Cleveland Clinic

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ARTHRITIS advisor

Advice and information from a world leader in bone and joint care

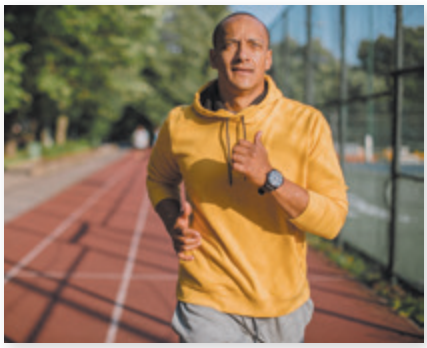
IN THIS ISSUE

Hip Resurfacing: An Option for Some

Men with hip osteoarthritis may have an alternative to total hip replacement.

If you are facing hip replacement surgery, there are two options. The standard operation is a total replacement. Some people have the choice of a different procedure, called hip resurfacing. This preserves more bone and has advantages over the total replacement. But it's not for everyone.

Men under age 65 with debilitating hip arthritis who want to return to an active lifestyle are the main beneficiaries of this alternative to total hip replacement. "They love the opportunity to have this option," says Cleveland Clinic orthopaedic surgeon Peter Brooks, MD.



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Men with hip arthritis who have hip resurfacing are better able to return to higher-demand activities.

Osteoarthritis

The main reason for contemplating any hip replacement is pain and declining function from osteoarthritis that can no longer be managed with nonsurgical measures. Osteoarthritis occurs when cartilage (the smooth covering over the ends of bones in joints) wears down.

Osteoarthritis is most common in older adults. However, Dr. Brooks notes that he sees an increasing number of younger adults, especially men, with osteoarthritis in the hip. In some cases, this can result from a misalignment of the bones in that joint that may have formed decades ago from a sports-related or other injury.

"Like a tire, if it's not aligned correctly it wears out more quickly," says Dr. Brooks.

Total Replacement

The hip is a ball and socket joint, formed by a bony ball on the top of the upper thigh bone (femur) that fits inside a socket in the pelvis. A total hip replacement involves a two-part implant. One part is a metal or ceramic ball on the end of a long, angled stem that is inserted into the femur to hold it in place. The other part is an artificial socket.

Total hip replacement has a high rate of success for relieving pain. But there can be potential problems. "The angle of the stem and the diameter of the ball aren't going to precisely match the natural angle and ball diameter," says Dr. Brooks. This is one reason people sometimes end up with leg length differences. The width, or offset, of the hip may not remain the same either. The smaller ball and changes in offset contribute to the small risk that the ball might pop out of the socket, called a dislocation.

Resurfacing Advantages

Hip resurfacing avoids these potential issues. It involves shaving away a small amount of bone on the ball and then covering it with a metal cap that matches the diameter of the natural ball. The socket part of the implant is similar to the one in a total replacement.

Because most of the bone is left intact, there is no difference in leg length or

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IN THE NEWS

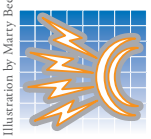
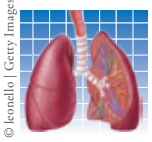


Illustration by Marty Bee

Arthritis Pain Worse in People with Diabetes

Knee pain from osteoarthritis appears to be worse for people who have diabetes, according to a study published in *Arthritis Care & Research* (February 2020). The researchers analyzed data from 2,481 people who were enrolled in the Osteoarthritis Initiative, which is a long-term study of people ages 45 to 79 with osteoarthritis. Of these, 202 had diabetes and 2,279 did not. Those with diabetes reported worse knee pain and greater physical and mental health issues than those without diabetes. Participants with diabetes were older and more overweight, and they had more health conditions. Even when the researchers accounted for these differences, pain scores were still higher among those with diabetes. The reasons for this are unclear. The researchers suggested it may relate to greater local and systemic inflammation in people with diabetes, among other factors. Inflammation may play a role in osteoarthritis.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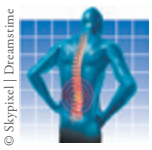
Asthma and COPD Linked to Higher Risk for Rheumatoid Arthritis

