



# American Academy of Sleep Medicine

March 4, 2013

First Lady Michelle Obama  
The White House  
1600 Pennsylvania Avenue NW  
Washington, DC 20500

Dear Mrs. Obama:

On behalf of the Board of Directors of the American Academy of Sleep Medicine (AASM), I commend you for combatting the epidemic of childhood obesity in the U.S. by launching the Let's Move initiative in 2010 and expanding it with the Let's Move! Active Schools program in 2013. The AASM is a professional society representing more than 10,000 physicians, scientists, and allied health professionals in the medical subspecialty of sleep medicine, and we strongly support your passionate initiative to improve the health and well-being of our nation's children by "solving the problem of obesity within a generation."

As you are well aware, the achievement of the White House Task Force on Childhood Obesity's ambitious goal of reducing the childhood obesity rate to just five percent by 2030 will require a comprehensive approach addressing the complex risk factors that contribute to weight gain in children. A study that was published last month emphasizes the necessity of addressing multiple risk factors in childhood obesity interventions. The three-year follow-up study of 182 overweight or obese children found that even the largest increase in physical activity produced only small changes in body mass index (BMI).<sup>1</sup>

Certainly it is strategic for the Let's Move initiative to focus on child nutrition and physical activity as two of the primary targets for obesity education and intervention. However, we believe that the initiative is overlooking the importance of sleep as the third pillar of a healthy lifestyle, thereby reducing the opportunity for Let's Move to maximize its impact on childhood obesity. Last year the AASM and the Sleep Research Society published a white paper that describes how sleep is as important to adult health as good nutrition and adequate exercise.<sup>2</sup> (A copy of the paper is attached for your review.) Furthermore, research suggests that the role of sleep as a determinant of health status may be even more significant during childhood.

<sup>1</sup> Trinh A, Campbell M, Ukoumunne OC, et al. Physical activity and 3-year BMI change in overweight and obese children. *Pediatrics*. 2013 Feb;131(2):e470-7. Epub 2013 Jan 14.

<sup>2</sup> Luyster FS, Strollo PJ Jr, Zee PC, Walsh JK; Boards of Directors of the American Academy of Sleep Medicine and the Sleep Research Society. Sleep: a health imperative. *Sleep*. 2012 Jun 1;35(6):727-34.

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The May 2010 Task Force on Childhood Obesity's report to the President noted that "insufficient sleep has been linked to a heightened risk of obesity" and mentioned that "the recommended amount of sleep" is an important message that should be shared with parents when disseminating information about dietary guidelines. However, although the report included examining "the efficacy of increased habitual sleep time on metabolic regulation" as a key question for future research, the task force made no mention of sleep in its summary of recommendations. Sleep also was absent from the task force's one-year progress report, which was submitted to the President in February 2011. We contend that these omissions have failed to take into account an abundance of scientific evidence indicating that habitual short sleep duration is a significant and modifiable risk factor for obesity in children.

A wealth of peer-reviewed research has suggested multiple potential mechanisms of causality for this relationship.<sup>3</sup> For example, studies suggest that short sleep produces hormonal and metabolic changes, such as a disruption in the levels of the hunger and appetite hormones leptin and ghrelin; provides more opportunities for eating and enhances cravings for unhealthy foods, leading to an increased caloric intake; and causes daytime fatigue, which reduces energy expenditure.

Sleep also is increasingly being recognized for its important role in the regulation of blood glucose metabolism.<sup>4</sup> Insufficient sleep is a potential risk factor for type 2 diabetes, which according to the CDC has been reported among U.S. children and adolescents with increasing frequency over the last two decades.<sup>5</sup> For example, a recent study of healthy high school students found that reduced sleep duration is associated with increased insulin resistance, suggesting that interventions to extend sleep duration may reduce diabetes risk in adolescents.<sup>6</sup>

Although much of the research in this domain has been cross-sectional, a systematic review published in 2012 analyzed and summarized the findings of 20 longitudinal studies that examined the relationship between sleep duration and subsequent weight gain. (A copy of the review is attached for your consideration.) All seven of the studies that involved children reported an association between short sleep duration and increased weight, overweight, obesity and/or adiposity, leading the authors to conclude that "shorter sleep duration consistently predicts subsequent weight gain in children."

It is interesting to note that similar findings have been reported both in the U.S. and in other developed countries. For example, a Harvard study of 915 children in the U.S. found that infants with a daily short sleep duration were two times more likely to be overweight at age 3 (odds ratio

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<sup>3</sup> Magee L, Hale L. Longitudinal associations between sleep duration and subsequent weight gain: a systematic review. *Sleep Med Rev.* 2012 Jun;16(3):231-41. Epub 2011 Jul 23.

