

## CAHE *Allied Health News in Review*

### Does strength training slow knee arthritis?

#### Evidence Background

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Strength training may slow knee arthritis was reported by *The Sydney Morning Herald* on 5 October 2006.

**The origin of evidence:** This report was based on research conducted by Dr. Steven Mazzuca and colleagues from Indiana University School of Medicine in Indianapolis, US.

**The objectives of research:** The objective of this research was to investigate the effects of lower-extremity strength training on incidence and progression of knee osteoarthritis (OA).

**The nature of evidence:** Randomised Controlled Trial.

**Setting of research:** University setting (Indiana University- Purdue University) in Indianapolis.

**Participants involved in research:** A total of 221 functionally independent adults of greater than or equal to 55 years of age. Of these 57 had a diagnosis of OA of the knee and 164 were recruited from the general population.

**Interventions utilised:** Participants were randomised into strength training (ST) (n=113) or range of motion (ROM) (n=108) exercises.

**Outcome measures:** Outcome measures include Western Ontario and McMaster Universities OA Index (WOMAC), SF-36, Center for Epidemiologic Studies Depression Scale (CES-D) and radiographic examination which included an AP of the knee.

**Key findings:** Of the 221 who commenced the study, 67 did not complete the study. Of the 154 remaining subjects, all lost lower-extremity strength over 30 months. However, the rate of loss was slower in the ST group when compared with the ROM group. In relation to joint space narrowing, subjects in the ST group showed less narrowing compared to subjects who undertook ROM exercises. An unexpected finding from this research was the subjects who had not been identified with OA at the beginning of the research and were in the strength group, exhibited greater joint space narrowing upon completing the strength training. The researchers postulate this could be due to meniscal subluxation in the knee. While recommending further research to investigate this unusual finding, the researchers believe that such narrowing of joint space would not be harmful for potential patients with OA.

**Validity of methodology and reliability of the conclusions:** Validity of methodology and reliability of the conclusions: This study tests a commonly utilised intervention for patients suffering from OA of the knee. While it employs RCT methodology, due to the nature of the intervention, blinding was not possible. The research also does not employ concealed allocation of the subjects nor blinded assessor. These methodological issues highlight the need for interpreting these results with caution due to faults in internal validity. The researchers however have clearly articulated the processes underpinning interventions. This will be helpful in replicating the intervention in a clinical scenario.

**Clinical implications:** The evidence arising from this research highlights that strength training of the lower limb in patients with OA of the knee, helps in reducing loss of strength in the lower limb and reduces the rate of joint space narrowing over 30 months, when compared to range of motion exercises. From a patient perspective, this evidence highlights the long term benefits of strength training for OA and from a provider perspective it validates a commonly undertaken clinical rehabilitation strategy. The finding of increased joint space narrowing in older adults with no signs of OA when performing strength training of the lower limb, should be considered when recommending this treatment and subsequently monitored, but should not constrain its use in **clinical** practice.

**Reference:** Mikesky AE, Mazzuca SA, Brandt KD, Perkins SM, Damush T, Lane KA. Effect of Strength Training on the Incidence and Progression of Knee Osteoarthritis. *Arthritis and Rheumatism* 2006; 55: 690-699. Sydney Morning Herald website: <http://www.smh.com.au/news/seniorshealth/strength-training-may-slow-knee-arthritis/2006/10/05/1159641444112.html>

**CONTACTS**

[www.unisa.edu.au/cahe](http://www.unisa.edu.au/cahe)  
karen.grimmer-somers  
@unisa.edu.au  
Telephone (08) 8302 2769  
Facsimile (08) 8302 2766

University of South Australia  
GPO Box 2471  
Adelaide SA 5001  
Australia

CRICOS Provider Number  
001218