Insufficient sleep in teenagers is associated with overweight and obesity

29/08/2022

Excess weight and metabolic syndrome are associated with cardiovascular disease, suggesting that health promotion programs in schools should teach good sleep habits

Adolescents who sleep less than eight hours a night are more likely to be overweight or obese compared to their peers with sufficient sleep, according to research presented at ESC Congress 2022 .

Shorter sleepers were also more likely to have a combination of other unhealthy characteristics including excess fat around the middle, elevated blood pressure, and abnormal blood lipid and glucose levels.

“Our study shows that most teenagers do not get enough sleep and this is connected with excess weight and characteristics that promote weight gain, potentially setting them up for future problems,” said study author **Mr. Jesús Martínez Gómez**, a researcher in training at the Cardiovascular Health and Imaging Laboratory, Spanish National Centre for Cardiovascular Research (CNIC), Madrid, Spain. “We are currently investigating whether poor sleep habits are related to excessive screen time, which could explain why older adolescents get even less sleep than younger ones.”

This study examined the association between sleep duration and health in 1,229 adolescents in the SI! Program for Secondary Schools trial in Spain, a collaborative research effort by the SHE-“la Caixa” Foundation, the University of Barcelona and CNIC. Participants had an average age of 12 years at baseline with equal numbers of boys and girls.

Sleep was measured for seven days with a wearable activity tracker three times in each participant at ages 12, 14 and 16 years. For optimal health, the American Academy of Sleep Medicine advises sleeping 9 to 12 hours a night for 6 to 12 year-olds and 8 to 10 hours for 13 to 18 year-olds.To simplify the analysis, the study used 8 hours or more as optimal. **Participants were categorised as very short sleepers (less than 7 hours), short sleepers (7 to 8 hours), and optimal (8 hours or more).**

Overweight and obesity were determined according to body mass index. The researchers calculated a continuous metabolic syndrome score ranging from negative (healthier) to positive (unhealthier) values that included waist circumference, blood pressure, and blood glucose and lipid levels.

At 12 years of age, only 34% of participants slept at least 8 hours a night, and this dropped to 23% and 19% at 14 and 16 years of age, respectively. Boys tended to get less sleep. Teenagers who got the most sleep also had better quality sleep, meaning they woke up less during the night and spent a higher proportion of the time in bed sleeping compared to those with shorter sleep. The prevalence of overweight/obesity was 27%, 24% and 21% at 12, 14 and 16 years of age, respectively.

Associations between sleep duration, overweight/obesity and metabolic syndrome score were analysed after adjusting for parental education, migrant status, moderate-to-vigorous physical activity, smoking status, energy intake, city (Madrid or Barcelona) and school.

The connections between insufficient sleep and adverse health were independent of energy intake and physical activity levels, indicating that sleep itself is important

Compared with optimal sleepers, overweight/obesity was 21% and 72% more likely in very short sleepers at 12 and 14 years, respectively. Short sleepers were 19% and 29% more likely to be overweight/obese compared with optimal sleepers at 12 and 14 years, respectively. Similarly, both very short and short sleepers had higher average metabolic syndrome scores at 12 and 14 years compared with optimal sleepers.

Dr Rodrigo Fernandez-Jiménez, group leader of the Cardiovascular Health and Imaging lab, said: “The connections between insufficient sleep and adverse health were independent of energy intake and physical activity levels, indicating that sleep itself is important. Excess weight and metabolic

syndrome are ultimately associated with cardiovascular diseases, suggesting that health promotion programmes in schools should teach good sleep habits. **Parents can set a good example by having a consistent bedtime and limiting screen time in the evening**. Public policies are also needed to tackle this global health problem."

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