

Metal hip replacements implanted since 2006 more prone to failure

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Metal on metal hip replacements implanted since 2006 are more prone to failure and the need for further surgery, finds research looking at revision rates at one hospital trust for the DePuy Pinnacle device, and published in the online journal *BMJ Open*.

A higher rate of manufacturing issues since 2006, with more than a third of [hips](#) manufactured outside the stated specifications, may be to blame, suggest the researchers.

They looked specifically at the long term performance of the 36 mm Pinnacle [metal](#) on metal hip—the most commonly implanted metal hip in the world—in a bid to uncover the risk factors associated with early failure and the need for further surgery.

The use of metal on metal hips has plummeted over the past five years, but "hundreds of thousands" remain in place. A better understanding of the factors associated with a higher risk of failure would not only help those patients fitted with them, but could also inform the design of future products, say the researchers.

They reviewed the progress of 434 patients (243 women and 191 men) fitted with 489 metal on metal total hip replacements at one hospital trust in northern England, and monitored for an average of 7.5 years after the procedure.

In all, 71 metal hips required surgical removal and replacement, adding

up to a revision rate of 16.4%, which the researchers describe as "unacceptably high."

A metal on metal hip consists of a metal 'ball,' which acts as the top of the thigh bone (femoral head). This fits inside a metal liner, which acts as the replacement socket.

Total replacement of both (bilateral) hip joints and thinner liners were [risk factors](#) for failure at nine years.

But implantation from 2006 onwards also carried a significantly higher risk of revision, possibly because of the increasing tendency from this date to manufacture devices outside of their intended product specification, say the researchers.

Before 2006, only five out of 43 hips (12%) failed to meet the manufacturer's product specification. But after 2006 more than a third (36%; 43 out of 118) failed to comply.

Furthermore, in over 40% of cases examined the taper surface was defective. The taper surface describes the inside of the femoral head that is attached to the femoral stem—the part that anchors the implant in the thigh bone. This defect was significantly associated with excessive metal particle release.

Abundant metal staining of tissues visible to the naked eye (metallosis) had occurred in around one in five (19%) cases. .

Metal hips implanted into women were also more likely to fail, but the researchers caution that twice as many women as men had bilateral hip replacements, and when the findings were analysed according to sex and liner thickness, thinner liners had the greater impact.

Data from the National Joint Registry for England and Wales for 2014 indicate that 11,871 metal on metal Pinnacle hips have been implanted, prompting the researchers to calculate that 180,000 people around the world are now walking around with these hips. These patients might be at risk of early revision surgery, they suggest.

More information: Retrospective study of the performance of the Pinnacle metal on metal (MoM) total hip replacement: a single centre investigation in combination with the findings of a national retrieval centre, *BMJ Open*, [DOI: 10.1136/bmjopen-2015-007847](https://doi.org/10.1136/bmjopen-2015-007847)

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