<sup>4</sup> Leproult R, Van Cauter E. Role of sleep and sleep loss in hormonal release and metabolism. *Endocr Dev.* 2010; 17: 11–21.

<sup>5</sup> CDC. National Center for Chronic Disease Prevention and Health Promotion. Division of Diabetes Translation. Children and diabetes [Internet]. Updated 2011 May 20. Available from: [http://www.cdc.gov/diabetes/projects/diab\\_children.htm](http://www.cdc.gov/diabetes/projects/diab_children.htm)

<sup>6</sup> Matthews KA, Dahl RE, Owens JF, Lee L, Hall M. Sleep duration and insulin resistance in healthy black and white adolescents. *Sleep.* 2012;35(10):1353-1358.

= 2.04).<sup>7</sup> Similarly, a study of nearly 5,500 children in the U.K. reported that those with a short sleep duration at age 3 were 45 percent more likely to be obese at 7 years of age (OR = 1.45).<sup>8</sup> Furthermore, a study of more than 1,100 young children in Quebec found that the risk for overweight or obesity at age 6 was four times higher for children with a persistent, short sleep duration (OR = 4.2).<sup>9</sup>

Consistent with the task force's recommendation to emphasize creating a healthy start on life in early childhood, one of the longitudinal studies also suggests that the relationship between short sleep duration and subsequent weight gain may be strongest in younger children.<sup>10</sup> The study from Northwestern University involved a nationally representative sample of nearly 2,300 participants. Results show that among children between 3 and 7 years of age, an additional hour of sleep at baseline was associated with the subsequent probability of being overweight and a decrease in standardized BMI after five years. However, there was no significant association between sleep and either weight or BMI among children who were between 8 and 12 years of age at baseline.

References to the importance of sleep in Let's Move resources are sparse, serving only as brief sub-points in materials that focus on promoting physical activity, healthy eating or parental engagement. The topic of sleep easily could become an integrated part of the initiative's current resources such as the health care provider prescription form and the action plan for parents. However, we believe that a more comprehensive emphasis on sleep would be most appropriate for the ambitious goals of the Let's Move initiative and would create added synergy when sleep is promoted along with activity and nutrition.

An example of a program that balances all three of these priorities is EatSleepPlay™, a health initiative of The Children's Museum of Manhattan that strives to help children "eat healthy, get enough sleep and exercise." In November 2011 you visited the Royal Castle Child Development Center in New Orleans, where the Louisiana Children's Museum is utilizing the EatSleepPlay curriculum to engage children and their parents in the fight against obesity.

As the leading voice in the field of sleep medicine, the AASM is prepared to offer any assistance that would be required to adapt existing materials or create new resources to make sleep a part of the Let's Move initiative. Last year the AASM redesigned its brochure on the topic of "Healthy Sleep in Children," and two picture books recently published by the AASM capitalize on children's fascination with animals to teach them about the importance of sleep. In November the AASM re-launched its public education website at [www.sleepeducation.com](http://www.sleepeducation.com), where accurate information is provided about sleep and common types of sleep illness. A subsection of the

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<sup>7</sup> Taveras EM, Rifas-Shiman SL, Oken E, et al. Short sleep duration in infancy and risk of childhood overweight. *Arch Pediatr Adolesc Med.* 2008 Apr;162(4):305-11.

<sup>8</sup> Reilly JJ, Armstrong J, Dorosty AR, et al. Early life risk factors for obesity in childhood: cohort study. *BMJ.* 2005 Jun 11;330(7504):1357. Epub 2005 May 20.

<sup>9</sup> Touchette E, Petit D, Tremblay RE, et al. Associations between sleep duration patterns and overweight/obesity at age 6. *Sleep.* 2008 Nov;31(11):1507-14.

<sup>10</sup> Snell EK, Adam EK, Duncan GJ. Sleep and the body mass index and overweight status of children and adolescents. *Child Dev.* 2007 Jan-Feb;78(1):309-23.

website at <http://school.sleepeducation.com> features cross-curricular lesson plans and activities that teachers can use to discuss sleep with their students. The website's online directory of AASM accredited member sleep centers also makes it easy for parents to find a local sleep center that will provide exceptional medical care for sleep problems that are common in children, such as obstructive sleep apnea.

To discuss how the AASM can provide assistance to Let's Move, please contact AASM Executive Director Jerry Barrett at (630) 737-9700. I thank you again for taking a leadership role in uniting key stakeholders and inspiring families to tackle the childhood obesity crisis, and I hope that the AASM can play a role in helping Let's Move achieve its goals.

Sincerely,

Sam Fleishman, MD  
President

Enclosures (2)

cc: Cecilia Muñoz, Director, Domestic Policy Council  
Jerome Barrett, Executive Director, American Academy of Sleep Medicine