

Effect of Balance Diet on Body Weight, BMI, WHR in Obese Persons Working at Corporate Sector Aged (20-35) Years in Indore City

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Abstract

Obesity is an important public health concern, one of the main lifestyle illnesses leading to chronic diseases like metabolic syndrome, diabetes, cardiovascular diseases, cancers, depression, and stroke. Hence diagnosis and management of obesity as early as possible are essential to prevent the development of these diseases. This study aimed to assess the effect of balance diet on body weight, BMI, WHR in obese persons working at corporate sector aged (20-35) years in Indore city. A study was conducted among 50 people of obese type 1 in corporate sector. Questionnaires were administered and information was collected. It is increasing prevalence in adults owing to high fat, and high calorie diet, less physical activity and increasing incidence of fatty liver, high and low Bp, cardiovascular diseases, cholesterol and type 2 diabetes. It has been reported that obesity is related to diabetes mellitus, cholesterol and dyslipidaemia. Moreover it is reported that people who have more habit to drink tea/ coffee more than thrice a day have less intake of micro and macronutrients in their diet i.e. there is lesser amount of meals in their day one meal of the day is min and fulfilling meal that could be breakfast or lunch according to their shifts but after that they just rely more on tea / coffee to avoid meal times. A lot of people have changes in their BMI, WHR and body weight after the diet counselling of 30 days. At first when body weight was taken through interview method 55% of people out of 50 sample size have weight between 95-105 kg, 30% of people out of 50 samples have weight between 75-85 kg and 15% people out of 50 sample size have weight between 65-75 kg according to their heights respectively, after 30 days of dietary recommendations and dietary / lifestyle changes the weight changes were up to mark as 30% of people out of 50 sample size have reduced weight to 90-100 kg, 36% of people out of 50 sample size have reduced weight up to 70-80 kg, 26% of people out of 50 sample size have reduced weight up to 55-65 kg and 85 of people out of 50 sample size have reduced weight up to 80-90 kg same above the changes were seen in waist hip circumference. Obesity is a serious non-communicable disease associated with multiple risk factors leading to multiple chronic diseases. Early identification for management is essential to reduce the risk factors of the disease. Proper diet and adequate physical activity should be followed regularly to combat the condition. For diet, eating on time, eating healthy fruits and vegetables, and avoiding junk and processed foods would be healthy and Physical activity of 30 min a day is recommended for all individuals to prevent obesity in the future.

Keywords: Waist Hip Circumference, Obesity, Micronutrients, Macronutrients, Dietary Recommendations

Introduction:

This review paper has been structured to provide an overview of the likely etiological factors in the development of weight gain and obesity, to propose related population nutrient goals and content areas for food-based dietary guidelines, and to evaluate some of the potential food and diet related intervention strategies that might help to attenuate and eventually

reverse this global epidemic. It is important to note that this review on obesity has not covered the energy expenditure side of the energy balance equation in any depth. Physical activity is at least as important as energy intake in the genesis of weight gain and obesity and there are likely to be many interactions between the two sides of the equation in terms of etiology and prevention. It is acknowledged that

increases in abdominal fatness (particularly, intra-abdominal fat) pose a greater risk to health than increases in fatness around the hips and limbs. In general, the causes of weight gain and abdominal weight gain are the same. As populations become more urban and incomes rise, diets high in sugar, fat and animal products replace more traditional diets that were high in complex carbohydrates and fibre. Mortality rates increase with BMI and they are greatly increased above a BMI of 30 kg/m². Type-

2 diabetes is becoming increasingly prevalent among children as obesity increases in those age groups. A high BMI is associated with higher blood pressure and risk of hypertension, higher total cholesterol, LDLcholesterol and triglyceride levels and lower HDLcholesterol levels. The overall risk of coronary heart disease and stroke, Gall bladder disease therefore, increases substantially with weight gain and obesity. While there is no one definition of snacking, it is probably best to consider the content of snack foods and the increased eating frequency. The high energy density of common snack foods, however, may do the opposite and promote weight gain.

