

High-intensity physical activity in early adolescence could lead to stronger bones in adulthood

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High intensity physical activity in early life might help maximize peak hip strength and prevent osteoporosis in later life, according to a study

from University of Bristol researchers published in *JAMA Network Open* today.

The research, which analyzed data from 2,569 participants of the [Children of the 90s health study](#), found that more time spent doing moderate-to-vigorous [intensity](#) physical activity (MVPA) from age 12 years was associated with stronger hips at age 25 years, whereas time spent in light intensity activity was less clearly associated with adult hip strength.

Peak [bone](#) mass occurs in young adulthood and is considered to be a marker of the risk of fracture and osteoporosis in later life. Hip fractures make up a large proportion of the osteoporosis disease burden.

Researchers looked at data from healthy individuals who had physical activity measured up to four times using accelerometers worn as part of clinical assessments at age 12, 14, 16 and 25 years. This is a device that measures a person's movement for the whole time they wear it.

Researchers also found evidence to suggest that adolescent MVPA was more important than MVPA in adulthood, and that MVPA in early adolescence may be more important than in later adolescence. There was also some evidence that higher impact activity (consistent with jumping; assessed once in a subsample in late adolescence using a custom accelerometer) was related to stronger hips at age 25.

Dr. Ahmed Elhakeem, lead author and Senior Research Associate in Epidemiology, said: "The unique availability of repeated accelerometer assessments over many years beginning at age 12 within the Children of the 90s cohort, allowed us to describe the trajectory of time spent in different physical [activity](#) intensities through [early life](#) and to examine how this might relate to adult hip strength. The results highlight adolescence as a potentially [important period](#) for bone development

through [high intensity](#) exercise, which could benefit future bone health and prevent osteoporosis in later life. We have also confirmed other studies showing that levels of MVPA decline through adolescence. Our findings show it is really important to support young people to remain active at this age."

Francesca Thompson, Clinical and Operations Director at the Royal Osteoporosis Society (ROS), said: "The ROS is working closely at the moment with Public Health England to review the importance of exercise for bone health in children. The findings from this study are welcome as they provide further evidence that children need to be doing moderate to vigorous intensity [physical activity](#) during their [early adolescence](#) to maximize bone strength in later life and reduce the risk of painful fractures. Supporting and encouraging young people to be more physically active needs to be a priority for bone as well as general health."

More information: Ahmed Elhakeem et al. Physical Activity Throughout Adolescence and Peak Hip Strength in Young Adults, *JAMA Network Open* (2020). [DOI: 10.1001/jamanetworkopen.2020.13463](https://doi.org/10.1001/jamanetworkopen.2020.13463)

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