People with the lung conditions asthma and chronic obstructive pulmonary disease (COPD) appear to have an increased risk for developing rheumatoid arthritis, according to a study published in *Arthritis & Rheumatology* (March 2020). For the study, the researchers analyzed data on over 205,000 women in the long-term Nurses' Health Study. Among them, 15,148 had asthma, 3,573 had COPD and 1,060 developed rheumatoid arthritis. Asthma was associated with a 53% higher risk for rheumatoid arthritis, and COPD was associated with an 89% increased risk. The link between COPD and rheumatoid arthritis was most pronounced among women ages 55 and older with a history of smoking. Both asthma and COPD involve inflammation in the lungs. Chronic lung inflammation is thought to contribute to the development of rheumatoid arthritis. The mechanism for this is not yet understood.


Illustration by Marty Bee

Fewer Complications After Joint Replacement with Spinal Anesthesia

Total joint replacement is highly successful for relieving the pain of severe hip and knee osteoarthritis that can no longer be managed with nonsurgical measures. The surgery can be performed with either general or regional anesthesia. General anesthesia makes you completely unconscious, while regional anesthesia blocks nerve signals in the affected area of the body while you are just lightly sedated. Spinal anesthesia is the type of regional anesthesia used for hip and knee replacement. A study published in the *Journal of the American Academy of Orthopaedic Surgeons* (March 2020) compared general anesthesia to spinal anesthesia among a database of people who had hip and knee replacement surgery. For hip replacement, 45,871 had spinal anesthesia and 65,092 had general anesthesia. For knee replacement, the numbers were 80,077 and 103,003. The researchers found that those who had general anesthesia were at greater risk for complications within 30 days. They were also more likely to be discharged to a rehabilitation facility before going home.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Chiropractic Care for Back Pain Linked to Reduced Use of Opioids

People with back pain who were treated by a chiropractor were less likely to fill a prescription for opioid drugs in a study published in the journal *Pain Medicine* (March 2020). Researchers analyzed health claims data on over 100,000 adults ages 18 to 84 who had visited a healthcare provider for back pain. They were divided into two groups. One group saw both a primary care doctor and a chiropractor, and the second group saw only a primary care doctor. Those who did not receive chiropractic care were up to twice as likely to fill a prescription for an opioid drug. The reduction was greatest among those who saw a chiropractor within 30 days of diagnosis. Ad

Guidelines for Hand Arthritis

There is not a one-size-fits-all approach to treating osteoarthritis.

In January 2020, the American College of Rheumatology (ACR) published guidelines for the treatment of osteoarthritis of the knee, hip and hand. Working with the Arthritis Foundation in a process that included the perspective of people who have osteoarthritis, the ACR reviewed the scientific literature and made recommendations both for and against various treatment options.

"These guidelines give us a structured way of managing people with osteoarthritis," says *Arthritis Advisor* Editor-in-Chief and Cleveland Clinic orthopaedic surgeon Steven Maschke, MD. "We consider individual factors to choose the best combination of treatments, and if these aren't enough there are surgical options," he adds.

Recommendations for knee osteoarthritis were discussed in the April 2020 issue of Arthritis Advisor. Here are the recommendations for hand osteoarthritis:

Nondrug Therapy

Exercise is recommended for everyone with osteoarthritis. The evidence is strongest for treating knee and hip osteoarthritis. For arthritis in the hands, exercises are recommended to maintain motion and function in the fingers. It's best to consult an occupational or physical therapist who specializes in hands to learn which exercises are most appropriate and won't cause harm.

For osteoarthritis in the joint at the base of the thumb, a splint is strongly recommended. Wear a rigid one at night and a flexible one during the day. For osteoarthritis in finger joints other than the thumb, hand splints are conditionally recommended. Kinesiology tape, which is a type of stretchy tape applied over a joint, received a conditional recommendation (see "Kinesiology Tape for Osteoarthritis" on page 5).

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Applying heat can help keep arthritic hands limber. One method for doing this is a paraffin bath. This involves dipping your hands into melted wax. Paraffin bath kits are available for home use.