On the most basic level, obesity happens when you consume more calories than your body can use. Many things may play a role in why you may eat more food than your body needs:

- **Certain medications:** Medications you take to treat other conditions may contribute to weight gain. Examples are antidepressants, steroids, anti-seizure medications, diabetes medications and beta-blockers.
- **Disability:** Adults and children with physical and learning disabilities are most at risk for obesity. Physical limitations and lack of adequate specialized education and resources can contribute.
- **Eating habits:** Consuming more calories than your body needs, eating

ultra-processed food, high-sugar foods and drinks, and foods with high amounts of saturated fat may cause overweight.

- **Genetics:** Research shows people with obesity carry specific genes (obesity-susceptibility genes) that affect appetite. It's not clear if people with overweight have the same genetic makeup.
- **Lack of physical activity:** High amounts of screen time — like watching TV, playing video games or spending time on your mobile phone or laptop — cut into the time you have for physical activity.
- **Lack of sleep:** Missing out on at least seven hours of sleep can affect the hormones that keep hunger urges under control.
- **Stress:** Your brain and body react to stress by making more hormones like cortisol that manage hunger. When you're stressed, you're more likely to eat high-fat, high-sugar food (comfort food) that your body stores as extra fat.
- **Underlying health issues:** Diseases like metabolic syndrome and polycystic ovary syndrome can cause side effects like weight gain. Mental health issues like anxiety and depression can lead to eating high-calorie foods that activate the pleasure centers in your brain.

What are the complications of obesity?

Obesity affects your body in many ways. For example, it may cause metabolic changes that increase your risk of serious illnesses. Obesity may also have direct and indirect effects on your overall health.

Metabolic changes

Your metabolism is how your body converts calories into energy to fuel your body. When your body has more calories than it can use, it converts the extra calories into lipids and stores them in your body fat. When you run out of tissue to store lipids, the fat cells themselves become enlarged. Enlarged fat cells secrete hormones and other chemicals that cause inflammation.

- **Inflammation** can lead to insulin resistance so your body can't use insulin to lower the sugar and fats in

your blood. High levels of sugar and fats in your blood lead to high blood pressure. Combined, these conditions lead to metabolic syndrome. Metabolic syndrome is a common factor in obesity. The syndrome also increases your risk of developing diseases like:

- Cardiovascular diseases: Having obesity increases your risk for cardiovascular diseases, including coronary artery disease, congestive heart failure, heart attack and stroke.
- Fatty liver disease: Excess fats circulating in your blood make their way to your liver, which is responsible for filtering your blood. When your liver begins storing excess fat, it can lead to chronic liver inflammation (hepatitis) and long-term liver damage (cirrhosis).
- Gallstones: Higher blood cholesterol levels can cause cholesterol to accumulate in your gallbladder, which increases your risk of cholesterol gallstones and gallbladder diseases.
- Kidney disease: High blood pressure, diabetes and liver disease are among the most common contributors to chronic kidney disease.
- Type 2 diabetes: Having obesity specifically raises your risk of Type 2 diabetes.
- Statistically, obesity increases your risk of premature death from all causes. Studies show you can reduce that risk by losing even a small amount (5% to 10%) of your current weight.

What are The Benefits of Eating a Balanced Diet?

A balanced meal helps provide the body with all the nutrients it needs to maintain normal growth and repair functions.

Benefits of Healthy Eating for Adults

A healthy diet helps boost immunity, reduces the risk of developing Type 2 Diabetes, cardiovascular diseases, and some cancers, maintains a healthy weight, and helps recover quickly from diseases and trauma.

Benefits of Healthy Eating for Children

A healthy diet helps strengthen bones, supports brain development, boosts immunity, and regulates growth functions.

Essential Components of A Balanced Diet

Proteins, carbohydrates, fats or lipids, micronutrients such as vitamins and minerals, and water are the essential components of a well-balanced diet.

Carbohydrates - Carbohydrates provide you with energy, which should constitute 50- 60% of your diet. Though it forms a significant diet component, you should not treat all carbs equally.

Sources of healthy carbs are-

- Whole grains like Oats, Quinoa
- Whole wheat, Dahlia
- Legumes
- Millets like ragi, bajra, barley

Vegetables

Protein - Protein helps you build muscles and develops skin and hair. It should constitute 10-12% of your diet.

Sources of protein are-

- Legumes and beans, soyabean
- Poultry-Chicken, Turkey
- Seafood- Fish, Crab, Prawn, Lobster
- Eggs
- Lean meat- Lamb, Beef, Pork
- Nuts and Seeds
- Greek yoghurt

Fat - It is a misconception that fats are bad for your health. It would be best if you chose healthy fats as fats help you maintain your body temperature and help absorb fat-soluble vitamins ADE&K.

