

should emphasize behavior, eating a healthful diet, and regular physical activity, and not focus so much on the scale."

But others, such as Baylor's Foreyt, disagree. Given the epidemiological evidence linking obesity and disease, he says, weight loss itself is likely to be beneficial. He says that people with a BMI of 27 should "certainly" slim down, as should thinner people who have other risk factors like high blood pressure.

Adds Alison Field of Brigham and Women's Hospital in a 16 April letter to the editor in *The New England Journal*: "Even a modest degree of excess weight is associated with an increased risk of hypertension and diabetes, ... and clinicians would be remiss if they didn't discuss weight loss and weight maintenance with their overweight patients."

People on both sides of the debate can agree about one thing, however. An ounce of prevention is worth more than a pound of cure. Adults in their 20s and 30s, in particular, often gain a lot of weight and would be well advised not to do so. "Preventive measures are better than beating on obese people, who really can't do anything about it," Kassirer says. Brigham's Manson concurs: "My recommendation is to avoid exceeding a BMI of 25 by avoiding substantial weight gain during adulthood."

Perhaps, in the future, new medications may help those who need them to battle their weight (see p. 1383). But until then, as exercise physiologist Glenn Gaesser of the University of Virginia, Charlottesville, writes in another letter to *The New England Journal*, we might be wise "to heed one of Hippocrates' more insightful, if less well-known, aphorisms: 'Do not allow the body to attain extreme thinness, for that, too, is treacherous, but bring it only to a condition that will naturally continue unchanged, whatever that may be.'"

—Ingrid Wickelgren

#### Additional Reading

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#### DEMOGRAPHICS

## As Obesity Rates Rise, Experts Struggle to Explain Why

In the United States of the 1990s, signs of health consciousness are everywhere—except at people's waistlines. Low-fat foods, health clubs, and athletic gear have become multibillion-dollar industries, with Nike and Gatorade seemingly only slightly less ubiquitous than Microsoft. Statistics suggest that this health awareness is paying off. Since the early 1960s, blood pressure and blood cholesterol levels have been dropping, while rates of coronary heart disease mortality have declined by more than half. Given these trends, you might expect to see a trim, well-toned population, but you don't.

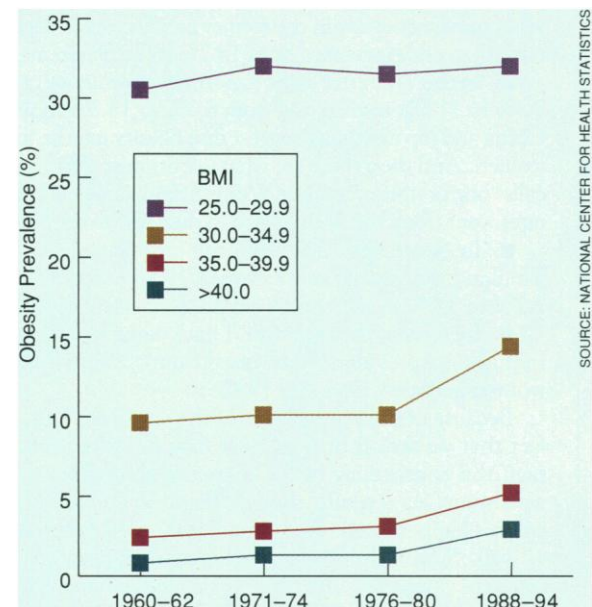
Since 1980, weights in the United States have been inflating at an alarming rate—and the rest of the world seems to be following suit (see sidebar). Currently, 22.5% of the U.S. population is considered to be clinically obese—compared to only 14.5% in 1980—and the end to the increase does not appear to be in sight. What's more, this "obesity epidemic," as many public health experts call it, affects all demographic groups, including children.

Much less clear is what's behind the increase, especially the big leap that seems to have occurred in the 1980s. Although many researchers blame increased food availability and declining physical activity (see p. 1371), "we don't have a terrific answer," says Bill Dietz, who directs the division of nutrition and physical activity at the Centers for Disease Control and Prevention (CDC). "We have not clearly identified the major changes in eating behavior or activity sufficient to account for the recent rapid increase in obesity."

