Dr Stuart MacKenzie

ROBOT ASSISTED HIP REPLACEMENT

UNDERSTANDING NEW TECHNOLOGIES FOR HIP REPLACEMENT

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Robot Assisted Hip Replacement

Total hip replacement is one of the most successful operations ever invented. The use of robotic technology is the latest advance aiming to further improve hip replacement and get the best outcomes for patients.

The main aim of hip replacement is to relieve pain. While achieving this it is also very important to achieve a stable hip that won't dislocate and to ensure that the legs end up the same length. Robotic assisted surgery aims to help with both these issues.

MAKO Robot assisted hip replacement utilises the latest robotic technology to help the surgeon prepare the bone and position the hip replacement parts. Using the robot is far more accurate than a surgeon alone is able to be with traditional techniques. It is hoped this greater accuracy will decrease the risk of dislocation and possibly make the hip replacement last longer.

Position of the cup component of a hip replacement is probably the most important factor in determining the risk of dislocation.

The traditional technique for determining cup component position is for the surgeon to simply estimate the appropriate position and place the component by hand. Unfortunately, this has been proven to be quite inaccurate.

Multiple studies of cup placement in THR consistently show that one third or more of components are positioned outside what is considered the "safe zone". As well as increased dislocation risk a poorly positioned cup also leads to faster wear of the hip replacement leading to early failure.

Robotic assistance should reduce cup component malpositioning close to zero. Several studies have shown this to be the case. This more accurate prosthesis positioning should decrease dislocation risk and improve prosthesis longevity.

Leg length difference is the most common complaint after total hip replacement. The use of Robotic assisted hip replacement allows accurate measurement of the leg length during surgery to minimise the chance of leg length difference.

How does robot assisted hip replacement work?

- The patient gets a CT scan before the surgery
- The surgeon plans the hip replacement position on 3D computer model generated from the CT
  - » 0.2mm adjustments in prosthesis position can be made
- The robot assists the surgeon in bone preparation and placement of the hip replacement parts
  - » Accurate to within 1mm and 1° of planned position
  - » Robot and surgeon both hold instruments

Robotic assisted hip replacement uses hip replacement parts with a proven track record from use with traditional surgery techniques. Robotic assisted hip replacement has been in use in the US since 2010 and over 30,000 robotic assisted hip replacements have been performed.

Robotic assisted surgery can be used with either direct anterior approach or posterior approach hip replacement.

There is no additional cost for robotic assisted hip replacement compared to traditional techniques.

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FIND OUT HOW A ROBOT ASSISTED HIP REPLACEMENT CAN BENEFIT YOU

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