Sources of healthy fat are -

- Avocados
- Nuts
- Seeds
- Extra virgin Olive oil
- Fatty fish- Salmon, Sardines, Mackerel, Herring

Vitamins - Though there are 13 essential vitamins, you should take vitamins A, C, B, and D measures.

Sources of vitamins are -

- Fruits

- Vegetables
- Poultry
- Seeds
- Nuts

Minerals - Minerals help release energy from the food you take and promote the growth of organs. Some essential minerals are iron, calcium, potassium, iodine, and sodium.

Sources of minerals are -

- Fish
- Meat
- Beans
- Cereals
- Nuts & Seeds

Fibre - Fibre helps in digestion and also helps in lowering your cholesterol levels and controlling sugar levels.

Sources of fibre are –

- Oats, dahlia, Quinoa and Brown rice
- Beans
- Whole grains
- Nuts & seeds

Water - You should take at least eight glasses of water as it hydrates your body and is used in body functions.

Foods to Avoid For a Healthy Balanced Diet

Avoid the below foods for a healthy life -

- Red meat
- Refined grains (cereals) like maida, white bread, sewain, noodles, pasta
- Trans fat, butter, cheese
- Added sugar
- Pastry
- Processed foods

Importance of A Balanced Diet

A balanced diet-

- Meet the nutritional demands of the body and prevent malnutrition
- Keep up energy levels and maintain normal body functions
- Boost the immune system and optimise cell repair
- Prevent lifestyle diseases such as Type 2 Diabetes, Cardiovascular diseases, and some cancers
- Strengthen bones, muscles, skin, teeth, and eyes

- Help support healthy pregnancies

The operational definitions of the risk factors: Dietary risk factors include skipping at least one main meal of the day (breakfast, lunch or dinner), an intake of fewer than 5 servings (400 g) of fruits and vegetables per day (WHO), addition of excess salt to food at table, frequent eating out (more than once/week).

- Physical activity status: <150 min of moderate intentional PA in a week were categorised as ‘physically inactive’ (WHO).
- Sedentary status or total sitting time was defined as the sum of time spent sitting during travelling, work, watching TV or using laptop and leisure.
- Smoking: Those who reported smoking no cigarette at all were considered as ‘nonsmoker’, those reporting smoking at least 1 cigarette daily were categorised as ‘regular smoker’, and those reporting anything lesser than that were considered as ‘occasional smoker’.
- Alcohol: In terms of alcohol consumption, those reporting no alcohol consumption were categorised as ‘non-drinkers’, people reporting consumption of alcohol at least once a week were categorised as ‘regular-drinkers’, and those consuming lesser than that were categorised as ‘occasional drinkers’.
- Stress level: Self-perceived stress was considered as the total score obtained by the employees on the Perceived Stress Scale (PSS), which scored them on the basis of how often they felt or thought a certain way in different situations during the last month.

12 Dietary influences on obesity

The modern food environment provides a wide range of opportunities to consume food and drink products. These are then readily consumed, which inadvertently leads to what has been described as “passive overconsumption”, where the individual has no way of recognizing that he or she is consuming particularly energy-dense products. The recent analyses of different studies on individual responses to food, assessing spontaneous intake in both carefully

controlled environments (Stubbs J et al. 2019) and everyday life, all point to two dietary factors that are chiefly conducive to inadvertent overeating:

- the consumption of very energy- dense diets: high in energy per unit weight because extra fat and/or sugars have been added, because the food has been refined to limit its water- holding and bulking properties or because fruit and vegetables are marginally present;
- the consumption of energy-rich drinks, such as sugary drinks, between meals.