Several studies have shown positive results with acupuncture, which involves the application of tiny needles to the skin. The true magnitude of effect is difficult to determine, but the risk for harm is low.

Drug Therapy

Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (Advil®, Motrin®) and naproxen (Aleve®), can ease symptoms by reducing inflammation. Because of concerns about side effects, they should be used for the shortest time possible.

An NSAID that comes in a gel, such as diclofenac (Voltaren Gel®), which can be applied directly to the skin, can be effective. Acetaminophen (Tylenol®) is an alternative for people who cannot take NSAIDs.

Injections of corticosteroids (powerful anti-inflammatory drugs) into the joint may be considered if other measures don't help.

There are some circumstances in which the drug tramadol may be appropriate. It is an opioid drug, but it works differently than the other opioids and is less potent. It is preferred over other opioid drugs.

Based on one study that showed pain-relieving effects of the supplement chondroitin sulfate for hand osteoarthritis, it is conditionally recommended.

Not Recommended

The panel determined that the weight of the evidence does not support beneficial effects of the supplement glucosamine for hand osteoarthritis.

Capsaicin, the substance that makes chili peppers hot, has some pain-relieving qualities. It is available in creams and gels that can be rubbed on the skin. Due to a lack of direct evidence for hand osteoarthritis and the risk of getting it in the eyes when it is used on the hands, the panel conditionally recommended against using it.

The dangers of chronic use of opioid drugs have been well publicized. Studies have shown that they are only modestly helpful for osteoarthritis pain. They may have a role for some patients, but only after other options have been tried.

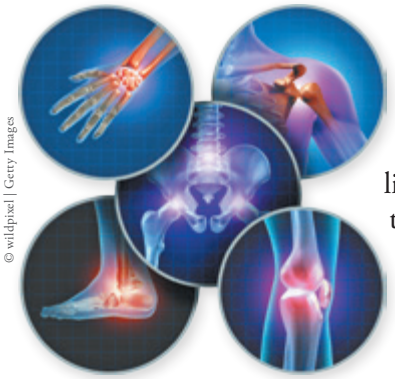
Due to a lack of evidence for the benefit of injections of hyaluronic acid (a substance that lubricates joints) in the hands, they are not recommended. AA

What You Need to Know

- Osteoarthritis is caused by the wearing down of cartilage in joints.
- The hand joints most likely affected are the one at the base of the thumb and on the other four fingers the middle joints and the ones nearest the fingertips.
- Osteoarthritis in the hands can cause pain, stiffness and deformities.

Psoriatic Arthritis Update

Medications can slow joint damage, and new guidelines help to make the best choice.



About 30% of people who have the skin condition psoriasis also have a type of arthritis called psoriatic arthritis. The good news is that, unlike with osteoarthritis, there are medications that can help to stop the disease from getting worse. Early recognition is important.

"The earlier we are able to diagnose and treat psoriatic arthritis, the easier it is to get the symptoms under control," says M. Elaine Husni, MD, Vice Chair of Rheumatology and Director of the Arthritis and Musculoskeletal Center at Cleveland Clinic.

An increasing number of medications are available to treat psoriatic arthritis, and new treatment guidelines from the American College of Rheumatology and the National Psoriasis Foundation (ACR/NPF) have recently been published. For the first time, the process of developing the guidelines included people who have psoriatic arthritis.

"Their perceptions of the disease are important, and now they are part of the conversation about how it is treated," says Dr. Husni, who was on the panel that wrote the guidelines.

Autoimmune Diseases

Psoriasis and psoriatic arthritis are autoimmune diseases, in which the body's immune system mistakenly attacks healthy tissue. Psoriasis causes patches of red skin and silvery scales. With psoriatic arthritis, the immune system also attacks joints and the places where tendons and ligaments attach to bone.

Symptoms of psoriatic arthritis include joint pain, swelling, fatigue and prolonged morning joint stiffness. Among people who get psoriatic arthritis, the skin condition usually comes first, and arthritis starts about 10 years later. People with psoriasis who have a rash on the scalp or nail changes (such as pitting and nails detaching from the skin) are more likely to later develop psoriatic arthritis.

