



Unveiling obesity: An extensive study of its roots, consequences, and strategies for management

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Abstract

Obesity, a condition characterized by excessive body fat accumulation, distinguishes itself from being overweight, primarily indicating an excess of weight. This excess weight may stem not only from fat but also from an increase in muscle mass, bone density, or water retention within the body. Both conditions signify that an individual's weight surpasses what is considered healthy for their height. If an individual's body weight registers at least 25% higher than the accepted normal range, they are categorized as obese. This condition goes beyond mere weight concerns and encompasses various health implications due to excessive fat accumulation within the body.

Keywords: Body Mass Index (BMI) Genetics/Hereditary, metabolism, dietary fat, body fat, medical complication

Introduction

Obesity is a complex and multifaceted health condition characterized by an excess accumulation of body fat, presenting a significant health risk to individuals. It's assessed using the body mass index (BMI), a calculation based on a person's height and weight. When an individual's BMI reaches or surpasses 30, they're considered obese.

The causes of obesity are diverse, involving a blend of genetic, environmental, behavioural, and metabolic factors. Genetic predisposition can influence how the body stores and processes fat. However, environmental factors play a substantial role. Modern lifestyles, marked by sedentary behavior, easy access to high-calorie foods, and urbanization, contribute to the rising rates of obesity. Socioeconomic status, access to healthy foods, cultural norms, and built environments are additional factors shaping obesity prevalence.

Obesity poses significant health risks. It's a root cause of numerous chronic conditions, including type 2 diabetes, heart disease, stroke, hypertension, certain cancers, respiratory issues, musculoskeletal disorders, and mental health challenges like depression. It can also lead to reduced life expectancy and diminish overall quality of life.

Addressing obesity involves a comprehensive approach. Healthy eating habits, regular physical activity, and behavioural changes are fundamental. Incorporating a balanced diet rich in fruits, vegetables, lean proteins, and whole grains while reducing the intake of processed and high-calorie foods is crucial. Regular exercise, tailored to individual abilities and preferences, aids in weight management and overall health improvement.

Medical interventions might be necessary in severe cases. These can include prescription medications to manage weight or, in some cases, surgical procedures like gastric bypass surgery or gastric banding.

Public health initiatives and policies also play a vital role. These can encompass community programs promoting healthier lifestyles, education on nutrition and physical activity, regulations to limit unhealthy food marketing, and urban planning to encourage physical activity.

Tackling obesity requires a holistic and individualized approach, considering the complexities of its causes and the varied impacts on health. It's not solely about weight; it involves comprehensive lifestyle modifications, societal changes, and a supportive environment to foster healthier choices and reduce the burden of obesity-related health issues.

Obesity is one of those words that you hear used on the news all the time. You have a general idea of what it means. But are you right? Medically, someone who is obese has more fat on his or her body than is considered a healthy average for his or her height and bone structure.

Maintaining the ideal body weight is a contributor to a happy and healthy life. It is indeed hard work for many, who nowadays are bingeing on the many food options available due to the globalisation of the Indian market. Lifestyle changes, paucity of time, stress because of busy lives are also contributing to the culture of takeaways and engaging in unhealthy food practices. Indian households' have traditionally placed emphasis on eating food which is greasy and fat inducing in nature in the name of healthy food. Physical activity is accorded low priority generally. All of these lead to weight disorders.

Obesity nowadays is a major health problem with even schoolchildren being classified as obese due to a faulty dietary pattern and lack of sufficient activity. Obesity may be defined as an abnormal growth of adipose tissues due to an enlargement of fat cell size (Hypertrophic obesity) or an increase in fat cell number (hyperplastic obesity) or a combination of both.

Obese individuals have a high percentage of body fat deposited under the skin and around internal organs. Obesity is often expressed in terms of body mass index (BMI). Being overweight is usually due to obesity but can also arise from other causes such as abnormal muscle development or fluid retention.

Consequences of Obesity

- An obese person is prone to different diseases like high blood pressure, diabetes mellitus, osteoarthritis, arteriosclerosis, pulmonary and renal problems, sleep apnoea, gall stones, surgical risks, pregnancy complications and cancers of colon, breast, gall bladder and uterus. A high relative weight has been associated with an increased risk of a first major coronary attack for men in their forties.
- Obesity also leads to psychological problems, predisposes to mechanical disabilities and reduces life expectancy. Obese people often feel humiliated, neglected and unhappy. As a result, they may resort to food for solace which further aggravates the problem.
- The extra weight load of the body may cause flat feet and arthritis leading to pain in the hips, knees and spine.
- The abdominal and leg muscles which by contraction help the venous blood flow back to the heart get infiltrated with fat, thus impairing the normal mechanical action. This results in varicose veins and abdominal hernias.
- Adipose tissue in the chest and under the diaphragm interferes with normal respiration and predisposes to bronchitis. This also causes carbon dioxide retention and drowsiness.
- Slow and difficult movements make obese people more prone to accidents.

