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How many calories does it take to reach childhood obesity prevention goals?

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In order for the nation to achieve goals set by the federal government for reducing obesity rates by 2020, children in the United States would need to eliminate an average of 64 excess calories per day, researchers calculated in a study published today in the *American Journal of Preventive Medicine*. This reduction could be achieved by decreasing calorie intake, increasing physical activity, or both. Without this reduction, the authors predict that the average U.S. youth would be nearly four pounds heavier than a child or teen of the same age was in 2007-2008, and more than 20% of young people would be obese, up from 16.9% today.

"Sixty-four calories may not sound like much individually, but it's quite a consequential number at the population level, and children at greatest risk for obesity face an even larger barrier," says Y. Claire Wang, MD, ScD, assistant professor of Health Policy and Management at Columbia University's Mailman School of Public Health and lead author of the study. "Closing this gap between how many calories young people are consuming and how many they are expending will take substantial, comprehensive efforts."

The daily difference between how many calories young people consume and how many they expend through normal growth, body function and physical activity is known as the energy gap. The 64-calorie difference between consumption and expenditure is an average for the population. Dr. Wang and her colleagues note it is not intended to represent a change for any individual young person, and that many young people would

need to see even greater reductions.

In particular, children and teens who currently have higher obesity rates would require larger energy gap reductions to reach the obesity rate goal. For instance, based on their current obesity rates, white youths would need a 46-calorie reduction, on average, in their energy gap to reach the goals. But given their higher obesity rates in 2008-2010, the average reduction needed to close the energy gap for Mexican-American youths is 91 calories and, for black youths, it is 138 calories. Youths in lower-income communities also need greater reductions than their peers in higher-income areas, again due to higher rates of obesity. Additionally, an earlier study by several of the same researchers found that the problem is especially acute for teens who are already overweight.

In order to project how many young people would be obese in 2020, Dr. Wang and her colleagues analyzed decades of data on obesity rates. Height and weight among U.S. youths ages 2-19 were taken from National Health and Nutrition Examination Surveys from 1971 to 2008. Based on the trends, the authors projected that the childhood obesity rate would be about 21% in 2020, up from 16.9% now.

Dr. Wang and her colleagues then compared the projected rate of 21% to the goal of 14.6% set by the U.S. Department of Health and Human Services in a 2010 report titled Healthy People 2020 and calculated how much of a daily energy gap the average youth would need to close in order to achieve that goal. A childhood obesity rate of 14.6% has not been seen since 2002.

"Reaching the 2020 goal will require significant changes to calories consumed and expended," said C. Tracy Orleans, PhD, co-author of the study and senior scientist at the Robert Wood Johnson Foundation. "Because we know that children and teens who already are overweight or obese will need larger reductions, and that preventing obesity will be

more effective than treating it, we must focus our attention on the policy and environmental changes likely to have early, broad, and sustainable impacts."

The authors outline several policy strategies that could help to close the daily energy gap for American youths. For instance, they point to research showing that:

- replacing all sugar-sweetened beverages in school with water and not consuming any additional sugary beverages outside of school could reduce the energy gap by 12 calories per day;
- participating in a comprehensive physical education program could eliminate 19 calories per day among children ages 9-11; and
- engaging in an after-school activity program for children in grades K-5 results in an additional 25 calories expended per day.

In a commentary accompanying the study, William H. Dietz, MD, PhD, director of the Division of Nutrition, Physical Activity, and Obesity at the U.S. Centers for Disease Control and Prevention, writes that the research "provides important data that highlight the promise of prevention and raise the challenge of treatment in children and adolescents."

Provided by Columbia University

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