

Doing the math to fight childhood obesity

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Dieters often use online calorie calculators to stay true to their weight-loss plan. Translating the concept to the population health arena, researchers at Columbia University's Mailman School of Public Health created the [Caloric Calculator](#) to help policymakers, school district administrators, and others assess the potential impact of health policy choices on childhood obesity.

Select a target population (middle-school-age boys, for example) and the Caloric Calculator tells you the percentage of this group who are obese (18%) and the average daily calorie cuts necessary to meet two goals: returning them to obesity levels for that population in the year 2000 and the early 1970s (109 and 237 kcal, respectively). The user can then choose from a menu of 14 interventions: 30 minutes of daily PE time, for example, would reduce 49 kcal; eliminating one can of soda would cut an additional 136 kcal; and restricting television time by 60 minutes would cut another 106 kcal. Each time an intervention is added, the Calculator displays a graph illustrating the cumulative impact on obesity goals. In this example, both goals are met.

"While childhood obesity can sometimes seem like an insurmountable problem, there are many proven interventions that can make a difference. The Caloric Calculator shows that, when implemented in combination, they add up to what is needed," says Claire Wang, MD, ScD, Assistant Professor in the Department of [Health Policy & Management](#), who led the development of the tool.

While the Caloric Calculator is geared for policymakers, it may also

prove useful to parents and teachers who want to be informed about the relative merits of ways to fight childhood obesity in their community.

In developing the Calculator, Dr. Wang and colleagues conducted an extensive review of scientific literature on [physical activity](#), dietary, and other preventive interventions to estimate their impact on children's "energy gap"—the difference between the number of calories consumed each day and the number of calories required to support normal growth and physical activity. Excess weight gain occurs when energy intake exceeds energy expended over a period of time, explains Dr. Wang.

"One of our goals with the Calorie Calculator is to encourage more researchers to use calories as a measure for the effectiveness of obesity-related programs and policies," she says. "This will allow us to add new menu items to the Calculator, increasing the options for fighting the epidemic of childhood obesity."

"The Caloric Calculator quickly shows you that not all policy changes are equal—some strategies can make a major dent in childhood obesity risk... and others not so much," says Steven Gortmaker, PhD, Professor of the Practice of Health Sociology, Harvard School of Public Health. "This tool should be required when policymakers are considering their choices."

Currently, one in three children and adolescents are obese. The government's Healthy People 2020 initiative seeks to reduce the overall childhood obesity level to 14.6% by 2020. In order to meet this goal, an average American child would need to reduce 64 calories per day, either by reducing calories intake or by increasing physical activity, according to research by Dr. Wang.

The Caloric Calculator is entered into the [Childhood Obesity](#) Challenge, an online competition administered by the *American Journal of*

Preventive Medicine. Funding for developing the tool was provided by the Robert Wood Johnson Foundation.

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