

Changes in specific dietary factors may have big impact on long-term weight gain

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In a series of three separate studies looking at how changes in multiple dietary and other lifestyle factors relate to long-term weight gain, Harvard School of Public Health (HSPH) researchers found that modest changes in specific foods and beverages, physical activity, TV-watching, and sleep duration were strongly linked with long-term weight gain. Changes in diet, in particular, had the strongest associations with differences in weight gain.

The study appears in the June 23, 2011, issue of the [New England Journal of Medicine](#).

Prior research has often focused on methods for weight loss after obesity has developed. Less is known about factors linked to long-term term weight gain.

"An average adult gains about one pound per year. Because the weight gain is so gradual and occurs over many years, it has been difficult for scientists and for individuals themselves to understand the specific factors that may be responsible," said lead author Dariush Mozaffarian, associate professor in the Department of Epidemiology at HSPH and Division of [Cardiovascular Medicine](#), Brigham and Women's Hospital (BWH), and Harvard Medical School.

The researchers evaluated changes in multiple specific [lifestyle factors](#) and weight gain every four years over 12 to 20 years of follow-up in three separate large cohorts, the Nurses' Health Study (NHS), the Nurses'

Health Study II (NHS II), and the Health Professionals Follow-up Study (HPFS). The final analyses included 50,422 women in the NHS, 47,898 women in NHS II, and 22,557 men in HPFS, all of whom were free of obesity or [chronic diseases](#) at the beginning of the study. Study participants gained an average of 3.35 lb during each four-year period, which corresponded to a weight gain of 16.8 lb over the 20-year period.

When relations of [lifestyle changes](#) with weight gain were evaluated, the findings were strikingly similar in all 3 studies.

For example, the foods associated with the greatest weight gain over the 20-year study period included [potato chips](#) (for each one increased daily serving, +1.69 lb more weight gain every 4 years), other potatoes (1.28 lb), sugar-sweetened beverages (1.00 lb), unprocessed meats (0.95 lb), and processed meats (0.93 lb). Of note, several foods associated with less weight gain when their consumption was actually increased, including vegetables (−0.22 lb), whole grains (−0.37 lb), fruits (−0.49 lb), nuts (−0.57 lb) and yogurt (−0.82 lb). Evaluating all changes in diet together, participants in the lower 20% of dietary changes gained nearly 4 lbs more each 4 years than those in the top 20% —an amount equivalent to the average weight gain in the population overall.

For diet, focusing only on total calories may not be the most useful way to consume fewer calories than one expends, say the researchers. Other yardsticks, such as content of total fat, energy density, or sugars, could also be misleading. Rather, they found that eating more healthful foods and beverages—focusing on overall dietary quality—was most important.

The most useful dietary metrics for preventing long-term weight gain appeared to be:

- Focus on improving carbohydrate quality by eating less liquid sugars (e.g. soda) and other sweets, as well as fewer starches (e.g. potatoes) and refined grains (e.g. white bread, white rice, breakfast cereals low in fiber, other refined carbohydrates).
- Focus on eating more minimally processed foods (e.g. fruits, vegetables, whole grains, nuts, yogurt) and fewer highly processed foods (e.g. white breads, processed meats, sugary beverages).

Such a more healthful dietary pattern could influence long-term weight gain in many ways, including, for example, through biologic effects such as changing hunger, insulin levels, or satiety, or by improving eating behaviors related to average portion sizes and patterns of foods and beverages consumed.

"These findings underscore the importance of making wise food choices in preventing [weight gain](#) and obesity," said Frank Hu, professor of nutrition and epidemiology at HSPH and senior author of the paper. "The idea that there are no 'good' or 'bad' foods is a myth that needs to be debunked."

The results also showed that changes in physical activity and TV-viewing influenced changes in weight. Also, those who slept 6-8 hours a night gained less weight than those who slept less than 6 or more than 8 hours.

Overall, the weight-changes associated with any one lifestyle change were fairly small. However, together they added up, especially for diet. "Small dietary and other lifestyle changes can together make a big difference – for bad or good," said Mozaffarian. "This makes it easy to gain weight unintentionally, but also demonstrates the tremendous opportunity for prevention. A handful of the right lifestyle changes will go a long way."

Provided by Harvard School of Public Health

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