# Obesity linked to earlier need for knee replacements

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A study led by The University of Western Australia and Fiona Stanley Hospital has found obese patients undergo knee replacements around eight years earlier than those who are a regular weight.

The scientists found extra body weight caused a pathological change of the knee that had not been understood before, called horizontal fissuring where the area between the cartilage and bone breaks down, due to the increased pressure from carrying weight.

Lead author Professor Ming-Hao Zheng, Associate Dean of UWA's Faculty of Health and Medical Sciences, said although obesity was well-recognized as a key risk factor in osteoarthritis, the link between obesity and joint replacement was less understood.

"In this study we set out to learn more about this by examining the link between a person's body mass index and the age at which people undergo knee replacements," Professor Zheng said.

"We analyzed data collected from the Australian Orthopaedic Association National Joint Replacement Registry from 40,000 Australian patients.

"Then we categorized patients by their body mass index using the World Health Organisation's definitions to determine those who were regular weight, and those who were obese, and the level of obesity."

Professor Zheng said the researchers found 57 percent of participants who had knee replacements were obese and on average had the replacements done eight years earlier than regular weight patients.

"The data revealed that 80 percent of the obese patients had a knee replacement due to horizontal fissuring," he said.

"This was different to the reason regular weight patients sought knee replacements—instead they underwent surgery mainly due to cartilage damage from normal wear and tear to a joint.

"This means obese patients are most likely to require further replacement of prosthetic implant as the lifespan of the prosthesis is less than maximum of 15 years."

Professor Zheng said the conclusions meant for the first time scientists could understand that it was a horizontal fissuring of cartilage and bone interface that caused damage to joints in obese people which resulted in the need for knee replacement.

"The findings will also help us understand and predict the age at which a person might be prone to horizontal fissuring," he said.

**More information:** Lianzhi Chen et al. Horizontal fissuring at the osteochondral interface: a novel and unique pathological feature in patients with obesity-related osteoarthritis, *Annals of the Rheumatic Diseases* (2020). DOI: 10.1136/annrheumdis-2020-216942

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