

Patients at risk of knee joint complications when new technology is used

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Orthopaedic surgeons face a steep learning curve to get used to new prostheses, and the instruments and methods that go with them, before new total knee replacement procedures are as safe and effective as conventional methods. Patients who undergo the first 15 operations using a new device in a hospital are 48 percent more likely to need early revision surgery, than patients undergoing an operation to fit a prosthesis previously used in the hospital. The work by Mikko Peltola from the National Institute for Health and Welfare in Finland, and colleagues, is published online in Springer's journal, *Clinical Orthopaedics and Related Research*.

Total knee arthroplasty, or replacement, is an established treatment for patients with severe [osteoarthritis](#) of the knee. There are numerous brands and models of endoprotheses (a [prosthesis](#) used internally) available and new models continue to emerge as a result of a combination of new technology, marketing efforts and the increasing number of patients requiring the surgery.

[Hospital staff](#) makes important decisions when choosing the implants and instruments they use, and these decisions carry consequences for patients' health. According to the research team, however, new equipment and techniques are often used in clinical practice, occasionally without evidence of effectiveness and safety.

Peltola and team looked at the risk of early revision surgery following the introduction of a new endoprosthesis model for total knee arthroplasty. They studied data from the Finnish Arthroplasty Register to identify centers that had performed total [knee replacement](#) operations for primary osteoarthritis between 1998 and 2004. Of the 23,707 total number of patients who underwent the surgical procedure, 22,551 were followed up for five years.

The researchers found that the introduction of an endoprosthesis model in a hospital put the first patients at greater risk of revision surgery. The effect was substantial for the first 15 patients operated on with the new model, who were at 48 percent greater risk than patients having undergone an operation to implant a conventional endoprosthesis. Overall, the likelihood of needing revision surgery was greatest during the first two years after the surgery. The learning curve smoothed quickly, however, with no increased risk after the first 15 operations with the new model.

The authors conclude: "Patients should be informed if there is a plan to introduce a new model and offered the option to choose a conventional endoprosthesis instead. Although introducing potentially better endoprosthesis models is important, there is a need for managed uptake of new technology."

More information: Peltola M et al (2011). Introducing a knee endoprosthesis model increases risk of early revision surgery. *Clinical Orthopaedics and Related Research*. [DOI 10.1007/s11999-011-2171-9](#)

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