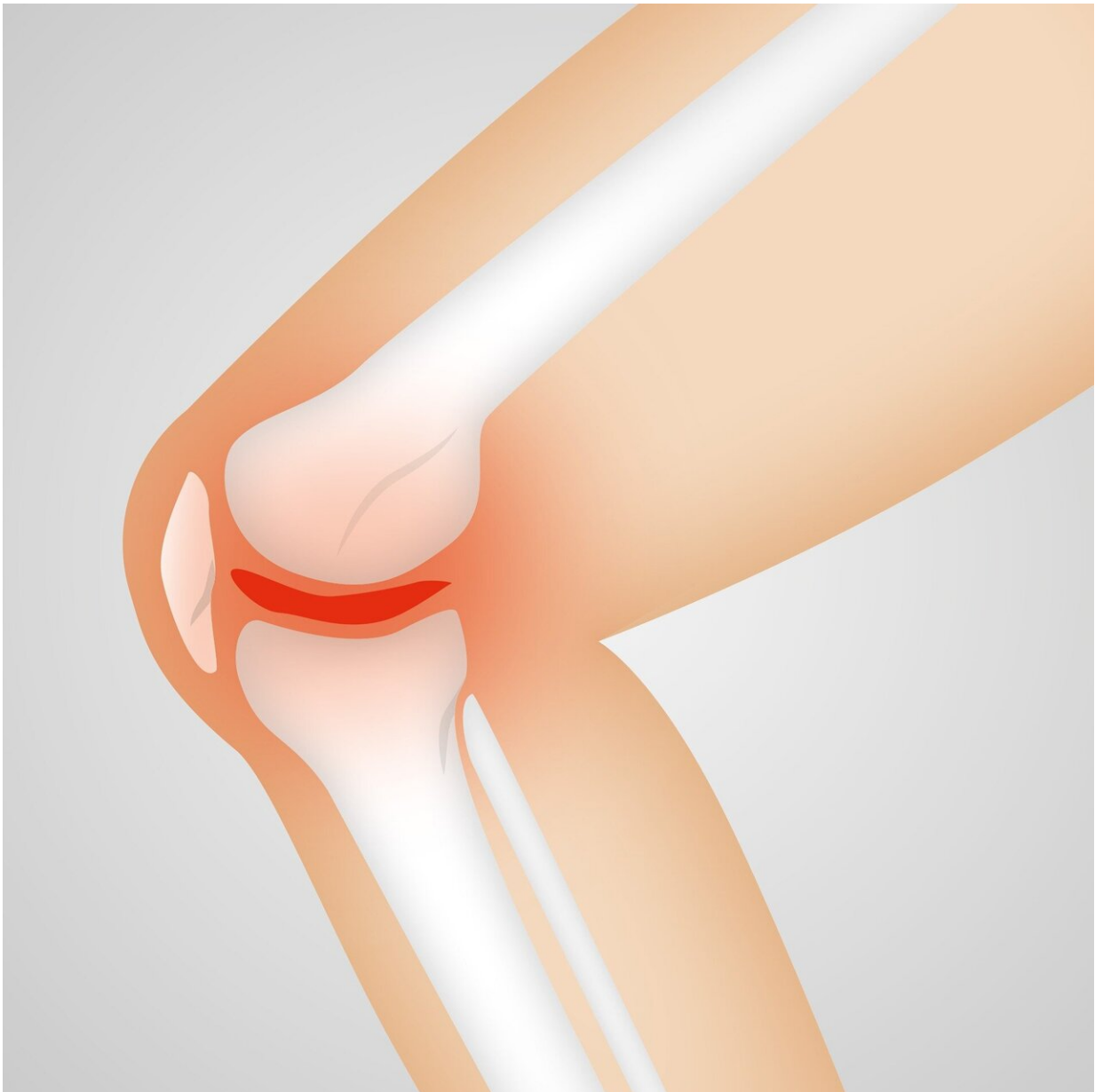


Preventing weight gain can help avoid total knee replacement

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Preventing weight gain from early adulthood could reduce knee replacements in Australian adults by almost 30% and save the health system \$373 million per year, new research has found.