It's also possible for both skin and joint symptoms to occur at the same time, which happens about 10% to 15% of the time. And for about 10% of people, the joint symptoms show up first.

Without treatment, psoriatic arthritis can cause permanent joint damage. "Any joint pain and swelling that comes on gradually and lasts more than six weeks is worrisome and should be checked out," says Dr. Husni. She encourages people to see a rheumatologist to diagnose and treat psoriatic arthritis.

How Is It Treated?

There are at least 12 medications that are FDA-approved to treat psoriatic arthritis, and more may be approved soon. The ACR/NPF guidelines can help doctors and their patients to choose among them. "They provide helpful guidance, but they aren't like a recipe," says Dr. Husni.

Ultimately, physicians take into account several factors when deciding on the best drug treatment for each individual patient, including the severity of symptoms and other medical conditions. "We also want to know about patients' daily activities," says Dr. Husni.

The other important consideration relates to which symptoms are most predominant. "Psoriatic arthritis affects different domains to varying degrees," says Dr. Husni. In addition to joint and skin symptoms, psoriatic disease can also cause enthesitis, which means inflammation at the places where tendons and ligaments connect to bone. It can also cause dactylitis, which is swelling of a finger or toe.

Medications

Most of the medications used for psoriatic arthritis work by blocking different parts of the inflammatory response of the immune system. They are called disease-modifying antirheumatic drugs (DMARDs), which are classified as biologic or non-biologic. Some are taken as pills, such as methotrexate, apremilast (Otezla) and tofacitinib (Xeljanz).

Continued on the bottom of page 5

What You Need to Know

- Psoriatic arthritis usually starts about 10 years after the skin condition psoriasis begins.
- Symptoms of joint pain, swelling and stiffness may be mild, moderate or severe.
- Joints in the fingers and toes often are affected.
- Medications can slow the progression, reduce symptoms and protect joints.

Kinesiology Tape for OA

Applying kinesiology tape over a joint with osteoarthritis (OA) may help relieve pain.

© saruservice | Getty Images

What You Need to Know

- Kinesiology tape is an elastic cotton strip with an adhesive back.
- It provides dynamic support to an arthritic joint.
- Some studies show pain-relieving effects of kinesiology tape.
- When used, kinesiology tape should be just one part of a comprehensive treatment plan.

You may have seen athletes with large strips of brightly colored tape placed on their skin meant to enhance their performance. Did you know the same type of tape, called elastic therapeutic tape or kinesiology tape, may have pain-relieving effects for people with osteoarthritis?

This tape is a stretchy cotton strip with adhesive on one side. The newest guidelines on treatment for osteoarthritis from the American College of Rheumatology give a conditional recommendation for kinesiology tape for hand and knee osteoarthritis.

Benefits of Taping

"Any kind of taping is meant to help limit motion," says Cleveland Clinic physician Dominic King, DO. If you have painful joints from arthritis, limiting motion can help to relieve some of the pain. "However, we always want to balance immobilization with mobilization," he says.

Totally immobilizing the joint can actually make it a bit stiffer. "An argument for kinesiotaping is it can limit motion, but it also is stretchy enough that you get more motion than you would from traditional tape or from wearing a brace," says Dr. King.

All taping provides support, but with kinesiology tape you get more of a dynamic support. "It's not the stiff kind of feeling you get with traditional taping or a hard brace," says Dr. King. It can also help to support muscles. The muscles around a joint with arthritis typically have to work harder. Kinesiology tape can allow those muscles to relax a little.

Apply It Correctly

Kinesiology tape may help with pain, but it must be applied correctly. "You pull it to create some tension, but you don't want to pull all the tension out of it," says Dr. King. He recommends getting instruction from an occupational therapist or physical therapist.

"Most people can learn how to apply it themselves once they've been shown," says Dr. King. The tape can be purchased from many retail outlets. It is available in rolls or precut for specific applications.

Which Joints?

"The joint that probably responds best to kinesiology tape is the carpometacarpal joint," says Dr. King. This is the joint at the base of the thumb, which is a common location for osteoarthritis.

