



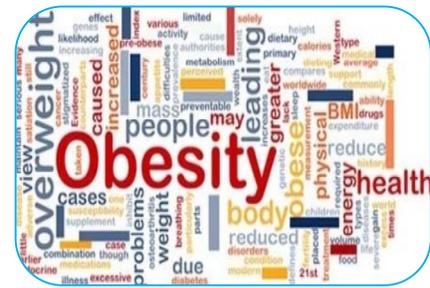
## LIFESTYLE AND OBESITY: CAUSES AND PREVENTIVE MEASURES

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### ABSTRACT

*The purpose of this paper is to provide information about obesity, its causes, and preventative measures. Obesity is one of the biggest health challenges, which has nearly tripled worldwide since 1975. According to WHO survey, about 2.8 million people die each year as a result of being overweight or obese (WHO, obesity and overweight, 2021). Lifestyle or health culture plays a vital role in producing and promoting obesity. obesity is the status of excess and an abnormal amount of fat stored inside the body, which alters the functioning potentials of organs and further the cause of many diseases. Genetic status and adaptation condition of the body plays a vital role in channelising excess amounts of calories inside the body. The majority of people try modifications to their lifestyle but they failed in the successful implementation of it, hence, adopting an appropriate and sustainable lifestyle is very important. Appropriate food intake, regular physical exercises, quality of sleep, stress management, etc are a few adoptable lifestyle modification strategies to manage obesity.*



**KEYWORDS:** Obesity, Overweight, Lifestyle, Health goals, Weight Loss, Physical Activity.

### INTRODUCTION

According to WHO, obesity has reached to epidemic level and as per the 2021 statistical report more than 1 billion people worldwide are obese out of that 650 million are adults, 340 million are adolescents and 39 million are children, these numbers are still increasing. WHO estimates that by 2025, approximately 167 million people will be adults and children become less healthy due to overweight or obese condition. As per the Indian obesity status, it is estimated that there are 135 million obese individuals in India (Pradeepa R, Anjana RM, Joshi SR, et. al., 2015)

The Indian National Family Health Survey-4 reported that in the 10 years from 2005 and 2006 to 2015 and 2016, obesity among women between the ages of 15 and 49 years increased from 13% to 21%; during the same period, obesity among men between the ages of 15 and 49 years increased from 9.3% to 19%. (ICF, 2017). It is, therefore, clear that India is experiencing a very rapid epidemiological transition (Venkatrao, M., Nagarathna, R., et.al., 2020)

### WHAT IS OBESITY

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. It is unused or unburned calories stored inside the body, either in adipose tissues or in the bloodstream. This fat can be stored inside the body either by increasing fat cell size or by increasing the number of fat cells. Excess accumulation of fat in the bloodstream leads to develop cholesterol inside

the body, which is a further risk factor for several serious or death-threatening noncommunicable diseases such as heart disease, stroke, type 2 diabetes, certain cancers, and osteoarthritis (WHO, 2021).

### CAUSES OF OBESITY

There are several causes of obesity, as discussed below,

#### a. Positive of Energy Balance

The human body structure is arranged in such a way that each element of it has its place and shape. The anatomical structure of the body portrays the exact shape, size, and direction of the muscle. The essential fat, known as visceral fat stored around the vital organs. An adequate amount of calories leads to maintaining energy balance in the body. Hence, it helps to maintain the ideal body shape and weight. But when the body has a positive energy balance means, the energy intake is more, against the energy used by the body (John P.H. Wilding D.M, 2021). The body utilizes an adequate amount of energy, but unused excess energy is stored inside the adipose tissues (fat tissues). If a person has a positive energy balance, then the body will definitely move out of shape, and weight. Further, it will lead to acquired overweight or obese body status.