The Monash University-led study found preventing [weight gain](#) from young adulthood to late midlife to reduce overweight/obesity could significantly reduce the cost burden of total [knee](#) replacements.

Published in *Osteoarthritis and Cartilage*, the study examined the association between patterns of weight gain ([body mass index](#) (BMI) trajectories) from early adulthood to late midlife and the risk of total knee replacement for osteoarthritis.

Senior author and Monash University Professor Flavia Cicuttini heads the School of Public Health and Preventive Medicine's Musculoskeletal Epidemiology Unit.

Professor Cicuttini said the results underlined the importance of prevention in improving health and reducing health costs. She said while [weight loss](#) was recommended for people with osteoarthritis who were overweight or obese, this was often too little too late.

"Preventing weight gain is feasible and effective in improving osteoarthritis health outcomes," she said. "Focusing on prevention, with small average long-term changes in [energy balance](#), can make a big difference. Reducing your [caloric intake](#) just slightly each day builds up to avoiding 8–12 kg of weight gain over a couple of decades, saving money and avoiding surgery. This also has cardiac health benefits.

"For example, eating the average equivalent of two fewer pieces of chocolate per week, or adding 10 minutes of exercise, can prevent the insidious half to 0.5–1 kg weight gain we see per person per year in Australia. This can result in tangible health gains, improving lives and saving money."

Professor Cicuttini said a "call to action" was needed for knee joint health. "We also need to be sending out the message that it is important to make sure that people don't continue to gain more weight," she said. "Although recommendations to lose weight are important if a person is carrying excess weight, this can be difficult to achieve for most people."

"Too often we see people with knee pain, advise them to lose weight, only for them to return five years later having gained a further 3–5 kg. This is a missed opportunity because it is easier to prevent further weight gain than it is to lose it."

"We need to focus on preventing or slowing weight gain when people first present with any knee pain, even niggling knee pain. Australians tend to gain about 0.5–1 kg per year over [adult life](#). This slow, steady accumulation of weight adds up, resulting in the obesity we see."

The project used data from 24,368 participants in the Melbourne Collaborative Cohort Study.

Researchers linked weight data over a period of years with National Joint Replacement Registry records. They identified six distinct trajectories of BMI from early adulthood (age 18–21 years) to late midlife (about 62 years). These included:

- Group 1: Lower normal to normal BMI (19.7%).
- Group 2: Normal BMI to borderline overweight (36.7%).
- Group 3: Normal BMI to overweight (26.8%).

- Group 4: Overweight to borderline obese (3.5%).
- Group 5: Normal BMI to class 1 obesity (10.1%).
- Group 6: Overweight to class 2 obesity (3.2%).

Over 12.4 years, 1,328 (5.4%) of subjects had a total knee replacement. The risk of requiring one increased in all groups where someone progressed into a higher weight group.

In total, 28.4% of knee replacements could be prevented if people moved to one group lower, with an average 8–12kg weight loss from early adulthood to late midlife. This could save \$373 million in annual health costs.

Professor Cicuttini said that assuming we can "fix" obesity after it has occurred is not very effective and prevention had multiple health and cost benefits.

"If an approach doesn't work, why don't we change it?" she said. "If adults can be encouraged to consider preventing the slow creep in [weight](#) from a young age, this will have multiple health benefits including reducing the need for a knee replacement in the future."

More information: S.M. Hussain et al, Trajectories of body mass index from early adulthood to late midlife and incidence of total knee arthroplasty for osteoarthritis: findings from a prospective cohort study, *Osteoarthritis and Cartilage* (2022). [DOI: 10.1016/j.joca.2022.11.013](https://doi.org/10.1016/j.joca.2022.11.013)

Provided by Monash University

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