These two factors seem to evade the normal biological short-term regulation of appetite and food intake, so children and adults tend not to adjust their intakes when these foods and drinks are constantly offered. This problem is then accentuated in sedentary societies, where people need to eat less in general and where maintaining an energy balance when energy-dense foods and drinks are consumed is therefore more difficult. Conversely, diets low in energy density, with lower proportions of fat, more complex carbohydrates and more fibre, protect against weight gain (Howard BV et al, 2018). Intervention studies also show that a high intake of dietary fibre may assist in losing weight (Howarth NC et al, 2020). Such low-energy diets, however, should have an adequate density of micronutrients and bioactive compounds to supply the required micronutrients while keeping the energy intake low. Given this perspective, the emergence of sweetened beverages and “fast food” (Pereira MA et al, 2021) as specific risk factors is not surprising. In addition, large portion sizes of energy-dense foods increase the risk of excessive consumption while the frequency of eating itself has not been shown to contribute specifically to weight change, when the type of food is the same. Thus, the findings that higher fruit and vegetable intakes are linked to lower weight gains and that a high meat (with its associated fat) intake is linked to a greater risk of weight gain (Schulz M et al, 2021) are not surprising. There is some evidence that alcohol contributes to obesity in men, but no consistent association.

Result and discussion

Total 50 samples were included in the study which met the criteria of obesity grade I in corporate sector . Detailed history, anthropometry, clinical examination and dietary recall were done. Obesity consists of the increasing prevalence of fatty liver , diabetes and cholesterol and the associated with obesity grade I . It is increasing prevalence in adults owing to high fat, and high calorie diet, less physical activity and increasing incidence of fatty liver , high and low Bp , cardiovascular diseases , cholesterol and type 2 diabetes. It has been reported that obesity is related to diabetes mellitus, cholesterol and dyslipidaemia. More over it is reported that people who have more habit to drink tea/ coffee more than thrice a day have less intake of micro and macronutrients in their diet i.e there is lesser amount of meals in their day one meal of the day is min and fulfilling meal that could be breakfast or lunch according to their shifts but after than that they just rely more on tea / coffee to avoid meal times

Out of 50 samples 27 were male and 23 were female respectively . Also, there is no statistically significant difference in the prevalence of obesity grade I in corporate sector according to sex distribution respectively . A lot of people have changes in their BMI, WHR and body weight after the diet counselling of 30 days . at first when body weight was taken through interview method 55% of people out of 50 sample size have weight between 95-105 kg , 30% of people out of 50 samples have weight between 75-85 kg and 15% people out of 50 sample size have weight between 65-75 kg according to their heights respectively , after 30 days of dietary recommendations and dietary / lifestyle changes the weight changes were upto mark as 30% of people out of 50 sample size have reduced weight to 90-100 kg , 36% of people out of 50 sample size have reduced weight upto 70-80 kg , 26% of people out of 50 sample size have reduced weight upto 55-65 kg and 8% of people out of 50 sample size have reduced weight upto 80-90 kg same above the changes were seen in waist hip circumference .

Conclusion

the prevalence of balance diet in corporate sector by people over this work aimed to explore the effect of balance diet on body weight , BMI, WHR in obese persons working at corporate sector aged (20-35) years in Indore city The work in Chapter 3 reported a moderate amount of Obese persons grade I . A sample of 50 obese workers working at corporate sector (48% females) aged between 20-35 years old and (52% males) completed a set of self-reported interview method questionnaires in person Namely, a demographic profile , anthropometric profile and dietary habits Questionnaire, a questionnaire on Food Choices Characterization, the Eating Habits Scale, and the Frequency Questionnaire participants presented obesity problems. Obesity have become very popular among all age groups. The present study is done to see the effect of balance diet on body weight , BMI, WHR in obese persons working at corporate sector age (20-35) years at Indore city. According to the above table shows that most of corporate workers were obese due to their long working hours with there lifestyle which indicates the high rate of being obsess . shows that people who accept they enjoy eating fast food in their day to day lifestyle by ignoring healthy eats n patterns . that breakup of individuals in various height range. Most individuals fall in the range of 161-170cm and 171-180cm. the table shows that breakup of individuals in various weight range. Most individuals fall in the range of 75-85kg and 95-105kg. Regarding health risks associated with fast food consumption most of participants were believed healthy food and the remaining were believed unhealthy food. Data presented in table 4 shows that the body weight of pre counselling of corporate workers have much weight in there waist side by after the counselling and dietary patterns were change the ratios have the immense changes that can be seen . The Result shows the Likert frequency scale and percentage levels for the questions

which say Strongly Disagree and Strongly Agree. shows that maximum number of people have changes in their body weight , BMI, WHR ratios pre post after the counselling was done they have seen changes in their lifestyle patterns too.

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