

Placenta size and offspring bone development linked

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Researchers at the Medical Research Council Lifecourse Epidemiology Unit, University of Southampton, studied 518 children in the Avon Longitudinal Study of Parents and Children (ALSPAC) who underwent bone scans at nine, 15 and 17 years old. Measurements such as thickness, volume and weight, were also taken from the mothers' placenta.

The Southampton group, working with colleagues at the University of Bristol, found that greater placental size at birth was associated with larger bones at each age in childhood.

The study, published in the *Journal of Bone and Mineral Research*, found that the relationship between the placenta and offspring bone remained robust even after adjusting for factors such as the child's height and weight and pubertal status.

The Southampton team believe this latest research offers new insights into earlier observations linking maternal factors in pregnancy with offspring bone health. Larger bones in [early life](#) are likely to lead to larger, stronger bones in older adulthood, which reduces the risk of osteoporosis and broken bones in later life. However, more research is needed to understand the more detailed mechanisms underlying associations between placenta size/function and offspring bone mass, the team says.

Professor Nicholas Harvey, Professor of Rheumatology and Clinical Epidemiology, who led the research in Southampton, commented:

"Whilst there are many factors which are likely to influence placental size and function, and importantly, we don't know as yet whether a larger placenta actually causes the greater offspring bone mass, these findings really help us to understand the possible mechanisms whereby factors such as maternal diet, smoking, physical activity and vitamin D status may influence offspring bone development."

"This work builds on our previous findings from the Southampton Women's Survey, and demonstrates that positive associations between placental size and offspring bone size are maintained even through puberty."

Professor Cyrus Cooper, Professor of Rheumatology and Director of the MRC Lifecourse Epidemiology Unit, added, "This work forms part of a larger programme of research seeking to develop interventions in early life aimed at optimising [bone development](#) and reducing the risk of osteoporotic fracture in older age. Confirmation of our earlier Southampton findings in the Bristol cohort is testament to the close working between Southampton and Bristol collaborators, and demonstrates the clear benefit to UK science from such cross-cohort investigations."

More information: CR Holroyd et al, Placental Size Is Associated Differentially with Postnatal Bone Size and Density, *Journal of Bone and Mineral Research* (2016). [DOI: 10.1002/jbmr.2840](https://doi.org/10.1002/jbmr.2840)

Provided by University of Southampton

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