

Obesity

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Obesity is an excess of body fat that frequently results in a significant impairment of health. Doctors generally agree that men with more than 25% body fat and women with more than 30% are obese. Obesity is a known risk factor for chronic diseases including heart disease, diabetes, high blood pressure, stroke and some forms of cancer. Evidence suggests that obesity has more than one cause: genetic, environmental, psychological and other factors may all play a part.

The hormone leptin, produced by adipocytes (fat cells), was discovered about three years ago in mice. Subsequently the human Ob gene was mapped to chromosome 7. Leptin is thought to act as a lipostat: as the amount of fat stored in adipocytes rises, leptin is released into the blood and signals to the brain that the body has enough to eat. However, most overweight people have high levels of leptin in their bloodstream, indicating that other molecules also effect feelings of satiety and contribute to the regulation of body weight.

The discovery of leptin has initiated a flurry of research into the molecular basis of weight control. A whole network of signals contributes to weight homeostasis, and other key players are being discovered on an ongoing basis. Mice have proved to be an extremely useful model for human obesity, and have helped to begin to unravel the components that contribute to maintaining body weight. Since the market for effective weight-reducing therapies is enormous, drug companies are working alongside basic scientists to find possible drug targets among the tangle of molecules that control body weight.