

Obesity: Causes and Consequences

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Article Information

Submission date: 27/10 / 2020

Acceptance date: 8 /11/ 2020

Publication date: 31/ 12/ 2020

Abstract

Obesity complex health problem caused by a variety of reasons such as individual behavior and genes. Behaviors can include lack of activity, physical activity, drug use, dietary patterns and other types of exposure. Additional contributing factors include environment of physical activity, skills, food, food marketing, and promotion.

Obesity is dangerous because it linked to worse outcomes for mental health and lower quality of life. In the United States and around the world, obesity also linked to the leading causes of death, including diabetes, heart disease stroke, and some types of cancer. Obesity is a disorder of excess fats in the body. It is a chronic condition with a complex interaction between environmental and genetic factors. It related to high blood cholesterol levels, high blood pressure, fatty acid levels, insulin hypersensitivity and the accumulation of excess fat mass. More than one billion adults are overweight and 300 million of them at least are obese. More than a billion adults are overweight and at least 300 million are obese. It determined by the BMI and further estimated by the percentage of body fat and total body fat. Obesity is a danger for many secondary conditions such as cardiovascular disorders, retinopathy, neuropathy, pathological insulin resistance and cancer. Multiple factors that alter the incidence of obesity involve sex, age, and smoking, levels of growth hormone and metabolism of skeletal muscle.

Key words: obesity, waist circumference, body mass index, causes of obesity, epidemiology of obesity.

1: Introduction

According to the World Health Organization (WHO), obesity is the accumulation of excess body fat that adversely affects health It has been considered as one of the world's 10 greatest health risks affecting approximately 300 million people (60 million US adults alone [1,2,3,4,5]) worldwide.

The most exact techniques for body fat assessment are hydrostatic weights, measurements of absorption, bioelectrical impedance, and computerized tomography; It is also the most difficult technical method and requires specialized training and equipment. As a result, weight, height and indicators of skin layer thickness in general and clinical health work used as alternative measurement methods [6]. The international measure of obesity is the body mass index (BMI, kg / m²), weight and height index.



Subjects were classified as healthy (BMI <18 kg / m²), thin (BMI <25 kg / m²), obese (BMI 30.0 kg / m²), or obese (25) kg / m² ≤ BMI <30 kg / m²). An increased risk of illness and death is associated with increased BMI values. The great advantage of information about BMI is easy to obtain. However, the major drawback is that if the extra weight is a result of muscle, BMI is not always a measure of obesity. When used to assess obesity in adolescents and children, BMI must be corrected for age and gender because sex and growth hormones affect body height\weight and fat distribution in the body respectively [2, 6, 7, 8].

The waist circumference and the ratio of the waist circumference to the hip circumference were used to evaluate the body's fat distribution. Increased belly fat areas are a risk factor for the development of diabetes and cardiovascular disease (CVD) regardless of body mass. For waist circumference values greater than 102 cm (40.2 in for men and 88 cm (34.6 in for women), a higher risk of disease was considered. Waist-to-hip ratios greater than 1 for males and 0.85 for females are also indicated by an increased risk of obesity-related risk factors[6].

2: Obesity epidemiology

Globally, more than 1 billion adults are overweight and almost 300 million obese. Obesity rates in many countries have increased significantly. For example, in China (1989-1997), in less than 10 years, the prevalence of overweight individuals in women doubled and tripled in men [1, 9]. Approximately 65 percent of the American adult population is overweight, According to data from the National Health and Nutrition Examination Survey based upon BMI values (NHANES III, 1999-2000). These data reflect an improvement over the 56% high incidence rate observed in the previous evaluation (NHANES III, 1988-1994). With this pattern, the incidence of obesity in adults increased from 23% to 31% during the same period[1, 6, 7, 9]. Hill et al (2003) predicted the incidence of obesity and weight gain during 2008 based on body mass index distributions from the NHANES II and III studies. They demonstrated that to 39 percent of the adult American population, obesity would rise. Interestingly, according to NHANES III (1988-1994), the prevalence of obesity was higher in women than in men among American adults. In African Americans (37%) and Mexican Americans (33%), a greater prevalence of overweight women found than in the Caucasian population (22.7 %). The gender difference in the prevalence of obesity was mainly clarified by regulating the distribution of body fat by sex hormones. In general, women have a higher percentage of fat compared to men's total body weight. Because of the metabolic load of childbirth and childcare associated with women, this property is thought to be developmentally beneficial. However, it is far from understood that sex hormones play a physiological and molecular role in lipid distribution [10,11]. Obesity has been shown to be more prevalent among middle-aged adults in developed countries.

