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Midlife occupational and leisure-time physical activity limits mobility in old age

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Strenuous occupational physical activity in midlife increases the risk of mobility limitation in old age, whereas leisure-time physical activity decreases the risk. This is found in a study which followed up 5,200 public sector employees for 28 years. The study was conducted at the Gerontology Research Center in Finland and the Finnish Institute of Occupational Health.

Heavy physical labor is often repetitive, wears the body and lasts for several hours a day. On the contrast, leisure-time physical activity is designed to improve fitness and provide recreation and a typical exercise session lasts for one or two hours. Even though both are based on muscle activity and result in energy expenditure, their long-term consequences are different.

"A person doing heavy manual work may compensate for its detrimental effects by participating in brisk leisure-time physical activity," says professor Taina Rantanen, the leader of the research group.

"Mobility limitation is an important determinant of a person's possibilities to participate in the society and to utilize community amenities. Current policy emphasizes the importance of promoting independent living among older people," Rantanen adds.

Mobility limitation was assessed five times and was based on a person's ability to maintain and change body positions, carry and handle objects and walk and move. The baseline assessment took place in 1981 and the

last assessment in 2009. When the results of the first and the last assessments were compared for people who continued in the study through the entire follow-up, the results were almost identical suggesting hardly any decline in mobility. However, when the latest available assessment results of those who died over the follow-up period were compared to their baseline assessment, a clear decline was observed. The unique feature of this study is that the same people were followed up several times over a long period of time. This method helps to better monitor long-term development, which would not be possible if assessments were made only at the beginning and the end of the test period. When only two assessments are available, what happens between them remains unknown.

"In long follow-up studies of older people it is necessary to take into account that some of the participants may die before the study ends. Only the healthiest and strongest participants are available for the follow-up assessments, which may lead to the underestimation of the age-related changes," says Professor Rantanen.

The functional ability in old age is a result of processes which may have started already in midlife – some of them have supported the health of the person while others may have been detrimental to the health. The current research results suggest that a marked decline in mobility occurs only in the last years of life.

"Based on age only, we are not able to predict the health and mobility of a person. In other words, the distance from birth is a worse predictor of mobility than the distance to death," Rantanen notes.

More information: Hinrichs T, von Bonsdorff MB, Törmäkangas T, von Bonsdorff ME, Kulmala J, Seitsamo J, Nygård CH, Ilmarinen J, Rantanen T. Inverse Effects of Midlife Occupational and Leisure Time Physical Activity on Mobility Limitation in Old Age - A 28-Year

Prospective Follow-Up Study. *J Am Geriatr Soc*. 2014 Apr 14. DOI: 10.1111/jgs.12793