
Excess Fat Around The Waist May Increase Death Risk For Women

Women who carry excess fat around their waists were at greater risk of dying early from cancer or heart disease than were women with smaller waistlines, even if they were of normal weight, reported researchers from Harvard and the National Institutes of Health.

Previous studies have shown that the tendency to deposit fat around the waist increases the risk for health problems. The current study is the largest, most comprehensive of its kind undertaken to show that accumulation of abdominal fat can increase the risk of death.

To conduct the study, the researchers analyzed data from more than 44,000 women in the Nurses' Health study, which followed the health history of thousands of registered nurses in 11 states.

"As we know from the work of the NIH Obesity Research Task Force, reversing the epidemic of obesity is challenging," said Elias A. Zerhouni, M.D., Director of the National Institutes of Health. "The current findings highlight the role that research can play in understanding the risks of obesity."

The research team that conducted the study was led by Cuilin Zhang, M.D., Ph.D., of NIH's Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). Dr. Zhang conducted much of her work on the study while at the Harvard School of Public Health. She concluded her analysis after joining the staff of the NICHD. The study was conducted in the research group of Dr. Frank Hu, M.D., Ph.D., of the Harvard School of Public Health, and by researchers from Brigham and Women's Hospital and Harvard School of Medicine.

Funding for the study was provided by the NIH's National Institute of Diabetes and Digestive and Kidney Diseases and the National Cancer Institute. The Nurse's Health Study was supported by NIH's National Heart, Lung and Blood Institute.

The study was published online in *Circulation*.

There is increasing evidence that excess abdominal fat is a risk factor for long-term conditions like diabetes and heart disease. However, the relationship between abdominal obesity and risk of death has not been widely studied. The current study is one of the largest extended investigations of abdominal obesity and women's risk of premature death.

Researchers followed more than 44,000 women over the course of 16 years to track their medical history and lifestyle. Because the majority of the women who took part in the study were white, the researchers do not know if their findings pertain to other groups of women or to men.

All the women included in the study were registered nurses. At the beginning of the study the women were asked to measure their waists and hips. Every two years, the

women completed questionnaires about their health, providing information about their age, activity level, smoking status, diet, blood pressure and cholesterol levels.

The researchers examined the cause of death for all women who died over the course of the study. In total, 3,507 deaths occurred - of these, 1,748 were due to cancer and 751 were due to heart disease.

The researchers discovered that women with greater waist circumferences were more likely to die prematurely, particularly from heart disease, when compared to women with smaller waists. For example, women with waist size equal to or greater than 35 inches were approximately twice as likely to die of heart disease as were women with a waist size less than 28 inches, regardless of their body mass index. Similarly, women with a waist size equal to or greater than 35 inches also were twice as likely to die of cancer as were women with a waist size less than 28 inches.

Women who had a greater waist circumference and were also obese were at the greatest risk of premature death. Researchers determined if a woman was overweight by calculating her body mass index (BMI), a measure of a person's weight in relation to height. BMI is used to estimate the proportion of a person's weight that derives from body fat. A BMI between 18.5 and 24.9 is considered healthy. A BMI of 30.0 - 39.9 is regarded as obese.

Greater waist circumference is a sign of collecting excess fat around one's midsection, called abdominal obesity. According to the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults published by NHLBI in cooperation with NIDDK in 1998, a healthy waist limit for women is 35 inches and, for men, 40 inches. Waist circumference is determined by measuring around the waist at the navel line. The NHLBI lists information on waist circumference and BMI [here](#).

In 2004, over one-half of U.S. adults had abdominal obesity by these standards, said Dr. Zhang.

The researchers also studied waist-to-hip ratio - a measure of the narrowest part of the waist compared to the circumference at the broadest part of the hip - as a potential determinant of mortality risk. Waist-to-hip ratio was found to be as strongly associated with risk of early death as the measurement of waist size alone. However, waist-to-hip ratio requires two measurements and therefore may be less convenient to calculate than measuring waist circumference alone, said Dr. Zhang.

The study authors wrote that results from previous studies have been inconsistent because of the relatively small number of people who took part and the short duration of the studies. The current study provides the strongest evidence so far regarding the adverse effects of abdominal obesity on the risk of death in women. The authors called for future studies to investigate abdominal obesity and the risk of death in men and other ethnic groups.

"Although maintaining a healthy weight should continue to be a corner stone in the prevention of chronic diseases and premature death, maintaining a healthy waist size should also be an important goal," the study authors wrote.

Learn more about weight control, obesity, physical activity, and related nutritional issues from NIDDK's Weight-control Information Network at

<http://win.niddk.nih.gov>. For Weight and Waist Measurement: Tools for Adults, visit [here](#).

Learn more about ways to maintain a healthy weight based on the Clinical Guidelines Expert Panel Report, visit the NHLBI's Aim for a Healthy Weight Web site <http://healthyweight.nhlbi.nih.gov>.

To calculate your BMI and assess your risk for conditions related to overweight and obesity, visit [here](#).

Information about obesity, weight, physical activity, diet, and cancer is available [here](#).

Information about the Nurse's Health Study is available [here](#).

The NICHD sponsors research on development, before and after birth; maternal, child, and family health; reproductive biology and population issues; and medical rehabilitation. For more information, visit the Institute's Web site at <http://www.nichd.nih.gov/>.

The National Institute of Diabetes and Digestive and Kidney Diseases, a component of the NIH, conducts and supports research in diabetes and other endocrine and metabolic diseases; digestive diseases, nutrition, and obesity; and kidney, urologic, and hematologic diseases. Spanning the full spectrum of medicine and afflicting people of all ages and ethnic groups, these diseases encompass some of the most common, severe, and disabling conditions affecting Americans. For more information about NIDDK and its programs, see <http://www.niddk.nih.gov>.

The National Institutes of Health (NIH) - The Nation's Medical Research Agency - includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases.



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