

Middle-age height loss linked to heightened death risk in northern European women

But exercise may help to stave off shrinkage, findings suggest

Height loss in middle age is linked to a heightened risk of early death, primarily from heart disease or stroke—at least in Northern European women—suggests research published in the online journal **BMJ Open**.

But regular physical activity may help to stave off mid-life shrinkage, as well as lowering cardiovascular disease risk, the findings indicate.

People tend to start losing height once they reach their 50s, a process that speeds up during their 70s. Height loss is usually caused by vertebral disc shrinkage, spinal compression fractures, and changes in posture.

While some degree of height loss is associated with natural ageing, previous research suggests that it may also be associated with an increased risk of death from heart disease.

Height loss in women has not been well studied, however, despite the fact that women tend to lose more height than men, say the researchers.

They therefore wanted to find out if mid-life height loss might predict death from all causes, and specifically death from heart disease/stroke, in 2406 Swedish and Danish women born between 1908 and 1952.

The 1147 Swedish women were all part of the Swedish Prospective Population Study of Women in Gothenburg while the 1259 Danish women were part of the MONitoring trends and determinants of CARdiovascular disease (MONICA) study.

Height was measured without shoes and in the morning, at entry to each of these studies, when the women were aged between 30 and 60 (two thirds were aged 38–52), and again between 10 and 13 years later.

Date and cause of death were monitored for 17 to 19 years after the second height measurement.

Potentially influential factors, including weight, smoking, leisure time physical activity, alcohol intake, and educational attainment, were all recorded.

The women lost an average of 0.8 cm between the first and second height measurements, but the amount ranged from 0 to 14 cm.

During the total monitoring period of 19 years, 625 of the women died from all causes. But during the 17 year period, cardiovascular disease was the primary cause of death in 157 women, which included 37 cases of stroke; 362 cases were due to other causes.

Each cm of height loss was associated with 14% and 21% greater odds of death from any cause among the Swedish and Danish women, respectively, after adjusting for potentially influential factors.

Short stature and high leisure time physical activity (including participation in competitive sports) at study entry were associated with less height loss, independent of age.

Major height loss, defined as more than 2 cm, was associated with 74% and 80% greater odds of death, respectively, among two groups of women.

Pooled analysis of the data showed that major height loss was associated with a more than doubling in the odds of death from stroke and all types of cardiovascular disease, and 71% greater odds of death from all other causes.

These findings held true even after factoring in age, time between height measurements, nationality, and baseline values of height, weight, educational attainment and lifestyle factors.

This is an observational study, and as such, can't establish cause. And the researchers point out that the number of stroke deaths was small, suggesting that the findings should be interpreted with a degree of caution.

Other unmeasured factors may also have influenced the findings, they add. These include early life physical activity and exposure to tobacco (either through second-hand smoke or smoking themselves), peak bone mass, underlying health conditions and medical treatments.

Nevertheless, the findings prompt the researchers to conclude that mid-life height loss "is a risk marker for earlier mortality in northern European women."

Specifically, the risk of cardiovascular disease is increased in women who lose height, with death from stroke a major contributor to this association, they add.

"These findings suggest the need for increased attention to height loss to identify individuals at increased [cardiovascular disease] risk. Moreover, regular physical activity may be beneficial not only in prevention of [cardiovascular disease], but also in prevention of height loss," they write.