Children who sleep less are more likely to be overweight

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Young children who do not get enough sleep are at increased risk of becoming overweight, even after taking account of lifestyle factors, finds a study published in the British Medical Journal today.

Several studies have shown a relatively consistent relation between shorter sleep duration and increased body weight in children, but doctors are still not sure how sleep and body composition interact in early childhood and whether this shows cause and effect.

So a team of researchers in New Zealand set out to investigate whether reduced sleep is associated with differences in body composition and the risk of becoming overweight in young children.

They identified 244 children who were taking part in The Family Lifestyle, Activity, Movement and Eating (FLAME) study in Dunedin, New Zealand.

Each child's weight, height, body mass index (BMI), and body composition were measured every six months from 3 to 7 years of age. Sleep habits and physical activity levels were assessed by accelerometry (the children wore a belt carrying a device that monitors body movement) and dietary intake by questionnaire at 3, 4 and 5 years.

Other factors, such as birth weight, mothers' education, income, BMI, smoking during pregnancy and ethnicity were also recorded because of known links with BMI in children.

Average sleep duration was about 11 hours per day at all three ages.

The results show that young children who sleep less are at a significantly increased risk of having a higher BMI by age 7, even after controlling for other risk factors that have been implicated in body weight regulation.

Each additional hour of sleep per night at age 3 to 5 years was associated with a reduction in BMI of 0.49 and a 61% reduction in the risk of being overweight or obese at age 7.

In a child of average height, this corresponds to a difference of 0.7kg body weight. While this might seem minor at an individual level, the benefits for public health, if applied at the population level, are considerable, say the authors.

More importantly perhaps, the reductions in BMI were due to differences in fat mass, rather than any effect on fat-free mass, showing that poor sleep has negative effects on body composition.

They suggest that reduced sleep may increase dietary intake and may also influence energy expenditure, leading to reduced exercise.

In conclusion, it appears that sleep is an important determinant of future body composition in young children, say the authors. They recommend that appropriate sleep habits should be encouraged in all children as a public health measure, and call for more studies to determine whether more sleep or better sleeping patterns impact favourably on body weight and other health outcomes.

This view is supported in an accompanying editorial by Professor Francesco Cappuccio and Associate Professor Michelle Miller from the University of Warwick. They say that, not only may prolonged lack of

sleep be a direct contributor of overweight and obesity in children, it could also have other effects on long term health.

They call for future research to explore new behavioural methods to prolong children and adults' sleeping time, and suggest that, in the meantime, it would do no harm to advise the general public of all ages that a sustained curtailment of sleeping time might contribute to long term ill-health in both adults and children.

Provided by British Medical Journal