Remarkably, weight gain has been highest in adults between the ages of 24 and 34 in the United States. It is essential to know, however, that in the U.S. from 1988 to 1994, the prevalence of obesity has doubled compared to the previous decade. These statistics show that there is a rise in the number of overweight and obese individuals, but also a decline in the age at which a person reaches levels of overweight/obesity. Taken together, these data suggest that a younger population will be affected by the negative health effects of excess body fat [1,6,7, 9]. Direct health care costs in the United States reached almost \$ 70 billion (7 percent of total health costs) in 2001 due to the dangerous effects of obesity. Obesity was predicted to contribute for 5.5 to 7.8 per cent of total health care expenditure in 2003 and representing approximately 39.2 million business days lost annually in the USA [1,6].

3: Obesity Causes

Obesity, is the end upshot of the disparity in stuck between the energy intake and the expenditure. Environmental and hereditary conditions show a role in fatness pathogenesis., According to the energy equation of balance (energy consumption = energy yielded + stored energy), then intake and expenditure of energy must to be equivalent for the maintaining a stable and healthy weight. Yet, attributable to the increasing of the inactive life style with diet vagaries, the positive balance of energy has been formed in the mainstream of the developing countries [12,13]. In taking energy is openly subjective to conservational circumstances. Food industries can influence types and amounts of the food consumed, Because of the advance of food technologies. Raft and ration sizes of foods have been increased. Its been publicized that, the amount of the delivered food tin can disturb energy consumption. Besides, the accessibility of food in the advanced countries takes increased in the twenty years pasted. Collective effects of more and higher calories foods with minus workout has worked the increases in bodies weights that perceived in developing societies, [13,14]. Daily style such as a meal times, food penchants and slice sizes. Hip industrialization nations, its become relaxed for choosing fast food as an alternative of home foods. The social milieu can likewise influence the variety and, depletion of food built on the daily life rhythm. Subsequently, it's been seen as an improved partiality to eat without a physiological requests [13]. Food sensitive chattels can affect the pleasure scence during eating, for that reason, food choice. Due to fat is the main element answerable for taste in foods.

Furthermore, combining of fat with sugar, and salts can improve sensory stuffs and subsidizes to the choosing of food with a huge fat contented [13]. Energy yield can be separated into : basal metabolic rate, food thermal effects, and, energy expansion by

physical activity ;That three points represents about 70-60%, 10%, and 30-20% of the day-to-day energy expenses. The utmost amendable of these dynamics is the physical doings. Many factors affecting physical doings occurrence, e.g.; socioeconomic status, age, gender, , and schooling. Inopportunately, an inactive life style, become common in the technologically advanced realms due to the technological progresses [2]. Genetic factors also, contributed to obesity. During evolution periods, energy storageing as fat was a chief persistence revision. Still, with increasing food convenience and diminished physical motion, these "thrifty" genes can encouragement an obesity expression, its a survival hindrance. Quite a lot of population revisions estimated that the body mass heritability or body fat may due to genetic information of 24-70%. So its rash polygenical and may be contingent on sexes and ages [2, 13, 15, 16]. Fatness may be a consequence of diseases that mostly affect endocrine coordination. Obesity-related diseases are polycystic ovary syndrome, Cushing's disease, growth hormone hypothyroidism, hypogonadism, and deficiency. Weight gain may also have contributed to medications such as antidepressants, glucocorticoids, progestagens, and sulfonylureas [6, 13].

4:Health complications of obesity

Obesity is a long-lasting pathological disorder and it is a hazard factor for causing type 2 *Diabetes* mellitus and the cardiovascular diseases, (CVD). Increased metabolic syndromes such as insulin resistance, higher blood pressure, and dyslipidemias (high levels of total cholesterol, triglycerides, and LDL (low lipoprotein density and low levels of HDL (high lipoprotein density))[17,18,19,20] may be at greater risk than regular-weight individuals.

During gestation, obesity might cause a congenital aberrations, for example neural tube special effects, hypertension and gestation *diabetes*, polycystic ovarian diseases, ischemic stroke, colon cancer, sleep apnea, , the gastroesophageal reflux, Osteoarthritis, gallbladder disease , postmenopausal breasts cancer, and psychological disorders, such as the depression [21,22,23,24]. Conferring to the Rand Institute, Obesity is a greater risk for enduring diseases than poverty living, drinking or smoking.[1]. Treating obesity should emphasis on restoring the balance to energy intake and energy expenditure. Simply, these interferences may perhaps be separated into, three programs: diet adjustments, physical action enhancement, and clinical interferences [6,12,13]. For diet adjustment, it must diminishing energy ingestion. It has been publicized that weighty themes on a low-calorie regime (800-1500 Kcal / day) reducing body's weight by average of: 8% for a period of 3-12 months. Many revisions, stated that interference also works toward children and the adolescents Commercial popular diets were work greatly at a short term; they're do not bid a nutritionally balanced diets. Hence, the probable to losing weight but to progress other healthy

complications following to poor diet remains found [12, 13]. Increasing the physical activity, can be used for steadiness the expenditure of energy in adults and children by increasing amounts of energy used. It is very effectual as it increases bodies energy used and the basal metabolic rate and it is affects the mental and physical state, and its increases persons self-confidence, reliefs disposition, lowering cardio-vascular diseases.

