

Vertebral size and shape potentially linked to generalized back problems

February 12 2020



Credit: University of Oulu

According to a multidisciplinary study at the University of Oulu, contemporary Finns' vertebrae have not grown in the same proportion to body size compared to people who lived 200 to 500 years ago. The smaller size of vertebrae may be linked to contemporary back problems.

Vertebrae today are relatively smaller than 200 to 500 years ago. The

width of men's [vertebrae](#) has even decreased. In previous studies, the smaller size and rounder shape of vertebrae has been associated with a higher risk of fractures. The size of vertebrae appears to be linked to other [degenerative changes](#) in the back. Back problems and especially [lower back pain](#) are a growing health problem.

The average height of Finns has increased by about 10 centimeters over the last 100 years. The study investigated how the dimensions and relative proportions of vertebrae have changed in relation to this increase in height. Changes were observed in the vertebral dimensions of both sexes.

The researchers believe that the key factor affecting changes in vertebrae is the changes in lifestyle that have occurred over time. Contemporary lifestyles involve much less physical strain than in the 16th to the 19th centuries, when life could be physically hard from a young age.

Changes in the size and shape of vertebrae over time were investigated based on three Finnish sources. Archaeological specimens from individuals representative of Finland in the 16th to the 19th centuries were collected from grave materials, and these were compared to two contemporary sources: magnetic resonance images of Northern Finns born in 1966 and 1986.

The researchers believe that further studies are needed to determine whether changes in vertebral size and shape over time have broader effects on back health.

The multidisciplinary research group included archaeology, [musculoskeletal disease](#), [medical imaging](#) and epidemiology researchers.

The results of the study have been published in an article by Korpinen

Niina, Oura Petteri, Väre Tiina, Niskanen Markku, Niinimäki Jaakko, Karppinen Jaro, Junno Juho-Antti: "Temporal Trends in Vertebral Dimensions—A Case Study from Finland" in *Scientific Reports*.

More information: Niina Korpinen et al. Temporal Trends in Vertebral Dimensions – a case study from Finland, *Scientific Reports* (2020). [DOI: 10.1038/s41598-020-58340-9](https://doi.org/10.1038/s41598-020-58340-9)

Provided by University of Oulu

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