

Encouraging news for hip surgeries: New hip prosthesis lasts over 20 years

December 3 2012



A team of researchers at the University Department of Orthopaedics at the MedUni Vienna / Vienna General Hospital has for the first time investigated the durability of Zweymüller hip prostheses, which were developed at the end of the 1970s, over a period of 20 years. The result: the stem of the endoprosthesis, which was named after the Professor of Orthopaedics at the Vienna General Hospital and developed over 30 years ago, lasts for at least 20 years. "This shows that the fear over hip prostheses is unfounded. It is better to live with a prosthesis and without pain than to live without one and be in pain," says Reinhard Windhager, Head of Orthopaedics at the MedUni Vienna / Vienna General Hospital.

The Zweymüller [prosthesis](#), developed at the end of the 1970s, was one of the first to be anchored in the bone without using [bone cement](#) to fix it in place. The prosthesis's special geometry and surface guarantee its stable anchoring and natural integration into the bone. Its hallmark feature is the roughened surface of the stem, which provides a place for the new [bone tissue](#) to grow onto.

In the past, the endoprosthesis has been made from ultra-lightweight titanium, has been implanted millions of times over, and has even been used in minimally [invasive procedures](#) with an [incision](#) in the skin measuring around ten centimetres. Nowadays, it is used in combination with a ball and socket made from ceramic, which produces less wear. In 67 per cent of the 200 [test subjects](#) investigated, the durability of the ball and socket, i.e. the second outcome of the study, which has now been published in the highly respected journal *The [Journal of Bone and Joint Surgery](#)*, is still intact after 20 years.

Around 300 total hip replacements are carried out at the University Department of [Orthopaedics](#) at the MedUni Vienna / Vienna General Hospital every year, half of them involving Zweymüller prostheses. Patients are even able to carry out sports without impacting on the durability of the prosthesis or causing it to loosen any sooner. Patients are becoming younger and younger – particularly in light of the prosthesis's excellent quality. In the past, says Windhager, the average age of patients receiving hip replacements was significantly higher than 65 years, but nowadays it continues to fall below this.

Research into even better integration of prostheses

The Department of Orthopaedic Surgery at the MedUni Vienna is also carrying out research into the development of new, even better prostheses using the so-called radiostereometric analysis (RSA). Says Windhager: "The movement of the implant relative to the bone is

measured in three dimensions. We are able, as it were, to watch the implant while it moves. We achieve accuracies of up to 0.1 millimetres." Within the first two years after the operation, this means that it is possible to obtain an early diagnosis of how the implant is integrating into the bone and of its [durability](#). RSA also allows new materials that are used for the new types of prosthesis - including of the knee, foot or spine - to be compared with each other.

"RSA is the ideal tool for the development of new products in orthopaedic surgery. Our aim is to further improve the integration of the implant into the bone. The biology is especially important here; we're able to see what's happening around the prosthesis," says the Head of Department.

More information: Kolb, A. et al., Cementless Total Hip Arthroplasty with the Rectangular Titanium Zweymüller Stem, *J Bone Joint Surg Am.* 2012;94:1681-4. [dx.doi.org/10.2106/JBJS.K.01574](https://doi.org/10.2106/JBJS.K.01574)

Provided by Medical University of Vienna

Citation: Encouraging news for hip surgeries: New hip prosthesis lasts over 20 years (2012, December 3) retrieved 25 April 2024 from <https://medicalxpress.com/news/2012-12-news-hip-surgeries-prosthesis-years.html>

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