relieve pain by supplementing hyaluronic acid in the joint. Hyaluronan injections are given directly into the knee joint once a week for 3 to 5 weeks.

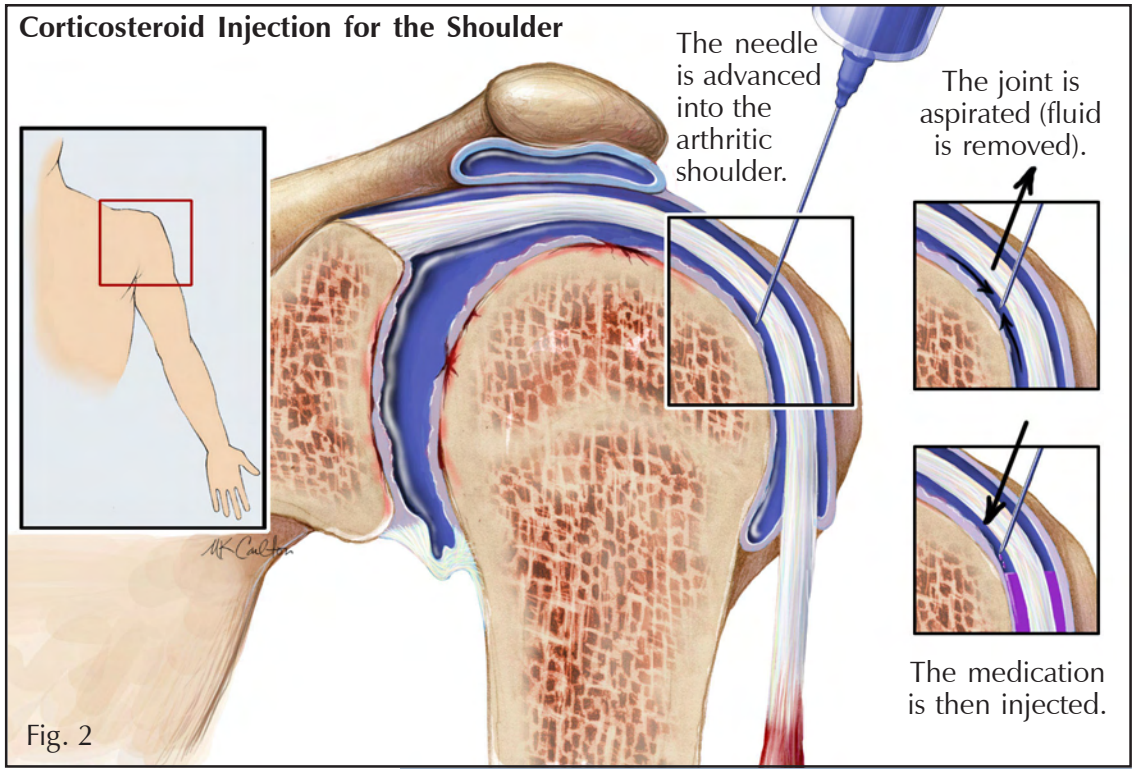


Fig. 2

Side effects

You can experience side effects after an injection, such as infection, an allergic reaction, local bleeding, skin discoloration, or pain at the injection site. Not everyone develops side effects and symptoms can vary from person to person. Injections in the same joint often are limited to 3 or 4 per year because repeated joint injections can cause damage to the cartilage.

Injections are not a cure for osteoarthritis and are not meant to eliminate the pain forever; however, they are an alternative to taking pain medication by mouth and often relieve pain for months.

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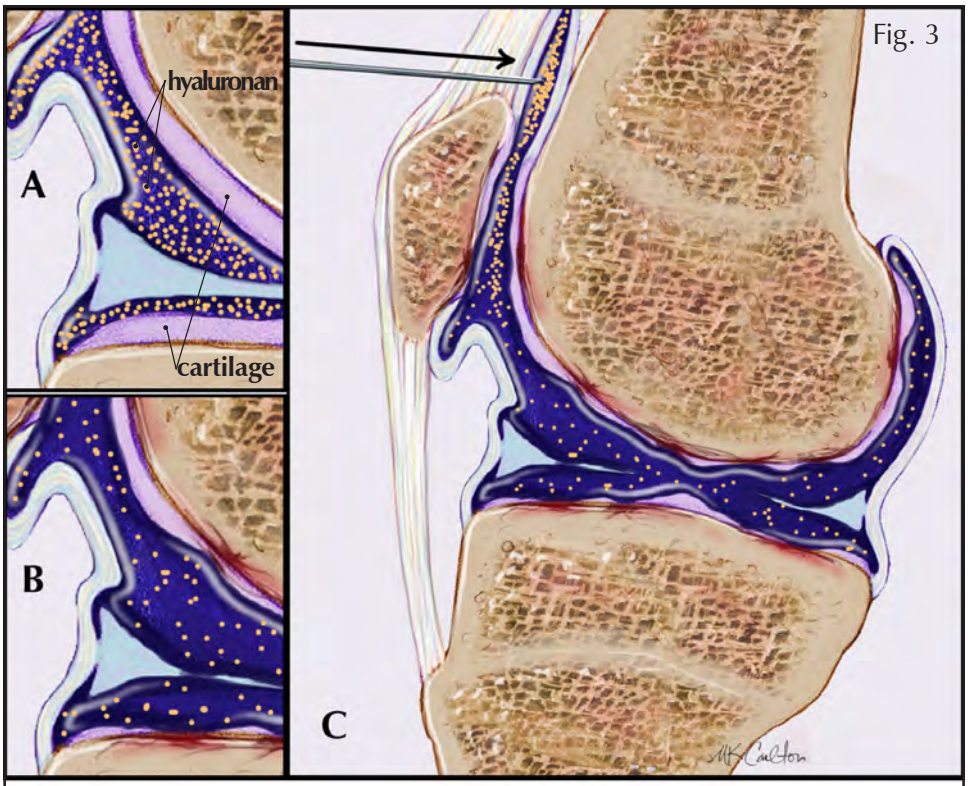

