

Size zero is bad news for bones

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(PhysOrg.com) -- New research from the Children of the 90s project suggests that teenage girls who are too thin may be putting their bones at risk.

It has long been known that the amount of muscle in the body is related to bone growth, but this new study shows that fat mass is also important in building bone, particularly in girls.

The researchers looked at over 4,000 young people aged 15, using sophisticated scanning techniques (DXA and pCQT) that calculated the shape and density of their bones, as well as how much body fat they had.

Those with higher levels of fat tended to have larger and thicker bones. This connection was particularly marked in the girls

For example, one key measure showed that in girls, a five kilogram increase in fat mass was associated with an eight per cent increase in the circumference of the tibia (lower leg bone).

As girls tend to have higher levels of fat than boys, even when they are normal weight, these findings suggest that fat plays an important role in female bone development.

Building strong bones in youth is particularly important for women, as they are three times more likely to develop osteoporosis, and they suffer two to three times more hip fractures than men.

Jon Tobias, Professor of Rheumatology and leader of the research, said: “There is a good deal of pressure on teenage girls to be thin, but they need to be aware that this could endanger their developing skeleton and put them at increased risk of osteoporosis.

“Many people think that exercise is the key to losing weight and building strong bones at the same time - but this may only be true up to a point. If you do a good deal of low impact exercise, such as walking, you will certainly lose fat but you may not be able to put enough stress on the bones to build them significantly. To offset the detrimental effect of fat loss on your bones, it may be important to include high impact exercise as well, such as running or jumping.”

More information: Sayers A, Tobias JH. 'Fat Mass Exerts a Greater Effect on Cortical Bone Mass in Girls than Boys'. *Journal of Clinical Endocrinology and Metabolism* 95: 0000-0000, 2010

Provided by University of Bristol

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