#### b. Sedentary Lifestyle

Sedentary lifestyle means, a less physically active pattern of lifestyle. Sitting in one place for a very long period affects BMR, BMI, fluid circulation, oxygen intake, oxygen, and energy circulation, insulin resistance, and the functioning potentiality of the enzymes, organs, and muscles. It also affects the postural alignment, which impacts the nerve structure and functions. Furthermore, it disturbs the calorie metabolism process in the body. (Shields, Margot & Tremblay, Mark, 2008). Hence, a sedentary lifestyle is one of the dangerous causes of obesity.

#### c. Inadequate sleep

Sleep 'is a restorative process of the brain, by the brain, and for the brain', but it is now clear that sleep is important for the health of the entire body. (Beccuti, Guglielmo & Pannain, Silvana, 2011). Late night dinner, exposure to light, and prolonged wakefulness disturb and desynchronize the central circadian clocks, which further leads to developing metabolic syndrome and other diseases such as cardiovascular arrest. The short duration of sleep (6-5) showed an association with an increased risk of obesity in several research studies. (Watanabe, M., Kikuchi, H., Tanaka, K., & Takahashi, M., 2010). As a result of short sleep, Leptin hormone level decreases, and ghrelin Hormone level increases, these activities lead to weight gain and further obesity.

#### d. Inappropriate Diet

In one serving consumes a huge size of the meal, with less fabric and sweeter, salty, and fat dominative food items. Frequently craving patterns to consume food, the cooking process of food with tadka and over fried style, all these factors influence weight gain process. (Kuźbicka, Karolina & Rachoń, Dominik, 2013). Craving to have sweet post meals is one of the most seen routines in the Indian diet, that also leads to stored excess amounts of calories in the body.

#### e. Influence of Social Networks

Social networks are one of the most impactful factors that drive a person's life and routine. Furthermore, it impacts different health issues, one of which is obesity.

There are clusters of social networks such as a paired network, friends and family, Life partners, or intimate friends. These are the most influential networks in individuals' lives. For example, Adopting thought processes, opinions, considerations, and pattern of lifestyle. (Powell, K., Wilcox, J., Clonan, A. et al., 2015). (Koehly LM, Loscalzo A, 2009)

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### Causes of social influence (Family and Friends)

- Adopting a lazy and sedentary attitude
- Late sleeping and awaking pattern
- Fast food choices
- Addiction to Smoking and drinking
- Excess emotional bond with family and friends
- Relationship - coupling and decoupling
- High expectations versus high demoralization
- Lack of liberty and trust in a relationship

### Workplace Influence,

- Interpersonal relationship with colleagues
- Overload and deadlines of work
- Colleagues' mentality and matters of daily discussion
- Colleagues' expectations and self-esteem
- Hierarchical harassment in the workplace
- Excess Fatigue and health issues
- Regular club culture (consumption of drinks) etc.

### Complications of Obesity

Obesity limits the functional potential of the body. Hence it leads to several health complications, a few of them are as below, (Fruh, 2017)

- Insulin Resistance
- Excess Blood Cholesterol
- Excess Fatigue
- Hypertension
- Deficiency in functions of organs
- Shortness of Breath
- Bronchial Asthma
- Varicose Veins and Varicose Ulcers
- Gastric Ulcer
- Brain Stroke (Paralysis)
- Cardiac Attack
- The root cause of many cancer
- Osteoarthritis
- Postural Deformities

### Test to diagnose Obesity

There are several fields and clinical tests used for obesity assessment.

- BMI (Body Mass Index)
- WHR (Hip to Waist Ratio)
- Skinfold Calliper
- BIA (Bioelectrical impedance analysis)
- Hydrostatic Weighing
- DEXA Scan
- ECG
- Lipid Profile
- Liver Function test

- Thyroid Test
- Diabetes Test
- Measurement of hormones: leptin and ghrelin
- Endocrine testing (Chandrasekaran, 2018), (U.M, Odenigbo & Odenigbo, Charles & Oguejiofor, et.al., 2011), (Muhammad Sarwar Bhatti, M. Zamir Ahmad Akbri and Muhammad Shakoor, 2001), (Saleem, Shabana & Shahid, Saleem & Sarwar, Sumbal, 2020)

### **Lifestyle Modifications to Manage Obesity**

A good lifestyle drives good health. Health, as a complex and dynamic phenomenon, depends to a great extent on individual responsible and appropriate lifestyle decisions. (Ventegodt, Soren & Merrick, Joav, 2003) . As it is a daily affair, one must put a conscious effort 24/7 to maintain good health. Following strategies can help to alter the state of moderate levels of obesity.