Fig. 3

A. Close-up of healthy knee joint showing normal levels of hyaluronan.
B. Close-up of osteoarthritic joint with inflammation showing low levels of hyaluronan.
C. Injecting hyaluronic acid can improve levels of hyaluronan and joint lubrication for several weeks.

Glucosamine Sulfate and Chondroitin Sulfate

There are no specific pharmacologic therapies that can prevent the progression of joint damage caused by osteoarthritis. Since no medication cures the disease, people who suffer from joint damage are stuck with only treating the symptoms. There are no clear facts supporting why, how, or if the supplements actually work; however, studies have shown that glucosamine and chondroitin do effectively reduce pain in people with osteoarthritis and other joint injuries or illness.

What are glucosamine and chondroitin?

Glucosamine and chondroitin sulfate are nutritional supplements used for the treatment of osteoarthritis. Glucosamine and chondroitin sulfate are natural substances found within cartilage, which leads some researches to believe the substances can help repair and maintain cartilage. However, no scientific research currently supports the claim. Some sources of glucosamine include crab, lobster, and shrimp shells and chondroitin can come from cattle tracheas (windpipes) and shark cartilage.

Are there side effects?

You can experience intestinal gas and softened stools while taking the supplements. People with diabetes should check their blood sugar levels frequently because glucosamine is an amino sugar and can cause sugar levels to increase. Chondroitin sulfate can thin the blood, so if you are already taking a blood-thinner medication or taking aspirin daily, have your blood-clotting time checked. Since the supplements come from shellfish, if you are allergic to shellfish, you can experience an allergic reaction.

Web sites you can trust

Arthritis Foundation
http://www.arthritis.org/conditions/DiseaseCenter/oa.asp

National Institutes of Health.
http://www.niams.nih.gov/hi/topics/arthritis/oahandout.htm

Hughston Health Alert
http://www.hughston.com/hha/a_12_4_5.htm

Centers for Disease Control and Prevention (CDC)
http://www.cdc.gov/arthritis/misc/articles_of_interest.htm

American Academy of Orthopaedic Surgeons
http://orthoinfo.aaos.org/fact/thr_report.cfm?Thread_ID=365&topcategory=Arthritis

Further Reading

Books on Osteoarthritis

Stop Osteoarthritis Now: Halting the Baby Boomers Disease by Harris H. Mcilwain and Debra Fulgham Bruce

The Arthritis Foundation's Guide to Good Living with Osteoarthritis, edited by The Arthritis Foundation

All About Osteoarthritis: The Definitive Resource for Arthritis Patients and Their Families by Nancy E. Lane and Daniel J. Wallace

Living with Osteoarthritis by Patricia Gilbert

Osteoarthritis: Caring for Your Hands by Jeanne L. Melvin

The Columbia Presbyterian Osteoarthritis Handbook: The Complete Guide to the Most Common Form of Arthritis by Ronald Grelsamer, MD, and Suzanne Loebl, editors

The Many Faces of Osteoarthritis by Vincent C. Hascall and Klaus E. Kuettner

Coping with Osteoarthritis by Robert H. Phillips, PhD

How much should I take?

You can purchase the supplements over-the-counter at most pharmacies or health food stores. A typical dose is (500 mg) 3 times a day of glucosamine sulfate and 400 mg 3 times a day for chondroitin sulfate. You may need to take the supplements for 30 days or more before relief from your symptoms occurs.

Be sure to contact your doctor if you notice any unusual or new symptoms while taking the supplements. Let your physician know before you begin taking the supplements, so he or she can properly advise you as to whether the supplements will or will not interfere with the medicines you already take or place you at risk for another health condition.

Resource: The Arthritis Foundation

James. E. McGrory, MD, joins the Hughston Clinic after 2 years of private practice in Fort Worth, Texas. Before going into private practice, Dr. McGrory practiced medicine with the United States Navy at the Naval Medical Center in Portsmouth, Virginia. There, he served as staff orthopaedic surgeon on the total joint replacement team. In 2001, he was appointed Instructor of Surgery for the Uniformed Services deployed to Guantanamo Bay, Cuba, to the Middle East in support of the Global War on Terrorism, and Operation Iraqi Freedom.

Dr. McGrory received his Bachelor of Science degree in 1989 at the University of Alabama in Tuscaloosa, Alabama where he graduated summa cum laude. He attended medical school at Vanderbilt University in Nashville, Tennessee before moving on to the Mayo Clinic for an internship and a residency in orthopaedic surgery. While there, he developed his expertise with total joint replacement surgery of the hip, knee, and shoulder. He is the author of numerous orthopaedic research papers published in the medical literature.

Dr. McGrory is board certified by the American Board of Orthopaedic Surgery. He is a member of the American Academy of Orthopaedic Surgeons and the Arthroscopy Association of North America.

Dr. McGrory plays both the guitar and the piano and he enjoys freshwater fishing and playing golf. Dr. McGrory and his wife have 3 children.

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