

Osteoarthritis patients will benefit from jumping exercise

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Progressive high-impact training improved the patellar cartilage quality of the postmenopausal women who may be at risk of osteoporosis (bone loss) as well as at risk of osteoarthritis. This was found out in the study carry out in the Department of Health Sciences at University of Jyväskylä, Finland. The effects of high-impact exercise were examined on knee cartilages, osteoarthritis symptoms and physical function in postmenopausal women with mild knee osteoarthritis. The study was conducted in cooperation with the Central Finland Central Hospital and the Department of Medical Technology, Institute of Biomedicine in University of Oulu in Finland.

Eighty eligible [postmenopausal women](#) from 50 to 65 -years of age and having knee pain on most days of the month, were enrolled into the study and randomly assigned into either a training group or a control group. The mild [knee osteoarthritis](#) of all participants was confirmed prior the randomization and intervention by radiographs. Training group exercised according a supervised progressive high-impact [exercise](#) program three times a week for 12-months, while the control group continued their normal physical activity. The effects of exercise on patellar cartilage texture and the amount of liquid was measured by T2 relaxation time at MRI imaging.

– The breaking of the collagen network and increased free water in the [articular cartilage](#) is considered to represent the onset of the degenerative process of osteoarthritis. If those cartilage breaking changes can be hindered, stopped or even improved the quality of the cartilage via

appropriate physical activity, it might slow down the disease progression, says Doctoral Student and OMT -physiotherapist Jarmo Koli from the Department of Health Sciences.

The quality of patellar cartilage improved with jumping and versatile rapid movements exercises

The most efficient exercise modality to improve bone strength is shown to be high-impact loading (jumping type of exercise), as well as rapid change of movement directions. Previously, this type of exercise has been thought to be harmful for the integrity of articular cartilage, although the issue has never been scientifically proven. Our research group has reported earlier (Multanen et al. 2014) that jumping exercise is safe for the cartilage of tibio-femoral -joint.

This study showed that training improved the quality of the patellar cartilage and physical function such as knee extensors strength and cardiorespiratory fitness. The most important finding was that high-impact jumping exercise improved the biochemical composition of [cartilage](#) as investigated by MRI in subjects with mild knee osteoarthritis. In addition, the 12-month training was very well tolerated; it did not induce [knee pain](#) or stiffness, and the general training compliance was high. The clinical significance of this study is, postmenopausal women in mind, that despite of mild knee osteoarthritis, a person is allowed and even encouraged to progressively implement high-impact loading exercises to maintain and improve her health and functional ability.

More information: Koli J, Multanen J, Kujala UM, Häkkinen A, Nieminen MT, Kautiainen H, Lammentausta E, Jämsä T, Ahola R, Selänne H, Kiviranta I, Heinonen A. "Effect of Exercise on Patellar Cartilage in Women with Mild Knee Osteoarthritis." *Medicine & Science in Sports & Exercise*; Post Acceptance: February 9, 2015. [DOI:](#)

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