

Team sport lowers blood pressure in postmenopausal women

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Estrogen loss associated with transition into menopause increases women's risk of developing cardiovascular disease and reduces their ability to benefit from training. However, a new study from the Center for Team Sports and Health at the Department of Nutrition, Exercise and Sports, University of Copenhagen demonstrates that

[postmenopausal women](#) do benefit from playing small-sided floorball twice a week.

Effect of ten weeks of floorball

In the study, a group of postmenopausal women with [high blood pressure](#) and a [control group](#) with [normal blood pressure](#) participated in bi-weekly floorball training for ten weeks.

For the women with high blood pressure, floorball training reduced vascular stiffness and lead to a decrease in blood pressure by 15 (systolic) and 9 (diastolic) mmHg in the hypertensive women. This is significant and corresponds to a 40% lower risk of death by heart attack and a 30% reduction for coronary artery disease, which is characterized by reduced oxygen supply to the heart.

The group of women with normal blood pressure had slightly elevated blood pressure at the onset of the study, which is common among inactive postmenopausal women. They too experienced a noteworthy 10 mmHg decrease in systolic blood pressure with the floorball training.

Associate Professor Thomas P. Gunnarsson of the Department of Nutrition, Exercise and Sports is enthused that just two workouts a week resulted in such a pronounced effect on women's health:

"The study demonstrates that team sport among postmenopausal women is such an effective form of exercise that, with only two workouts a week, there are significant improvements in blood pressure, [vascular function](#) and body composition."

Reduction of the dangerous fat

One of the study's other interesting outcomes was also that the postmenopausal women experienced a noteworthy 10% reduction of visceral fat mass (the 'dangerous' fat found between internal organs). Furthermore, total fat mass decreased by a half-

kilogram.

According to Professor Jens Bangsbo, head of the Copenhagen Center for Team Sports and Health, it is especially noteworthy that these results emerge from a group of women with no prior experience with floorball:

"The study supports the numerous health benefits from [team sports](#) participation and provides us with a deeper understanding of training adaptations associated with team sport, which creates high motivation among postmenopausal women. Furthermore, the lack of experience with floorball was not a limitation in the women's ability to achieve excellent health results in a relatively short time."

The results are promising especially as it has been believed that vascular smooth muscle in postmenopausal women cannot change with exercise. The study contradicts that notion.

The new findings contribute to an increasing body of knowledge about the mechanisms involved in high blood pressure among postmenopausal women, as well as the types of exercise that can effectively counteract the negative consequences of loss of estrogen with time in the postmenopausal state.

About the study:

- 17 women participated in the study. All participants had their last menstrual cycle at least six years prior to enrollment in the study.
- The women played bi-weekly floorball for 10 weeks. Matches from two vs. two to five vs. five were played.
- Systolic and diastolic [blood pressure](#) decreased by 15 and 9 mmHg respectively in the hypertensive group of postmenopausal women, while [systolic blood pressure](#) decreased by 10 mmHg in the control group.
- Deteriorated vascular function can lead to hypertension. In the study, it was observed that vascular smooth muscle cell function was reduced by 30-40% in the women with

high [blood pressure](#) in comparison with the control group.

- The study demonstrated that vascular function can be improved significantly in postmenopausal women after a period of playing floorball, even among [women](#) with no prior experience with the sport. After training, there was no difference in the vascular function between the groups.

More information: Thomas P. Gunnarsson et al, Hypertension is associated with blunted NO-mediated leg vasodilator responsiveness that is reversed by high-intensity training in postmenopausal women, *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology* (2020). [DOI: 10.1152/ajpregu.00170.2020](#)

Provided by University of Copenhagen

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