

Higher physical activity is associated with a better metabolic health risk factor profile in menopausal women

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A study conducted at the University of Jyväskylä in the Faculty of Sport and Health Sciences shows that menopausal transition is associated with unfavorable changes in metabolic health that may be mitigated with a physically active lifestyle. Physical activity especially alleviated

increases in systolic blood pressure.

Menopausal transition has been associated with an increase in abdominal fat mass, blood pressure, and [blood glucose levels](#) as well as the deterioration in cholesterol levels. These changes increase the risk of—for example—cardiovascular disease and type II diabetes in [postmenopausal women](#). Physical activity is known to be beneficial for promoting [metabolic health](#) and reduce the risk of cardiovascular and metabolic disease. Little is known, however, about the associations between physical activity and changes in metabolic health indicators during menopause.

"Metabolic health deteriorates in both men and women due to aging, but in women these changes seem to accelerate in midlife at the time of menopause," says doctoral researcher Hanna-Kaarina Juppi.

"Since women can live for several decades after menopause, understanding the factors behind metabolic health deterioration is important. By following women with a similar age but differing menopausal status, we were able to separate the changes caused by the menopausal hormonal changes from the aging-related deterioration in metabolic health."

In the study, the women were divided into three groups based on the change in their menopausal status during the follow-up period and the groups were compared to each other. Body composition, waist circumference, [blood pressure](#), blood lipids and glucose and [physical activity](#) were measured twice during the four-year follow-up time. In all groups, the levels of several metabolic health indicators deteriorated. For example, mid-region obesity, LDL cholesterol and blood glucose increased during the study, and the most significant changes were observed in the group that experienced menopause during the follow-up period.

"Based on the results, menopause is associated with the deterioration of metabolic health," adds doctoral researcher Matti Hyvärinen.

"But a physically [active lifestyle](#) may prevent the accumulation of metabolic risk factors in menopausal women. We observed that more active participants had a healthier metabolic risk factor profile. For example, more active participants had lower LDL and higher HDL cholesterol levels as well as smaller fat mass and waist circumference. Additionally, the results implied that physically active lifestyle is effective for mitigating the increase in [systolic blood pressure](#) during the menopausal transition."

The study was conducted at the Gerontology Research Center in the Faculty of Sport and Health Sciences at the University of Jyväskylä. The study is a part of the Estrogenic Regulation of Muscle Apoptosis (ERMA) and Estrogen, microRNAs and the risk of metabolic dysfunction (EsmiRs) studies led by Associate Professor Eija Laakkonen. The original ERMA baseline cohort with more than 1300 participants included 47- to 55-year-old women living in the Jyväskylä region. In the EsmiRs study, 298 of the ERMA women were remeasured.

More information: Matti Hyvärinen et al, Metabolic health, menopause, and physical activity—a 4-year follow-up study, *International Journal of Obesity* (2021). [DOI: 10.1038/s41366-021-01022-x](#)

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