The tape is also conditionally recommended for osteoarthritis in the knee. Dr. King notes that it is most effective for people with osteoarthritis in the front of the knee underneath the kneecap.

There are studies that show a reduction in pain and improvement in range of motion with kinesiology tape. However, there isn't enough high-quality evidence to make a strong recommendation, and there are experts who doubt its effectiveness.

Nonetheless, Dr. King has no reservations about suggesting it. The risk for harm is extremely low. "I like mechanical options for mechanical problems like osteoarthritis," says Dr. King. Aa

Psoriatic arthritis ... *from page 4*

"If you have mild psoriatic arthritis, we usually start with one of these oral DMARDs," says Dr. Husni. For more moderate or severe symptoms, a biologic DMARD, alone or combined with an oral DMARD, may be used. These target individual components of the inflammatory response, with names such as tumor necrosis factor (TNF), interleukin 17 (IL-17) and interleukin 12/23 (IL-12/23). These drugs are given by injection or infusion.

Because they have an impact on suppressing the immune system, all DMARDs carry some risks, including infections. But these risks can be managed. Aa

Cycling for Health? Pedal Fast

Get the most out of this low-impact aerobic exercise.

We can all benefit from moving more and sitting less. Physical activity helps you feel and function better. It is especially important for people with arthritis. In fact, exercise is one of the cornerstones of treatment for osteoarthritis.

An exercise program should combine different kinds of exercise, which includes aerobic activity. These are the activities that get you breathing hard and your heart beating faster. Running is an example. If you have arthritis in your hips, knees or ankles, running can be hard on your joints.

Bicycling, whether on a stationary bicycle or outside, is a good alternative. It puts less stress on the hips, knees and feet. "Bicycling won't necessarily make your muscles stronger," says Cleveland Clinic physical therapist Mary Morrison, PT, DScPT. But it is good for your heart and lungs. Bicycling can also improve range of motion in the hips and knees.

Getting Started

Anyone who has any health concerns should consult a doctor before beginning any new aerobic exercise, including bicycling. Morrison also advises getting started under the guidance of a physical therapist. The physical therapist will recommend adjustments to the bicycle, such as making sure the seat is at the correct height. He or she will also monitor you during the activity to optimize the workout.

Morrison advises using an upright bicycle, which generally allows for a better workout and greater range of motion in the hip and knee. "You will also use core muscles when you ride with good postural alignment," says Morrison. Some people prefer a recumbent bicycle because it supports the back and buttocks. If you have back pain, this may be your best option.

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Measures of Exertion

There are several ways to measure how hard you are working.

- **Borg Scale of Perceived Exertion.** This matches how hard you feel you are working with numbers from 0 (rest) to 10 (maximal effort). During high-intensity activity, aim for 7 or 8.
- **Heart rate.** Aim for 70% to 90% of your maximum heart rate during high-intensity activity. Maximum heart rate is calculated by subtracting your age from 220. Consult your physician if you have heart disease or any other concerns.

"I'm not a fan of cycling machines that work both the arms and legs at the same time, especially for someone with low back pain," says Morrison. You use more muscles, but the deviations in posture can be problematic. "I would rather have people hold their posture well and focus on working the legs," she says.

When you sit on the bicycle, your knees should be in alignment with your hips. "If the knees collapse inward, the hip muscles may not function as they are designed, and the misalignment can be irritating to your knees," says Morrison.

Sweat a Little

The National Institutes of Health recommends 150 to 300 minutes a week of moderate-intensity aerobic activity or 75 to 150 minutes of vigorous activity. To meet the minimum goal, you can cycle at a moderate pace for 30 minutes five days a week.

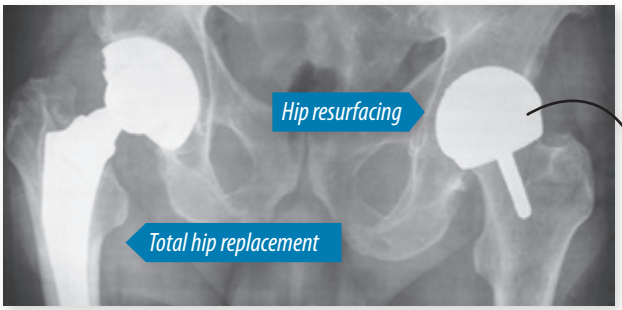
Morrison emphasizes that bicycling is aerobic, but only if you work hard. "You need to sweat a little," she says. She suggests trying high-intensity interval training (HIIT), which means alternating short bursts of very high-intensity activity with less-intense activity.