What about Fat?

Understanding obesity necessitates understanding the multifaceted nature of fat. The complexity arises from distinguishing between dietary fat, an essential component of food that provides energy and aids in various bodily functions, and body fat, integral to the body's composition and overall weight. Dietary fat serves as a crucial energy source, contributes to cell structure, regulates bodily functions such as blood pressure and heart rate, and assists in the transportation of vital vitamins throughout the body. Additionally, it plays a significant role in promoting healthy skin, hair, and nail growth and is crucial in aiding brain development in infants and toddlers.

Conversely, body fat, often referenced concerning weight or body composition, is an intrinsic component of the human body. It serves as a layer of insulation, providing warmth to the body and playing a vital role in maintaining physiological balance.

Achieving a healthy weight stands as a key aspect in combating obesity. The commonly utilized Body Mass Index (BMI) is a tool employed to assess whether an individual's weight aligns with their height, indicating if they might be excessively heavy for their stature. However, while BMI is widely used, it does not discern the proportion of weight attributed to muscle versus fat. For instance, highly active individuals with substantial muscle mass may register as overweight based on BMI, despite having a higher muscle-to-fat ratio.

Alternate methods, like body fat percentages, offer a more nuanced evaluation. They account for differences between genders, as women naturally carry a higher body fat percentage than men due to variations in muscle mass. Striking the right balance in body fat percentage is crucial for proper bodily function; dropping below the optimal levels can lead to health complications, including heart disease and fertility issues.

Ideally, individuals who maintain a regular exercise regimen and adhere to a balanced diet should have an optimal body fat percentage, neither too high nor too low. Women should aim for body fat percentages not exceeding 25% of total body weight, while men should maintain levels below 17%. Those surpassing these thresholds fall into the obese category based on body fat percentage.

Childhood obesity is an escalating concern, with increasing numbers of children, adolescents, and even preschoolers exhibiting signs of excessive weight. The prevalence of obesity among this demographic can have immediate repercussions, affecting concentration, cognitive development, and overall well-being. Proper nutrition and exercise are fundamental for children's growth, development, and learning. Yet, modern lifestyles, characterized by reduced physical activity and increased sedentary behaviors, have contributed significantly to this trend. These lifestyle shifts, marked by diminished physical activity, have adverse effects on children's health, impacting their ability to focus and learn effectively.

Medical Complication due to Obesity

Obesity contributes to various medical conditions, each posing significant health risks that underscore the criticality of addressing weight-related concerns.

High Blood Pressure: Obesity emerges as a crucial risk factor for high blood pressure, scientifically termed hypertension. With each heartbeat, the heart pumps blood through arteries, exerting force on the inner walls of

blood vessels, thereby creating blood pressure. Normal blood pressure typically measures below 120/80 (representing arterial pressure when the heart is pumping and at rest, respectively).

High Cholesterol

Excessive consumption of saturated and trans fats, often associated with the diets of overweight and obese individuals, results in elevated cholesterol levels. Around a quarter of overweight or obese individuals experience heightened cholesterol levels.

Stroke

A stroke occurs when an artery carrying oxygen to the brain ruptures or gets obstructed by a blood clot, leading to reduced oxygen supply to the brain, causing nerve cell damage. This damage affects various bodily functions, highlighting the criticality of maintaining optimal health. Obesity escalates the risk factors for strokes, including high blood pressure, diabetes, elevated cholesterol, and heart disease, while also acting as an independent risk factor. Among diseases, strokes rank as the third leading cause of death.

Arthritis

Obesity has been associated with conditions like osteoarthritis and gout, manifesting as joint pain, swelling, and stiffness. Osteoarthritis, commonly affecting older individuals, can be accelerated by obesity, particularly impacting joints in the hands, hips, back, and knees. Weight loss has been shown to alleviate symptoms and prevent the progression of osteoarthritis, especially in the knees.

Cancer

Obesity significantly heightens the risk of various cancers, encompassing post-menopausal breast cancer, kidney cancer, oesophageal cancer, colorectal cancer, and endometrial cancer. It's estimated that 25–30% of these cancers can be attributed to obesity and a sedentary lifestyle. Additionally, several other cancers, including those affecting the liver, stomach, prostate, cervix, gallbladder, ovaries, and pancreas, exhibit a higher mortality rate among individuals with higher BMI.

Conclusion

Cultivating healthy habits and embracing proper nutrition form the cornerstone of maintaining a robust, healthy body. While the body mass index (BMI) serves as a reference point, it should not be considered an absolute threshold for height-weight indices but rather an indicator for maintaining a healthy body. Eliminating obesity is pivotal in revitalizing the body and promoting a healthier lifestyle. Engaging in regular physical activities, adopting a positive mind-set, practicing yoga, and consuming a well-balanced diet are integral in combating obesity and fostering overall health and well-being.

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