

# Total Hip Arthroplasty

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## What is a Total Hip Arthroplasty?

Total hip arthroplasty, also known as a total hip replacement has been evolving from the time it was first introduced. When joints are overused or experience trauma they can sometimes need repair. In some instances it is necessary to completely replace the joint. This is what a total hip arthroplasty entails. The natural hip joint is replaced by an artificial joint that tries to mimic the natural joint.

## Structure of artificial hip joint

The structure of the artificial hip joint tries to mimic that of the natural joint. It consists of a stem that is inserted into the femur bone. This is usually between 10 and 13 centimeters long. At the top of the stem there is a ball, which functions as the femoral head. This is then coupled with a liner, or a cup-like piece that functions as the hip socket.

## What some different styles of hip replacements?

There are a very limited number of styles and kinds of hip implants. They all try to mimic the same part of the body and therefore cannot be too different from one another. Some of the things that are varied are stem length, the size of the ball, the materials used, and whether the implant is cemented or not. Cemented implants mean that the implant liner is cemented to the bone surface in the pelvis. A more interesting approach is that of the un-cemented attachment. In this method the outside section of the liner is made of a porous biocompatible material that will encourage bone growth. The liner is held in place by some means and the bone actually grows into the back of the liner and incorporates it into the pelvis.

## The advantages and disadvantages of different materials

There are a number of different materials used in implants. A metal ball with a polyethylene liner is the most common and least expensive. It has a wear rate of 0.1 mm a year. A problem with this method is particles from the implant wearing off and harming the body. A ceramic ball with a polyethylene liner has a wear rate of only 0.05 mm per year and is slightly more expensive. A disadvantage of this design, although very rare, is that it can become brittle and fracture. The newest design is the metal ball and metal socket. Metals used include cobalt chromium alloy. This design has a wear rate of 0.01 mm per year. The benefits of this design are that larger balls can be used, which is more like the natural hip joint. This decreases the risks of dislocating the hip and also increases the range of motion of the hip. The final kind of implant is the ceramic ball with a ceramic liner. This is the best option in many cases, with a wear rate of only 0.0001 mm per year in addition to a much lower chance of inflammation, irritation, and spread of particles throughout the body. There are many different materials used in making hip implants, and each one is designed for a specific type of person.

## References

<[http://www.bonesmart.org/hip\\_replacement.php?gclid=CNHJ-K\\_9jqECFd1n5QodrVJ\\_Mw](http://www.bonesmart.org/hip_replacement.php?gclid=CNHJ-K_9jqECFd1n5QodrVJ_Mw)>

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