Preventing knee pain in at-risk adults with diabetes

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Knee pain in older adults, often caused by osteoarthritis, usually means more visits to the doctor and also can be a harbinger of disability.

A study led by Daniel White, assistant professor of physical therapy at the University of Delaware, found that an intensive regimen of regular exercise and a healthy diet might reduce the short-term onset of knee pain for overweight adults with Type 2 diabetes mellitus.

Published in *Arthritis Care and Research*, White's article "Can an Intensive Diet and Exercise Program Prevent Knee Pain Among Overweight Adults at High Risk" was an editor's pick in the journal's July issue and was named as a key study for 2015 at the Osteoarthritis Society's international meeting.

Because old age and obesity are major risk factors for knee osteoarthritis, researchers asked whether an intensive program of weight loss combined with exercise could prevent the onset of knee pain among this cohort.

"Prior to this study, we did not have empirical data to support the claim that diet and exercise actually worked to prevent knee pain," White said. "Now we do have a study."

The study compared subjects receiving intensive lifestyle intervention (ILI) to a comparison group receiving standard diabetes mellitus support and education (DSE), measuring knee pain at the end of one year and four years.

White and his colleagues conducted a secondary analysis of the Action for Health in Diabetes (Look AHEAD) study, a randomized intervention of trial adults ages 45 to 76 years who were obese and had Type 2 diabetes mellitus that started in 2001.

"The analysis involved a subcohort of 2,889 subjects who reported no knee pain at baseline, but were at high risk due to obesity," White said.

The primary method of achieving weight loss was caloric intake restrictions, based on guidelines from the American Diabetes Association. The diet limits total calories from fat to 30 percent while mandating at least 10 percent of calories to be obtained from protein.

Intervention for exercise relied heavily on unsupervised exercise at home, with a gradual progression to 175 minutes per week of moderate to vigorous physical exercise.

For most participants, the study notes, this activity consisted of brisk walking, with moderate-intensity walking encouraged as a primary type of physical activity.

"We did not study people in the general population, but only adults who were diabetic and overweight," White said. "Among those we studied who were randomized to the diet and exercise intervention, it was found that they were 15 percent less likely to develop knee pain compared with their counterparts randomized to the control condition."

The study found that an intensive program of diet and exercise had a small but statistically significant protective effect against the development of knee pain in the short term among overweight adults with diabetes, White said.

At the four-year mark, this difference decreased to five percent and was no longer statistically significant. The study notes that this decrease might be a consequence of participants not being able to stay with the prescribed diet and exercise regimen over the four-year period.

"These findings are very important," White said. "They demonstrate that the recommendations to exercise and diet do make a difference for preventing the development of knee pain among

those who are at high risk."

Knee pain is the most common type of chronic lower body pain among middle to older aged adults and is responsible for more disability than any other chronic condition in this age range, White said.

The University's Physical Therapy Clinics treat many individuals in this age group with recently developed knee pain, both with and without Type 2 diabetes mellitus, White said.

"I study physical activity among people with knee arthritis," White said. "I felt it was important to investigate whether exercise combined with diet did in fact protect against the development of knee pain."

More information: *Osteoarthritis and Pain*
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