

Infections and Hip and Knee Replacements

Most patients do exceptionally well after hip and knee replacement surgery. However, you can become infected after surgery. This is uncommon, but factors present before surgery can increase your risk for infection. There are ways to reduce the risk of infection before and during surgery, and there are different ways to determine if you are infected after surgery.



WHAT INCREASES MY RISK FOR INFECTION AFTER HIP OR KNEE REPLACEMENT SURGERY?

Your risk for infection after a hip or knee replacement may be higher due to your other medical conditions. If your weight is high, then you could be at an increased risk of infection. A great deal of science finds a link between being overweight and risk for infection from surgery. Discuss with your surgeon if you need to lose weight before surgery.

There is some evidence that the following conditions may also increase your risk of infection after a hip or knee replacement: diabetes, heart disease, kidney disease, liver disease, low blood counts, transplant of any organ or bone marrow, cancer, special arthritis such as rheumatoid or psoriatic arthritis, narrowed blood vessels in the arms and legs, previous infection in the same hip or knee that needs surgery, mental health disorders, alcohol use, smoking or using tobacco, or being under nourished.

Doctors agree that the following conditions can also increase your risk of infection after a hip or knee replacement: current infection, recent injection into your hip or knee joint, being on blood thinners, having a medical condition where your own immune system is attacking itself, human immunodeficiency virus (HIV), previous surgery to reduce weight (for example, stomach stapling), and living inside of an institution (for example, a nursing home).

Talk to
your
surgeon

If you have any of these conditions, please bring this up with your orthopaedic surgeon when you are discussing surgery.



HOW DO I REDUCE MY CHANCE OF INFECTION BEFORE A HIP OR KNEE REPLACEMENT ?

The best thing to do is to live a healthy lifestyle. This decreases your risk of infection. Take care to manage your medical conditions well, maintain a healthy weight, and get proper nutrition.

Before your surgery, your surgeon may test your nose to see if bacteria is present, or may give you cleansing solutions for your nose and/or body prior to surgery. Wiping your body or bathing with a special cleaning solution (chlorhexidine) prior to hip or knee replacement may be beneficial. Cleaning your nose prior to surgery with an ointment (mupirocin) or with a sticky solution (povidone-iodine) on the day of surgery may also reduce the risk of infection.



HOW CAN MY SURGEON REDUCE THE RISK OF INFECTION DURING MY HIP OR KNEE REPLACEMENT?

Your surgeon should follow well-established, clean techniques. Surgeons should give antibiotics before surgery and could wash your hip or knee with special antiseptic solutions (such as povidone-iodine) at the end of surgery.

HOW CAN I TELL IF I AM INFECTED IF I HAD A HIP OR KNEE REPLACEMENT?

Signs:

If your hip or knee suddenly starts to hurt after it has been pain-free, you should call your doctor's office to discuss your symptoms. This does not mean that you are infected, but it is worth discussing this with your surgeon. Other

signs of infection may include pain when you move your hip or knee, redness of the joint, fevers and chills.

If you think you are infected, DO NOT start taking antibiotics until your joint has been tested for infection. This can greatly hurt your doctor's ability to make the correct diagnosis.

TESTS THAT CAN BE DONE TO HELP DIAGNOSE A HIP OR KNEE REPLACEMENT INFECTION:



Blood tests:

These tests may include erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and interleukin-6 (IL-6). These tests do not prove that you have a hip or knee infection as they may be abnormal for other areas of infection or inflammation in your body. However, if these values are high, your surgeon may take fluid from your hip or knee for testing.

Hip and Knee Fluid Tests:

If there is a great deal of swelling and/or if there is a chance of infection, your surgeon or someone else may take fluid from your hip or knee before starting antibiotics or undergoing further surgery.

If you are on antibiotics, you should stop for 2 weeks before your doctor removes fluid from your joint. This will help with the diagnosis of infection. Ask your doctor if stopping your antibiotic is appropriate.



THE FOLLOWING TESTS MAY BE PERFORMED ON YOUR JOINT FLUID TO SEE IF YOU HAVE A HIP OR KNEE INFECTION:

- Putting the fluid in a dish to see if organisms grow (cultures)
- White blood cell count
- The percentage of acute white blood cells (neutrophils)

- A product released by white blood cells that is also tested in urine (leukocyte esterase)
- A factor released by acute white blood cells when infection is present (α -defensin)
- Inflammation in the fluid (C-reactive protein)

In the past, joint fluid was placed on a slide for a test called a Gram stain to diagnose infection but evidence shows this test is not reliable and is **NOT** recommended.

Imaging:

Generally, imaging like bone scans or PET scans are not very helpful for diagnosing joint infection. However, there may be some special situations where your doctor may need to use these.

THE FOLLOWING TESTS CAN BE DONE DURING SURGERY TO HELP DIAGNOSE INFECTION OR CONFIRM THE DIAGNOSIS OF INFECTION:

- Taking tissue from the hip or knee and analyzing the number of infected cells on each slide (histopathology)
- Taking multiple samples of tissue from the hip and knee and growing out organisms (multiple cultures)
- Taking your implant out and mechanically shaking off any organisms that may be present



WHAT SHOULD YOU DO IF YOU THINK YOUR HIP OR KNEE IS INFECTED?

You should contact your doctor's office as soon as possible and speak to the healthcare team. They will determine if you need to be seen, if you need to come to the office or if you need to go to an emergency room.

*Remember, **DO NOT** take antibiotics until your doctor has directed you on the best plan for your hip or knee.*

Resources:

American Academy of Orthopaedic Surgeons 2019 *Clinical Practice Guideline on the Diagnosis and Prevention of Periprosthetic Joint Infections*.

Please note: This is a patient information handout that orthopaedic surgeons and physicians can provide to their patients. This information was current at the time of publication. However, medical information is always changing, and some information given here may be out of date. This patient handout is based off recommendations from the 2019 Clinical Practice Guideline on the Diagnosis and Prevention of Periprosthetic Joint Infections.

To review this guideline please visit <http://www.orthoguidelines.org/topic?id=1028>