

Obesity in middle aged women cuts chance of a long, healthy life by 80 percent

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A new study by Harvard School of Public Health (HSPH) and Brigham and Women's Hospital (BWH) researchers has found that, among a large study population of women who lived until at least age 70, being overweight in mid-life was associated with having more health problems later in life, including multiple chronic diseases, and impaired cognitive function, physical function and mental health. Women who were lean at age 18 and maintained a healthy weight through mid-life had the best odds of achieving optimal health later in life. It is the first study to show the role adiposity may play in the overall health of women who survive to older ages.

The study appears online on September 30, 2009, and will appear in a later print edition of the [British Medical Journal](#).

The research addresses two of the major trends in the U.S. that will have a major impact on public health. First, Americans are getting older: From 1900 to 2000, the U.S. population aged 75 and older increased 26.4% and by 2040, for the first time in human history, there will be more people aged 65 and older than children less than [age](#) 5 in the world. The second challenge is that Americans are getting bigger: Almost two thirds of the U.S. population are overweight and one third are obese. The trends in the U.S. mirror those in other industrialized countries.

"Since body weight is a modifiable factor, the good news is that healthy aging is not purely the consequence of good genes or other factors that one cannot change. If [women](#) maintain a healthy weight as adults, they

may increase their odds of enjoying a healthy life in their later years," said Qi Sun, a researcher in the HSPH Department of Nutrition.

The researchers, led by Sun and senior author Francine Grodstein, associate professor in the Department of Epidemiology at HSPH and in the Department of Medicine at BWH, analyzed data from the BWH-based Nurses' Health Study, which began in 1976. The study population included 17,065 female participants who had survived until at least age 70. Body mass index (weight in kilograms divided by the square of height in meters), or BMI, and weight gain were measured over time, beginning at mid-life (age 50). Factors such as socioeconomic status, lifestyle, smoking and diet were controlled for in the study.

The results showed that 1,686 women (9.9%) who lived until at least age 70 reported being free of major chronic diseases, had good cognitive and physical functions and had good mental health. These women were defined as "healthy survivors." The remaining 15,379 women who lived until at least age 70 (90.1%) were defined as "usual survivors." Among these women, 3.3% had chronic diseases but no other health limitations; 59.5% had cognitive, physical or mental health limitations but no diagnosed major diseases; and 37.1% suffered from both [chronic diseases](#) and cognitive, physical and [mental health](#) limitations.

Women who had increased BMI in 1976, at the beginning of the study (the women's mean age at that time was 50 years), had reduced odds of healthy survival. Obese women (BMI greater than or equal to 30) had 79% lower odds of healthy survival compared with lean women (BMI = 18.5-22.9). The researchers also found that women who were overweight (BMI greater than or equal to 25) at age 18 and gained more than 22 pounds between age 18 and 50 had the worst odds of healthy survival and, for all three BMI categories at age 18, those who gained weight had lower odds of healthy survival compared with women who maintained a stable weight.

There were limitations in the study, including that the study population was primarily white, so the results may not be generalized to all populations.

The study provides new evidence that adiposity at mid-life may lower the odds of women having good overall health as they age and that maintaining a [healthy weight](#) throughout adulthood is important to optimal health as well. "An important aspect of this study is the broad focus on many aspects of health, and not just on whether people get a single disease. Our finding that being overweight at mid-life affects so many aspects of health simultaneously really emphasizes the harms of being overweight," said Grodstein.

More information: "Adiposity and weight change in mid-life in relation to healthy survival after age 70 in women: prospective cohort study," Qi Sun, Mary K. Townsend, Olivia I. Okereke, Oscar H. Franco, Frank B. Hu, Francine Grodstein, *British Medical Journal*, online September 30, 2009

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