The epidemic shows up mainly in data from the National Health and Nutrition Examination Surveys (NHANES), carried out by the National Center for Health Statistics (NCHS). So far there have been four data "cycles," covering the years 1960 to 1962 (known as the National Health Examination Survey or NHES), 1971 to 1974 (NHANES I), 1976 to 1980 (NHANES II), and the latest, conducted from 1988 to 1994 (NHANES III). The surveys include both interviews in the home and physical examinations and are considered to be a realistic portrait of the state of American health. "Through a very complex sampling

process, they are felt to be representative of the U.S. population—across all ages, income strata, and ethnic groups," says Bill Harlan, head of the Office of Disease Prevention at the National Institutes of Health (NIH).

The NHES survey, completed in 1962, found that 12.8% of the population was obese, with obesity defined as having a body mass index (BMI) greater than 30. [The BMI is calculated by dividing a person's weight in kilograms by their height in meters squared. By this measure, a 5'10" (1.78 m) individual would be considered overweight at 175 pounds



**Going up.** With the possible exception of preobesity (BMIs from 25.0 to 29.9), the prevalence of all classes of obesity seems to have ticked upward during the 1980s.

(80 kg) and obese at 210 pounds (95 kg).] The prevalence of obesity increased only modestly in the next 2 decades, going to 14.1% in the NHANES of 1971 to 1974 and 14.5% in the NHANES II of 1976 to 1980. But then the epidemic apparently set in.

By NHANES III, completed in 1994, the prevalence of obesity had increased by more than half, to 22.5% of the population. By the end of the survey, some 55% of the total population was officially considered overweight. "That is the big jump that has everyone concerned and surprised," says NCHS epidemiologist Katherine Flegal. Adding to the concern, the prevalence of obesity was slightly higher in the second 3 years of NHANES III than in the first, an indication



## Weight Increases Worldwide?

By now, it's well established that obesity in the United States is reaching epidemic proportions (see main text). For the rest of the world, the data are spotty at best. But because hints of the same trend show up around the globe, the World Health Organization (WHO) and the International Obesity Task Force (IOTF) have declared an obesity epidemic on a global scale. As the IOTF puts it, obesity, which increases the risk of developing such potentially fatal conditions as diabetes and heart disease, "poses one of the greatest threats to human health and well-being as the 21st century approaches."

The best evidence for an increase outside the United States comes from the United Kingdom, where data from the National Health Survey suggest that obesity rates jumped from 6% to 15% in men and from 8% to 16.5% in women between 1980 and 1994. For the rest of the world, the data from national health surveys and studies of small population samples look like this:

- In the Americas outside the United States, only Brazil and Canada have collected trend data. In Brazil, between 1976 and 1989, obesity prevalence increased from 3.1% to 5.9% in men and from 8.2% to 13.3% in women. In Canada, between 1978 and 1992, obesity prevalence went from 6.8% to 12.0% in men and 9.6% to 14.0% in women.

- In Europe, studies from Finland, the Netherlands, and Sweden suggest that the prevalence of obesity is increasing slightly in men and not at all in women. In contrast, an unpublished study in the former East Germany suggests that between 1985 and 1992, rates of obesity increased from 13.7% to 20.5% in men and 22.2% to 26.8% in women.

- In the Western Pacific region, the prevalence of obesity in Australia increased from 9.3% to 11.5% in men and from 8.0% to 13.2% in women between 1980 and 1989. In China and Japan, studies suggest that obesity may be increasing slightly in men but not in women. And then there are what nutritionist Tim Gill, scientific secretary for the IOTF, calls "horror stories," such as Western Samoa, where between 1978 and 1991 urban obesity rates went from 38.8% to 58.4% in men and from 59.1% to 76.8% in women.

- In Southeast Asia, the only meaningful data come from two small studies in Thailand, suggesting that between 1985 and 1991 obesity prevalence increased from 2.2% to 3.0% in men and from 3.0% to 3.8% in women.

