

# How often do hip and knee replacements need revision?

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A comprehensive study using nationwide data on hip and knee replacements in England has found that one in seventy-five patients require a revision of their joint replacement after three years. Although this compares favourably with the rest of the world, the study published in this week's *PLoS Medicine* reinforces concerns about the new surgical techniques of hip resurfacing and unicondylar knee replacement.

Hip and knee replacements are amongst the most frequent surgical operations performed, with around 160,000 carried out in England and Wales in 2006. However, there is little evidence to compare the patient outcomes of hip and knee replacement with the many types of surgical techniques and prostheses used to replace the joint.

Jan van der Meulen and colleagues from the Royal College of Surgeons used records from the National Joint Registry (NJR) for England and Wales to address this lack of evidence; the NJR being the largest national joint registry of any in the world. Since it was established in April 2003 the NJR has collected data available immediately following surgery, including patient characteristics, the type of prostheses and the surgical technique used to replace the joint, with the aim of providing patients, healthcare professionals and regulators with evidence to assess these prostheses and techniques.

In order to identify the revision rates – how often the hip or knee replacement had to be re-done – the researchers linked the NJR records with another database: the Hospital Episodes Statistics (HES), which

contains information on all admissions to National Health Service (NHS) hospitals in England. They considered revisions for any reason in the three years following a hip or knee replacement.

They also paid particular attention to hip resurfacing and unicondylar knee replacement, two techniques that are increasingly used but about which there is little evidence of their performance. Hip resurfacing was introduced in the 1990s for younger patients or those with less severe disease. Rather than replacing the head of the femur, as happens in total hip replacement, the diseased surface of the joint is replaced with a metal component. In unicondylar knee replacement only the damaged part of the knee is replaced and it also results in shorter recovery time.

Of the 167,076 procedures that could be linked between the two databases between April 2003 and September 2006 – about half of all such operations carried out in England in this period - one in seventy-five patients required a revision of their joint replacement, which is considered to be low. As expected the patients who had cemented prostheses - cement being used to position the metal implant in place in the original replacement surgery - had the lowest revision rates. For hip replacements the highest revision rates were experienced by women who had undergone hip resurfacing rather than total joint replacement.

Of patients who had undergone knee replacement operations, those who had unicondylar prostheses had the highest revision rates. According to the study there appears to be no connection between a patient's age and revision rates for hip replacements, whereas revision rates after knee replacement decreased strongly with age.

The study demonstrates what can be achieved by linking together the two databases and it shows convincing success rates of knee and hip replacement surgery, with few patients requiring a revision. However, on the basis of the data, the researchers suggest that "consideration should

be given to using hip resurfacing only in male patients and unicondylar knee replacement only in elderly patients." They point out that different patterns may emerge over a longer follow-up period, so it is not possible to directly draw conclusions on the long-term efficacy of the different procedures. However, this first national study on joint replacement does provide benchmark data for the further research that is needed to evaluate the performance of different procedures and types of implant.

Source: Public Library of Science

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