To Sleep or To Exercise: That is the Question!
by Rachel Y. Moon MD, Associate Editor, Digital Media, Pediatrics

"Healthy guidelines" suggest that school-aged children and adolescents should get 9-11 hours of sleep, at least 1 hour of moderate-vigorous physical activity, several hours of light physical activity, and no more than 2 hours of recreational screen time. School-aged children and adolescents also need to go to school (in-person or virtually), eat meals, and do their homework. And then some have jobs. And they also need some time with friends. How are there enough hours during the day? And how do you balance them? Is getting up one hour earlier to go to swim practice worth it because you're getting an extra hour of moderate-vigorous physical activity? Trying to do everything - and trying to do it so that you are maximizing health - is enough to make your head swim (pun intended)!

What are the trade-offs in time that are worthwhile? Fortunately, among Pediatrics' early released articles this week, there is a great article by Emily Ng and colleagues in Australia, entitled "Equivalence Curves for Healthy Lifestyle Choices," which tackles this question (10.1542/peds.2020-025395).

The authors analyzed data from an Australian population-based, longitudinal birth cohort that were collected when the participants were 11-12 years old. They used accelerometer data to determine how much time each day was spent in sleep, sedentary awake time, light physical activity, and moderate-vigorous physical activity. Next, they looked to see how these time allocations were associated with 3 outcomes: adiposity, physical and psychosocial health, and academic achievement.

Lastly, they calculated "equivalent trade-offs". For instance, would 10 minutes more moderate-vigorous physical activity be equivalent to 30 minutes more sleep to increase academic achievement by 1 standard deviation?

The authors found that you get the most benefit per minute with moderate-vigorous physical activity. For instance, if you want to decrease adiposity, 17 minutes of moderate-vigorous physical activity is of equal benefit as 52 minutes of additional sleep or 56 minutes of light physical activity. There are similar calculations for the other outcomes, and I encourage you to read the paper to learn about these.

How does this help us when we counsel families about healthy habits? In an accompanying commentary (10.1542/peds.2020-042168), Dr. Michelle Cardel, Faith Newsome, and Dr. Joseph Skelton from the University of Florida and Wake Forest University note that we can guide families to focus on activities that are the most beneficial for adiposity and physical and psychosocial health. From Ng et al's results, clearly one will get more bang for the buck with a few minutes of moderate-vigorous physical activity.

Of course, everyone is so busy nowadays that it seems hard to squeeze in time for anything more. It is even
harder for families with single parents, parents who work more than one job, and families who live in unsafe neighborhoods to try to exercise more. And then of course the pandemic has made it even harder to go outside to exercise. I have become a big fan of the Scientific 7-Minute Workout, which anyone can do at home with no equipment except for a wall and a chair, and I recommend this as an activity for parents and children to do together. Parents often seem skeptical that 7 minutes of exercise can be enough, and even though I have always been reassuring about that, Ng's study provides additional data to support this advice.

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