

# Avascular Necrosis (AVN)

**Avascular necrosis is an injury to bones.** It is caused when blood cannot flow to the bone. Without blood, the bone tissue dies. This may cause the bone to break down. AVN can involve the bones of a joint. If this happens, the joint can break down or have trouble moving normally. AVN most often affects the hips and shoulders. Other joints can be affected.

## Causes

AVN is caused when the blood supply is blocked and cannot get to the bone. Blood gets to the bone through blood vessels. Sickle cells can block the blood vessels leading to the hip joint, shoulder joint, or other bones. Some medicines, such as prednisone, can cause AVN or make it worse.

## Symptoms

- People in the early stages of AVN may not have any symptoms.
- Pain in the hips when walking is one of the first symptoms. Especially walking up and down stairs.
- Limping.
- A “catch” or “popping” feeling in the hip or shoulder.
- People with AVN may not be able to move their hip or shoulder normally.
- People with AVN can have pain all the time. It can be worse after standing or walking.

## Diagnosis of AVN

It is important to let your medical provider know if you have frequent or severe hip, shoulder, or leg pain. Early signs of AVN are best seen with a magnetic resonance imaging (MRI) scan. An X-ray is more helpful for later stages of AVN because early stages may look normal.

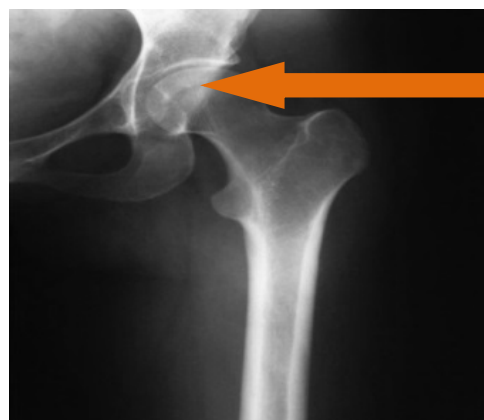
## Treatment

AVN pain can become chronic, meaning pain that doesn't go away completely. However, people can live and function with chronic pain by limiting activities and using pain medicine carefully.

- Physical Therapy exercises for building strength and increasing range of motion.
- Decrease weight bearing by using crutches, a walker, or a wheelchair.
- Anti-inflammatory medicines such as ibuprofen or naproxen work well for AVN pain. Please talk to your medical provider if these medicines are not working. Opioid medications (oxycodone, morphine) should only be used rarely.
- Consultation with a Pain Management specialist may be helpful.

## Treatment with Surgery

The most common surgery for AVN is hip replacement surgery. Surgery is done when pain is severe, a person has limited ability to do normal things, and none of the other treatments have worked. A different type of surgery can sometimes be done to delay the need for a hip replacement. It is important to see your orthopedic surgeon (bone doctor) to determine if surgery will help you.



X-ray image of  
Avascular Necrosis