It is important to know that physical commotion only without diet modifications has a minor outcomes on weight defeat than that attained with both the intrusions [6,13]. Pharmacological remedies can be distributed in to a three strategies: for reducing food intake through increasing the sense of satiety; inhibiting the intestinal assimilation and absorption of the fat; and causing weight loss by increasing energy expenditure. Pharmacological dealings that were used along with life stylishness changes for the 6-12 ms abridged body weights at a range of 2-10 Kgr in fat people in accordance to recent randomized controlled trials. Conversely, as a result of the cross effects of obesity drugs; they're only suggested for people who were have a greater fitness complications to obesity. Oppositely, surgical interpositions were used for reducing the food intakes by the changing of the gastrointestinal capability. While gastric bypasses resulting in significant weight losing, the intrusion was signposted for individuals who were failed of using of the interventions pronounced in above [13]. Nearby, is a great necessity for a sturdier nutritional acquaintances of the medically practitioners. Formerly, a huge of medical institutes do not propose this strategy of the training. Thus, the consultants haven't the abilities to direct and attendant their patients about life-style deviations. The community's health and nutritional education should be a dominant way to change the lifestyle of the population. A non-smoking campaign is a well-known example. The number of smokers has decreased significantly In the past two decades; It has been decreased from 50% to 25% ,and with certain revisions indicating a lessening to 16% of adult smokers in many populations cohorts.

5. Conclusion

This review may conclude that obesity is a multifactorial disease caused by an excessive accumulation fat and an increase in BMI. It occurs due to an imbalance in food intake and energy expenditure . The assessment could be performed using the fat diet and viral and genetic induced obesity models. Hence, the search and evaluation for new treatment strategies are required to prevent this common disease worldwide. It is therefore important to prevent excess weight gain, not just for general health but to avoid the more serious problems obesity can cause. Fortunately, losing excess weight can often slow or reverse many of these disorders.



Conflict of Interests.

There are non-conflicts of interest .

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الخلاصة

السمنة مشكلة صحية معقدة تنتج عن مجموعة من الأسباب والعوامل الفردية مثل السلوك والوراثة. يمكن أن تشمل السلوكيات النشاط البدني وقلة النشاط والأنماط الغذائية واستخدام الأدوية وأنواع التعرض الأخرى. السمنة خطيرة لأنها ترتبط بنتائج أسوأ على الصحة العقلية وانخفاض نوعية الحياة. ترتبط السمنة أيضًا بالأسباب الرئيسية للوفاة في الولايات المتحدة وفي جميع أنحاء العالم ، بما في ذلك مرض السكري وأمراض القلب والسكتة الدماغية وبعض أنواع السرطان. السمنة هي حالة مرضية مع زيادة الدهون في الجسم وهو اضطراب مزمن مع تفاعل معقد بين العوامل الوراثية والبيئية، تتميز بارتفاع نسبة الكوليسترول في الدم ومستويات الأحماض الدهنية وإزالة حساسية الأنسولين، ضغط الدم المرتفع وتراكم الكتلة الدهنية المفرط. في الوقت الحالي يعاني أكثر من مليار بالغ من زيادة الوزن و300 مليون منهم على الأقل يعانون من السمنة المفرطة. يتم تحديده من خلال مؤشر كتلة الجسم ويتم تقييمه بشكل أكبر من خلال نسبة الدهون في الجسم وإجمالي الدهون في الجسم. تشكل السمنة خطراً على العديد من الحالات الثانوية مثل اضطرابات القلب والأوعية الدموية ومقاومة الأنسولين المرضية واعتلال الشبكية والاعتلال العصبي والسرطان. العوامل المختلفة التي تغير تطور السمنة هي العمر والجنس والتدخين ومستوى هرمون النمو والتمثيل الغذائي للعضلات الهيكلية.

الكلمات الدالة: السمنة ، مؤشر كتلة الجسم ، محيط الخصر ، وبائيات السمنة ، أسباب السمنة.