

Study finds boys' fitness has declined over past 20 years

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Even healthy weight boys have become less fit over the past 20 years, according to new research being presented at this year's European Congress on Obesity (ECO) in Vienna, Austria (23-26 May). The study,

which tested the aerobic fitness of normal and obese 11-year-old boys from Malaga, Spain in 1996 and again in 2016, highlights the need for a shift in focus towards child fitness and away from just their weight.

The less efficient the [heart](#), the more it has to beat per minute to pump blood around the body. Heart rate recovery, the speed at which the [heart rate](#) returns to normal after exercise, is an indicator of physical fitness and the risk of cardiovascular diseases such as heart disease and stroke. Individuals in better cardiovascular condition tend to have lower heart rates during peak exercise, and return to their [resting heart rate](#) more quickly after physical activity. A recent study showed that children with higher body mass index (BMI) have slower heart rate recovery, suggesting a possible link between healthy body weight and faster heart rate recovery.

To investigate this further, José Carlos Fernández García from Malaga University in Spain and colleagues recruited 11-year-old boys from schools in Malaga-132 healthy weight boys and 72 obese boys in 1996, and 213 normal weight boys and 139 obese boys in 2016-to compare [aerobic fitness](#) over time. The boys wore a heart rate monitor during a shuttle run test (bleep test), requiring them to run 20 metres between two points until they could no longer do it before the bleep sounded. Pulse beats per minute (BMP) were recorded at the end of the test and every minute during recovery.

Results showed that healthy weight boys in 2016 were markedly less fit than their predecessors in 1996-running an average (median) of 5.1 shuttles in 1996 and 4.8 in 2016. In contrast, over 20 years significant differences in the shuttle run test were not seen in obese boys (4.2 vs 4.1).

Importantly however, both normal and obese boys showed much lower cardiac efficacy and worse heart rate recovery at the end of the test and

throughout recovery in 2016 compared to 1996 (see table). For example, in 2016 normal boys' average heart rate at the end of the test fell from 181 bpm to 147 bpm after 1 minute to 136 bpm after 2 minutes; whereas in 1996 average heart rate was 198 bpm at the end of the beep [test](#), and fell to 155 bpm after 1 minute and to 133 bpm after 2 minutes.

The researchers conclude by calling for more initiatives to increase fitness levels in children: "Our results suggest that measuring BMI alone may not be enough to monitor children's future health and reinforce the need for promoting physical activity, especially aerobic fitness, to improve the capacity of the heart and lungs and better post-exercise [recovery](#)."

They add: "We know that most children do not take part in enough [physical activity](#), compared to current WHO recommendations of at least 60 minutes of moderate-to-vigorous exercise every day such as swimming, football, or dancing."

The authors note some limitations, including that the study represents a small regional sample, so the findings might not be generalisable to the rest of Spain, or other countries. They also highlight that they only collected data from two years, which might over or underestimate levels of [fitness](#); and they did not account for sociodemographic or lifestyle factors which could explain reasons for the changes seen. However, they point out that: "the sample studied is very specific (boys aged 11 years old), and it was distributed among all the socioeconomic levels of a geographical area quite similar to those of Western countries. The normal distribution of the data in the sample allows us to orient ourselves towards where the cardiac and aerobic behaviours of these children are heading."

Provided by European Association for the Study of Obesity

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