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Obesity and the Heart

An estimated 97 million adults in the United States are overweight or obese. Obese people have a substantially increased risk of hypertension, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, dyslipidemia, osteoarthritis, sleep apnea and respiratory problems, and endometrial, breast, prostate, and colon cancers. Obesity is the second leading cause of preventable death in the United States.

In addition to these other health problems, obesity can cause changes in the structure and function of the heart. This can happen even if you do not otherwise have heart disease.

What is obesity?

Doctors use the terms "overweight" and "obese" differently. Doctors often use a tool called body mass index (BMI) to determine if someone is overweight or obese. BMI is calculated using your weight in kilograms divided by your height squared in meters (kg/m^2). To translate pounds to kilograms, divide pounds by 2.24. To translate inches to meters, multiply inches by 2.54 and divide by 100.

"Overweight" is defined as a body mass index (BMI) of 25 to 29.9 kg/m^2 and obesity as a BMI of $\geq 30 \text{ kg}/\text{m}^2$.

Obesity can also be expressed in terms of the percentage over "ideal" body weight. Mild obesity is defined as 20% to 40% more than your ideal body weight. Moderate obesity is defined as 40% to 100% over your ideal body weight. Severe obesity is defined as more than 100% of your ideal body weight.

Understanding of exactly how and why obesity develops is incomplete. Obesity is related to both your environment and to genetics.

How does obesity affect the heart?

Obesity requires the heart to work harder than it normally would. Obese people have a larger volume of blood than non-obese people, so the heart must work harder to pump the extra blood. Because the heart muscle is working harder, the muscle tissue of the left ventricle (the lower left chamber of the heart), thickens. This can affect the heart's ability to contract and relax. This can lead to long-term problems like congestive heart failure.

Obesity is associated with high blood pressure, which also requires the heart to work harder, and causes the muscle tissue of the heart to thicken.

Severe obesity can also affect the rhythm of your heartbeat because of a condition called sleep apnea. Apnea refers to a period during sleep when breathing stops because passage of air to the lungs is obstructed by the weight of fat of the throat and neck. The apnea reduces the amount of blood in the oxygen, which can affect your heart's rhythm, as well as causing an increase in blood pressure in the lungs. Increased blood pressure in the lungs causes a strain on the right ventricle (the lower right chamber of the heart).

How is obesity treated?

A variety of effective options exist for the management of overweight and obese patients, including dietary therapy approaches such as low-calorie diets and lower-fat diets; altering physical activity patterns; behavior therapy techniques; treatment with drugs; surgery; and combinations of these techniques.

Does obesity cause coronary heart disease and heart attacks?

Because obesity is associated with a number of metabolic abnormalities including diabetes and elevated blood lipids, there is an increased risk of hardening of the arteries in patients with obesity. This increases the risk of heart attacks and sudden death.

If I lose weight, can these changes be reversed?

This depends in part on the severity of the changes that have occurred. Before significant damage has occurred, weight reduction and a gradual reconditioning program may completely restore health. There is strong evidence that weight loss in overweight and obese individuals reduces risk factors for diabetes and cardiovascular disease (CVD). Strong evidence exists that weight loss reduces blood pressure in both overweight hypertensive and nonhypertensive individuals; reduces serum triglycerides and increases high-density lipoprotein (HDL)-cholesterol; and generally produces some reduction in total serum cholesterol and low-density lipoprotein (LDL)-cholesterol.

Blood pressure should be treated vigorously as should abnormal blood lipids. Ask your doctor or nutritionist about prudent diet programs that are likely to result in long term success.