Teens’ Shorter Sleep Might Signal Higher Risk for Blocked Arteries

Between the magnetic lure of social media, the constant demands of homework and everything else that keeps adolescents awake at night, sleep can seem like the least important item on their to-do list. But a pioneering study suggests that regularly getting a good night’s sleep may foster better long-term health, while constantly burning the midnight oil, even as a teenager, correlates with a key sign of increased risk for blocked arteries, which can lead to heart attacks and strokes.

The new study appears in the November-December issue of *Psychosomatic Medicine*, journal of the American Psychosomatic Society.

Participants were 235 adolescents, average age about 14 years old, who wore activity wrist watches for 96 hours. The researchers were able to objectively measure how much sleep they averaged over four nights. Nearly seven out of 10 youngsters slept less than the minimum average of eight hours a night recommended by the American Academy of Pediatrics, reports study leader Carmela Alcántara, PhD, Associate Professor at the Columbia University School of Social Work. (AAP advises eight to 10 hours of sleep per night for adolescents.)

Before the sleep part of the study, scientists did a blood draw measuring the level of tiny particles that had detached from the adolescents’ endothelial cells. Endothelial cells line the inner surface of our blood vessels. When the cells are injured, these micro-particles detach and can be measured in the bloodstream; this provides a direct measurement of endothelial cell injury. And such injury occurs at the start of the process leading to blocked arteries and a greater risk for heart attacks and strokes.

Among the teenagers, longer sleep times were significantly associated with lower levels of these particles. In fact, the longer youngsters slept, the fewer such particles in their bloodstreams. This is believed to be the first study to measure how childhood sleep may be related to measurements of endothelial cell health, which is a key indicator of cardiovascular risk, says Alcántara. Earlier studies have found that teens who sleep too little also are more likely to have higher blood pressure and glucose levels, and to be obese.

Researchers don’t know yet exactly why sleep duration may be linked to endothelial cell health. “But we know that sleep is associated with a lot of restorative processes. For
example, it helps to regulate our blood pressure, our insulin levels and metabolism,’ says Alcántara. Although this study only shows an association, not that short sleep necessarily causes the cell injury, it does fit with a pattern of other findings that insufficient sleep is not good for people’s health. Other studies are finding that bodily processes leading to cardiovascular disease start before adulthood. Also, Alcántara’s young research participants were ethnically and racially diverse, which she believes adds to the credibility of the results.

The study’s take-home message for parents is clear, says Alcántara: “Try to get your adolescents to sleep longer because it will have benefits, physiological benefits that you can’t physically see but are there and could be related to the children’s later risk for cardiovascular disease.”

Study Link:
https://journals.lww.com/psychosomaticmedicine/Fulltext/2019/11000/Longer_Sleep_Duration_and_Endothelial_Cell_Health.3.aspx

Faculty Page:
https://socialwork.columbia.edu/faculty-research/faculty/full-time/carmela-alcantara/

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