For example, start with a few minutes of warm-up during which you slowly increase cycling intensity. Follow this with a burst of fast cycling for about 30 to 45 seconds, and then a slower pace for two to three minutes. Keep switching back and forth for a total of 25 to 30 minutes. It's the bursts that will build your endurance. Do this just three times a week and you've met the exercise goal of 75 minutes of vigorous activity.

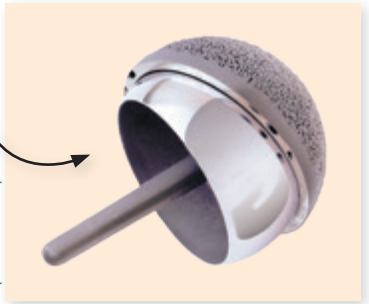
One advantage of a stationary bicycle is you often can see the revolutions per minute (RPM). For the high-intensity burst you really need to push yourself. "I would say 60 RPMs would be a good place to start for the low intensity and increase it for the bursts," says Morrison. But start at your own level. What you find hard will change over time as you build endurance. Ad

Hip resurfacing ... *from page 1*

femoral offset. Normal gait is retained, and there is a far lower chance for dislocation. Another advantage of hip resurfacing is that it feels more natural. Most men are able to return to an active lifestyle, including high-impact sports, such as running, they may have been forced to give up.



Total hip replacement (left) requires removing more bone to seat the implant, compared with hip resurfacing (right), which removes very little bone.



Hip resurfacing implant

Importantly, if something ever goes wrong with the implant, it can easily be changed to a total hip replacement. "Hip resurfacing is particularly useful for adults who might outlive a total hip replacement," says Dr. Brooks. The average life of a hip replacement is 15 to 20 years, but it can vary based on age, activity level and other factors.

If a person in his 40s or 50s has a total hip replacement and it fails after 20 years, he would need a second total hip replacement. The revision surgery involves more loss of bone, and it carries an even greater risk for leg length discrepancy and dislocation.

Hip resurfacing, on the other hand, can more easily be changed to a total hip replacement later on because the bone has been preserved.

Longevity

Hip resurfacing surgeries using the currently available device have been done for about 23 years, and data on how long the implants last are still being gathered. Some data show that in selected patients, meaning men under age 55 with osteoarthritis, hip resurfacing results in 30% fewer re-operations than total hip replacement.

"You know what else lasts longer?" says Dr. Brooks. "The patient." Studies, including one by Dr. Brooks, have shown that men who have hip resurfacing live longer than those who have total hip replacement. The reasons are not yet fully understood.

Why Not Older Adults?

Hip resurfacing is generally not done for people over age 65 because they probably won't outlive their total hip replacement and need a revision. In addition, hip resurfacing requires a more invasive surgery, and some data show a higher failure rate of hip resurfacing in people over age 65.

In general, older adults are less likely to want to return to high-demand athletic activities, which is one of the advantages of hip resurfacing.

Why Not Women?

If hip resurfacing works so well for men, why isn't it done for women? From the beginning, failure rates were slightly higher among women than men. Then, about 10 years ago, problems with metal-on-metal implants began to be reported. The hip resurfacing implant is composed of all metal.

Metal-on-metal implants have been found to release metal debris (called metallosis) in some people. This can cause problems such as tissue damage and swelling. With hip resurfacing, this occurred more often in women. It's less of an issue with men, who have larger bones. "The larger implants used in men usually don't cause that problem," says Dr. Brooks.

The risk for metallosis and a new requirement (in the United Kingdom, where it is manufactured) that devices must have a success rate of 95% at 10 years (it was 90% for women), caused the only company that currently makes the implant to stop making the smaller sizes that fit women.

Device manufacturers are working on newer implants with different designs and materials, including ones for women. "I look forward to being able to do these again for women," says Dr. Brooks.