- In Africa, the only trend data come from Mauritius, where one study suggests that obesity prevalence increased from 3.2% to 5.3% in men and 10.4% to 15.2% in women between 1987 and 1992.

Because of the poor quality of the data, says Gill, "you always have to reinforce the fact that we are on thin ice here making statements about levels of obesity." Still, he says, the consistency of the increases around the world is what makes the situation worrisome. As a result, the IOTF and WHO are working under the assumption that what is happening in the United States will eventually spread to the rest of the world as well. "Many things occur in modernization, and they occur in different times in different countries," he says. "The States happens to be at the fore of a number of changes that may in fact be conducive to obesity." —G.T.

that the epidemic might still be spreading.

Perhaps even more disturbing is the finding that obesity seems to be on the rise in all segments of the population. "There is a suggestion that the increases are a little greater in middle-aged men than in other groups," says Flegal. "But beyond that ... the increase is similar for men and women, for nonsmokers and smokers, and for all educational levels."

Even children haven't escaped. For children and adolescents, the BMI indicating overweight varies with age, so the adult definitions of overweight and obesity do not apply. Instead, the NHANES researchers identify children as overweight if they are over the age-specific 85th percentile of weight from the earliest survey and obese if they are above the 95th percentile. Using these definitions, the trends in children are only slightly different than in adults.

For instance, in boys ages 6 through 11, the percentage of those considered overweight showed a steady increase from 15.2% to 22.3% between 1963 and 1991. The percentage of overweight young girls stayed relatively constant through the first three surveys and then jumped from 15.8% to 22.7% between NHANES II and the first half of NHANES III. The same trends appear in adolescents ages 12 through 17. The most dispiriting numbers from NHANES are in African-American children and adolescents, although the sample size was small: The percentage of boys defined as obese jumped from 2.0% to 13.4%, while obesity rates in girls went from 5.3% to 16.2%.

Those are the data. The reasons behind them are less clear. According to work by Flegal and her colleagues, perhaps 20% of the

increase in overweight adults may be due to smoking cessation. "Men typically gain 8 to 9 pounds [3.5–4 kg], and women 11 to 13 pounds [5–6 kg], when they quit," says clinical psychologist Tom Wadden of the University of Pennsylvania.

Researchers generally attribute the rest of the increase to simple caloric imbalance. Somehow in the 1980s, the thinking goes, the effects of modernization—of computers, remote controls, and one or more cars in every garage—combined with an unprecedented abundance of cheap, energy-dense food to produce a population that eats more while becoming ever less physically active. "Food is probably cheaper and more available than it's ever been in history," says Xavier Pi-Sunyer, a Columbia University obesity researcher who recently chaired an NIH obesity task force. "At the same time, the workforce has gone to all kinds of labor-saving devices that mean most people at work are sedentary. They're also commuting longer, spending more hours sitting in a train or a car; they're passive observers at entertainment."

The catch is that none of this can be backed up by data. Both dietary intake and physical activity are very hard to measure on a population-wide scale. The dietary data that are available, says Flegal, show an average increase of a few hundred calories per day between NHANES II and NHANES III. Although that might account for the increased prevalence of obesity, "it's very hard to say whether the increase we're seeing is real or due to methodological improvements," Flegal says.

As for physical inactivity, the CDC's Behavioral Risk Factor Surveillance System suggests it is not increasing and may even be decreasing. "If you squint your eyes," says CDC epidemiologist David Williamson, "it looks pretty flat over time."

That raises another possibility, although it too has little evidence to support it: that Americans aren't getting fatter, they're just getting heavier, maybe because they're exercising. If Americans are exercising more, as the Nike phenomenon suggests, then they could be putting on lean body mass, which weighs more than fat. This could also help explain the decreases in blood pressure, blood cholesterol, and coronary heart disease mortality. But few obesity experts buy the idea. Dietz points out, for example, that everybody is getting heavier, including young boys and girls, and you just wouldn't expect that pattern if exercise was the explanation.

The bottom line, says Flegal, is that the increase is probably due to too much food and too little activity, but that still has to be backed up by good data. "It's probably just what we think it is. ... Everybody assumes it must be true, but the data don't quite fit."

—Gary Taubes