#### **Strategy 1: Dietary Modification**

To prevent positive energy balance (Romieu, Isabelle & Dossus, Laure & Barquera, Simón et.al., 2017) and their health consequences, one must eat fibers-rich food, (Cruz-Requena, Marisol & AguilarGonzlez, Cristbal el. al, 2016) choose appropriate glycemic index food, (Brand-Miller, Jennie & Holt, Susanna el.at., 2002) consider low carbohydrate (Kelly, T., Unwin, D., & Finucane, F, 2020) and fat food, include moderate protein, and maintain hydration level. To regulate calories intake, follow dietary guidelines, such as, eating small portions of meals at one time, calculating and considering calories intakes as per the RDA's guidelines, maintaining the right interval between meals, include variety in your meal like fruits, vegetables, grains, nuts (rainbow dish), etc. Avoid fast food, fried food, and sugar intake. Also, ensure chewing rather than fast eating. Adequate amounts of vitamins and minerals accelerate the absorption process and maintain homeostasis in the body. Therefore, intake of vitamins and minerals in adequate amounts is also very essential. Prepare a diet plan with short-duration goals. Ensure implementation and adaptation and then prepare your meal plan from micro to meso and meso to macro.

#### **Strategy 2: Regular Moderate Physical Activities**

How to counter the impact of a sedentary lifestyle on health? The most important step is to stop sitting for a long time in one place and be physically active. The second, step is to adopt the most suitable physical activity program (Andersen, (2010)), (Nutrition, Moderate Exercise, and Health, 1996) Moderately intense physical activity programs (20-40 min aerobic activities) help to improve blood circulation, oxygen intake, and glucose oxidation. It also helps in delaying one set of fatigue (delay lactic acid accumulation), promotes energy breakdown and circulation to the different parts of the body and organs, and most importantly promotes fat oxidation with bearable impact. Further, it helps to improve respiration rate, heart efficiency, and muscle contractile ability. Regular Moderate Physical activity helps in improving muscular strength, endurance, flexibility, improves skin elasticity, skin tone, and body posture.

#### **Strategy 3: Adequate Night Sleep**

Ghrelin, a hormone promoting hunger, decreases energy expenditure, and increases obesity with sleep restriction pattern, whereas leptin, a hormone contributing to suppressing appetite, improves reproductive health, promotes stored energy expenditure and relatively fat oxidation (Taheri S, Lin L, Austin D, Young T, Mignot E., 2004), (Papatriantafyllou E, Efthymiou D, Zoumbaneas E, Popescu CA, Vassilopoulou E., 2022). Due to inadequate sleep leptin hormone level decreases, which accelerates the fat accumulation process. Besides this, the late-night sleep pattern restricts the melatonin hormone to perform its function, which further desynchronizes the circadian cycle, hence, the anabolic (recovery) process gets impacted. (Potter, G. D., Skene, D. J., Arendt, J., Cade, J. E., Grant, P. J., & Hardie, L.

J., 2016) Therefore, to obtain optimal benefits from night sleep one must ensure the recommended hours of sleep. American Academy of Sleep Medicine and the National sleep foundation recommend daily sleep duration should be 8–10 hours in adolescents and 7 hours per day in adults aged 18–60 years for potential benefits of sleep. (Prinz, 2005).

### CONCLUSION:

To prevent and treat moderate levels of obesity one must follow dietary changes, avoid long sitting, consumption of alcohol, channelize stress, perform regular physical activities, and ensure adequate sleep.

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