



## Nutrition Analysis and Recommendation

Name

Institutional Affiliation

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Obesity has become a major health problem in many countries all over the world, and the number of individuals who are obese or overweight is increasing. The issue with this condition is that it increases the risk for people of being affected by certain life-threatening diseases that are often difficult to treat. A healthy individual is considered to have a body mass index (BMI) of between 18.5 and 24.9, while those who are overweight have a BMI of 25 to 29.9 (Muller, 2016). Individuals who have a BMI of 30 and above are considered obese. Such individuals are often recommended to lower their body weight as they get at more risk of succumbing to certain diseases than people with a healthy weight.

Jake, who has an index of 31.2, is considered obese because his BMI is above 30. People with excess weight are at risk of getting severe health problems including type 2 diabetes, cardiovascular conditions, stroke, high blood pressure, gout, osteoarthritis, gall bladder disease, sleep apnea, asthma, and some types of cancer (Kain, 2017). Those who have a family history of illnesses are even at higher risk of getting such health problems. Cardiovascular diseases are often common with individuals who are obese because the heart needs extra efforts to pump blood around the body. This may be due to the deposition of plaque on the inner walls of blood vessels leading to hardening and narrowing of arteries and veins, causing the heart to pump blood harder (Haslam, 2016). High blood pressure in obese individuals is often a sign of serious heart conditions.

Generally, most people with a BMI of 30 and above live sedentary lifestyle (Kain, 2017). Additionally, such individuals also have unhealthy eating habits such as consumption of carbohydrate-rich and high-fat foods as well as many sugar-sweetened and alcohol drinks (Muller, 2016). Eating carbs in excess leads to fat accumulation because the body converts the surplus glucose to fats and stores them in the adipose tissue, especially around the abdomen. Consumption of too much animal protein may also lead to the accumulation of large deposits of cholesterol in the body, which may block blood vessels and increase the risk of stroke and atherosclerosis (Haslam, 2016). The high body weight also exerts pressure on the kidney, heart, and liver, making them susceptible to malfunctions due to overworking.

In the recent years, cancer, diabetes, and cardiovascular diseases have emerged to be the greatest cause of death in many countries, accounting for two-thirds of all mortalities occurring in the United States every year (Aune et al., 2016). These conditions affect African American population more often than other racial groups, with the major reason being the high level of obesity, consumption of carbohydrate-rich diet, lack of exercises, as well as poor knowledge on healthy diets and lifestyle behaviors. This means that people like Jake are highly vulnerable to these conditions and subsequently prone to adverse effects that may lead to death. Therefore,

taking precautions by shedding the excess weight may be a viable option.

### Weight Gain for 1 Year

In the 1-day nutrition log, Jake was able to consume 4085 calories in one day, which is higher than the 3165 required to maintain the same weight for a whole year. In order to calculate the weight Jake can acquire in a year, we would assume that he keeps the sedentary lifestyle because engaging in physical activities results in burning of the excess glucose stored in the body in the form of glycogen or fat (Muller, 2016). The number of calories required to gain a pound of body weight is 3500, which can come from proteins, fats, or carbohydrates (Aune et al., 2016). From the data above, the number of calories Jake gains every day is 920 (4085-3165). In one year, the number of calories gained would be:

$$920 \times 365 = 335,800$$

Amount of weight gained over the 12-month period would be:

$$335,800/3500 = 95.94 \text{ lbs}$$

At the end of the year, Jake would be (230 + 95.94) lbs = 325.94 lbs. This means that Jake would have a BMI of 43.9 by the end of 12 months, which is much higher than the normal index.

### Analysis of Nutrient Report

There are several aspects of Jake's diet that have to be improved to meet the standards of proper nutrition. First, his diet is high in saturated and unhealthy fats, which is way above the required level. The high amounts of fats result in obesity and increase the risk of heart diseases, fatty liver disease, and diabetes (Muller, 2017). Jake needs to consume more products rich in polyunsaturated and monounsaturated fats in amounts not exceeding 30 calories per day since the omega-3 and omega-6 are usually essential fatty acids required by the body for proper cell growth and body function (Asif, 2015). Reducing the consumption of non-essential fats helps to have a healthier body and prevent possible health risks.

The amount of proteins and carbohydrates in Jake's diet is slightly higher than recommended, though it is required to reduce the intake of carbohydrates, consume more proteins such as legumes, fish, milk, eggs, and chicken (WHO, 2019). Protein helps in building lean body muscles and does not lead to higher accumulation of body weight compared to fats and carbohydrates, which makes it healthy for individuals striving to lose weight. Jake also needs to reduce sugar in his diet, which is also among the main causes of obesity. He needs to consume a lot of vegetables and fruits, which are rich sources of dietary fibers, minerals, plant proteins, vitamins, antioxidants, and roughages, which are irregularly distributed in his diet (WHO, 2019). High intake of fruits can also help to limit the consumption of sugars and lead to better weight management as fruits usually have lower calories compared to other foods. Jake also has to drink a lot of water, which is currently half of his daily need.

### Risks of Jake's Eating Habit

Among the major observations of Jake's diet is that it is highly rich in fats, especially unsaturated ones. Excessive consumption may result in the accumulation of fats in the liver hepatocytes, which limits the functioning of the cells (Calzadilla Bertot & Adams, 2016). This may subsequently affect the production of antioxidants, which help to control the activities of free radicals that have the potential of affecting the functioning of other cells in the body (Calzadilla Bertot & Adams, 2016). When the number of free radicals is increased, the liver starts releasing cytokines and other inflammatory agents to counter the threat to the body immunity (Calzadilla

Bertot & Adams, 2016). Excess fat in the liver may cause a person to get non-alcoholic fatty liver disease, which may eventually develop into liver cirrhosis.

Additionally, high amounts of unsaturated fats in the diet puts a person at risk of acquiring diabetes. The type 2 diabetes mellitus is caused by insulin resistance, which usually emanates from problems in the liver (Calzadilla Bertot & Adams, 2016). The insulin usually instructs hepatocytes to conduct blood glucose regulation, and problems with hepatocytes due to high-fat accumulation may cause insulin resistance (Hazlehurst, Woods, Marjot, Cobbold, & Tomlinson, 2016). Jake also has high amounts of sodium in his diet, which stiffens blood vessels, leads to degeneration of bones, and can damage the kidney, heart, and blood vessels causing stroke, kidney failure, as well as cardiovascular diseases (Who, 2019). From the analysis of Jake's diet, it was defined that he needs to reduce the high intake of fats and sodium as well as increase the uptake of fruits and vegetables to make sure that dietary fibers, essential sugars, and vitamins are consumed.