

## Striking differences of overweight and obesity rates in schoolchildren across Europe

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Researchers from seven European countries have joined forces to assess overweight and obesity rates and energy-balance related behaviour in schoolchildren throughout Europe. Childhood overweight and obesity rates throughout Europe have increased in recent decades, which is particularly concerning as overweight and obesity seem to track from childhood into adulthood, when health problems related to excessive weight generally develop. The researchers found high levels of overweight and obesity in European schoolchildren, with striking differences in overweight status and potential risk behaviours between countries. Factors that influence energy-balance related behaviour include the country of residence, parents' educational level and gender.

The research was carried out in the course of the pan-European, EU-funded project ENERGY (European Energy balance Research to prevent excessive weight Gain among Youth). ENERGY has the ultimate aim to develop an intervention scheme to counteract the rising trends of overweight and obesity in children. Universities in seven countries from all over Europe (Belgium, Greece, Hungary, the Netherlands, Norway, Slovenia, and Spain) participate in the project to ensure that all European regions are represented. A school-based survey was carried out among schoolchildren aged 10-12 years.

The highest levels of overweight and obesity were found in Greece, with almost half the children affected by obesity or overweight (44.4%, of which 11.2% have obesity), whereas the lowest levels of overweight and obesity were found in Belgium (16.9%, of which 3.7% had obesity). The highest waist circumferences were also observed in Greece and the lowest in the Netherlands and Belgium. The difference in waist circumference between Greece and the Netherlands was striking – almost 8 cm in boys and 7 cm in girls. The group of researchers not only identified large differences across countries in overweight and obesity rates, but also in dietary and lifestyle behaviours. Children from Norway and the Netherlands spent on average more than 40 minutes per week cycling to school, whereas children from Greece, Hungary, Slovenia and Spain spent on average only up to 7 minutes per week cycling to school. However, Spanish school children spent most time walking to school. In terms of sport participation, Norwegian children were again the most active, followed by Slovenia and Hungary.

The highest consumption of soft drinks was found in the Netherlands, where on average 700 ml/day are consumed by boys and 565 ml by girls, followed by Hungary (608 ml in boys and 496 in girls) and Belgium (502 ml in boys and 408 ml in girls). The lowest consumption of soft drinks was found in Greece, the country with the highest overweight and obesity rates, with 139 ml in boys and 92 ml in girls. The highest consumption of fruit juice was found in Slovenia, followed by the Netherlands, and the lowest consumption in Norway.

Breakfast skipping on one or more days of the week was another dietary behaviour assessed by the researchers. Figures ranged from a low of 12% of Spanish girls to a high of 52% of Slovenian boys skipping

breakfast at least once per week. Gender did not have a major impact except for Hungary, where fewer boys than girls skipped breakfast, and Spain, where fewer girls than boys did so. Furthermore, breakfast skipping in children was more likely with lower parental education in four out of the seven countries considered (Belgium, Greece, Slovenia, and Spain).

In a separate analysis, the researchers aimed to identify clusters of behaviour. This means they tried to identify if children with a certain energy-balance related behaviour are more likely to also have another energy-balance related behaviour. For example, do children who are more physically active watch less TV, and how does this relate to parental education, location and gender? Although the researchers identified five different clusters [active pattern, long sleepers inactive pattern, sedentary sugared drinks consumers, short sleepers inactive pattern, and low activity (boys)/sedentary (girls) pattern], they concluded that overall none of the clusters showed marked healthy or unhealthy trends for all the included energy-balance related behaviours. This means that those with one 'unhealthy' behaviour did not necessarily have other unhealthy behaviours. The most prevalent patterns were characterised by low physical activity. Children with lower educated parents seemed to be more likely to present unhealthier energy-balance related behaviour clustering, mainly by their self-reported time spent on physical activity and screen viewing. Additionally, the potential risk behaviours were more prevalent in boys than girls, with the exception of sports activities.

Overall, the researchers found high levels and striking differences in overweight status and potential risk behaviours among schoolchildren across Europe. Consequently, region or country-specific policies and interventions are needed to contribute to curbing the overweight epidemic. Physical activity and lack thereof were the main determinants of identified behaviour clusters. The researchers suggested that special focus should be given to lower educated parents, as these seem to be more likely to present an unhealthy behaviour cluster compared to children of higher educated parents.

For further information, see:

[Brug J et al. \(2012\) Differences in weight status and energy-balance related behaviors among schoolchildren across Europe: the ENERGY-project. PLoS One, 7\(4\):e34742. doi:10.1371/journal.pone.0034742](https://doi.org/10.1371/journal.pone.0034742)

[Fernandez-Alvira JM et al. \(2013\) Clustering of energy balance-related behaviors and parental education in European children: the ENERGY-project. International Journal of Behavioral Nutrition and Physical Activity, 10:5. doi:10.1186/1479-5868-10-5](https://doi.org/10.1186/1479-5868-10-5)