What You Need to Know

- Hip resurfacing is an alternative to total hip replacement, mostly for men under age 65 with good bone quality.
- Hip resurfacing preserves more bone and allows for return to an active lifestyle.
- Revision surgery, should it ever be needed, is much easier with hip resurfacing.
- Recovery and rehabilitation after surgery are similar, but a bit longer for resurfacing.
- Risks with surgery are similar to other surgeries. They include infection and blood clots, which are uncommon.

Arthritis Advisor
Editor-in-Chief
Steven Maschke, MD,
Department of
Orthopaedic Surgery,
Cleveland Clinic
Orthopaedic &
Rheumatologic Institute.

Associate Editor
Chad Deal, MD,
is Head of the Center for
Osteoporosis and Metabolic
Bone Disease, Department
of Rheumatology, Cleveland
Clinic Orthopaedic &
Rheumatologic Institute.

IN COMING ISSUES

- Ankle Arthritis
- Guidelines for Hip OA
- Exercise for Back Pain
- Whole Grains

ASK THE DOCTORS

Safe doctor visits.....Joint stiffness

Q I have rheumatoid arthritis, and I take drugs that suppress my immune system. This makes me more susceptible to infections. COVID-19 has made me scared. What can I do to protect myself when I go to the doctor or for an infusion?

A The COVID-19 pandemic has put a spotlight on the potential dangers of infections for everyone. People who have autoimmune diseases or who take drugs that suppress the immune system must be especially careful. Increasingly, doctor visits are being done virtually when possible. This can be done with an app or even FaceTime or a phone call.

Sometimes you must go to a healthcare facility in person, as when you need an infusion or injection. Doctor's offices and other healthcare facilities take extra precautions to keep patients safe. This includes disinfecting surfaces, distancing procedures, temperature checks, and taking other steps as necessary. Although going out is riskier than staying home, everything is being done to keep the healthcare environment as safe as possible. Not getting your needed therapies also poses risks to your health and well-being. Advice to regularly wash your hands and avoid touching your face and surfaces as much as possible will help to keep you protected, not just from COVID-19 but also from other viruses and bacteria you might encounter. Wearing a mask seems to provide some protection from airborne particles near you.

Even though many drugs for rheumatoid arthritis suppress the immune system, it is important to continue taking them to control your arthritis symptoms. Don't stop taking them unless your doctor tells you to. And be sure to take other precautions against infections, including staying up to date on immunizations against influenza, shingles and pneumonia.

Q I have osteoarthritis in my knee. Why is the joint stiff in the morning?

A Along with pain and swelling, joint stiffness is a common symptom of arthritis. Stiffness is the tendency of the joint not to move easily, and it may be worse in the morning or after a period of inactivity.

Osteoarthritis occurs from the wearing down of cartilage, which is the smooth material covering the ends of bones in a joint. The body's immune system responds to injuries by launching an inflammatory response. Osteoarthritis is not caused by an overactive immune response like rheumatoid arthritis. However, the wear and tear on the joint does cause inflammation. The immune response also causes the quantity of synovial fluid to increase. This fluid exists inside a capsule around the joint, where it provides lubrication. Because cartilage cannot be repaired, the inflammation and increased synovial fluid can continue, which causes swelling.

As you use your joints during the day, the synovial fluid is pumped around the joint because of the motion. When you lie down at night, inflammation continues, but you are not actively pumping the fluid around, so it settles and causes stiffness.

Morning stiffness can also occur because weak muscles and tendons around an arthritic joint tend to tighten up during sleep. With osteoarthritis, stiffness usually goes away after several minutes as you move around and warm up the joint and muscles. With rheumatoid arthritis, stiffness can last over an hour. AA

Send questions for Drs. Maschke and Deal to:

Arthritis Advisor
Attn: Lynne Christensen, Executive Editor
P.O. Box 5656
Norwalk, CT 06856-5656

email: lchristensen@belvoir.com

EDITORIAL CORRESPONDENCE
The Editor
Arthritis Advisor
P.O. Box 5656
Norwalk, CT
06856-5656

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