

# Evaluation of Detox Drinks, Fruit and Protein Bar Consumption, Which Are a Popular Diet Trend, in Terms of Nutrition and Food Safety

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**Abstract**— Obesity is among the main causes of many serious diseases, especially metabolic, orthopedic, psychiatric and cardiovascular and it has become one of the biggest health problems of our age as a result of the widespread use of malnutrition and a sedentary lifestyle. Scamming with the promises of easy and fast weight loss due to both health and aesthetic concerns is being more popular day by day and many people fall into this trap with buying wrong diet prescriptions and diet products. In this review, it aimed to evaluate the health effects of detox drinks and snack bars, which are popular diet products, by mentioning about what obesity means and its relationship with nutrition.

**Index Terms**— Detox diet, Food safety, Fruit and protein bar consumption, Health, Nutrition, Popular diets, Popular diet products.

## 1 INTRODUCTION

The industrial revolution in the 18th century caused the change of many institutions, especially the family. With the industrial revolution, migration from the village to the city became widespread, the education level of the society increased, and women began to take part in working life. Along with these developments, there have been serious changes in the production and consumption habits in the household. The production for domestic nutrition, which was previously only in the area of responsibility of women, started to be made jointly with women's entry into working life. As a result, there have been changes in eating habits, and the demand for foods that can be easily prepared and consumed quickly has increased day by day. On the other hand, sedentary lifestyle and malnutrition, which emerged as a result of working life and technological developments, have led to an increase in many important diseases, especially obesity, in our age [1, 5, 11, 16, 21, 29, 34].

Obesity, which is an important public health problem on a global scale, has paved the way for the emergence of many popular diet trends that ignore the relationship between nutrition and health, and many packaged food products sold under the name of diet. It is still a mystery that needs to be clarified how healthy detox drinks, fruit and protein bars, which are at the top of these popular diet foods, are healthy, to what extent they meet our daily nutrition routine and how they affect our

body resistance.

In this review, it is aimed to evaluate the possible effects of detox drinks, protein and fruit bars on body weight, nutrition and health in the short and long term in the light of current literature [20, 29, 30, 32, 36, 37, 41, 47].

### 1.1. OBESITY

Abnormal fat accumulation in the body to the extent that it impairs health is called obesity. In obesity, there is a large amount of energy input to the body, but the same amount of energy output is not realized. In other words, since the amount of energy taken with food is more than the amount of energy consumed daily, energy balance cannot be achieved and as a result, excessive weight gain occurs. "Body Mass Index" (BMI) is an important value in determining the degree of obesity and is calculated by dividing an individual's body weight by the square of their height. Normal BMI value for an adult and healthy individual should be in the range of 18.5-24.99. The World Health Organization (WHO) BMI obesity classification is shown in Table 1. Every 5 kg/m<sup>2</sup> increase above the normal BMI value also increases the degree of obesity [3, 6, 13, 18, 19, 22, 23, 45].

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**TABLE 1**  
BMI CHART WITH OBESITY CLASSIFICATIONS ADOPTED FROM THE WHO 1997 REPORT [44].

WHO CLASSIFICATION OF WEIGHT STATUS	
WEIGHT STATUS	BODY MASS INDEX (BMI), kg/m <sup>2</sup>
Underweight	< 18.5
Normal range	18.5–24.9
Overweight	25.0–29.9
Obese	≥ 30
	Obese class I
	30.0–34.9
	Obese class II
	35.0–39.9
	Obese class III
	≥ 40

As in the whole world, obesity, the frequency of which is increasing in our country, can cause serious health problems such as metabolic, orthopedic, psychiatric and cardiovascular disorders that can even result in premature death. There are many factors that trigger the formation of obesity due to weight gain since the energy taken is more than the energy spent. These are malnutrition, age, gender, lack of movement, education level, some drugs used, smoking-alcohol use, income level, social, cultural, hormonal, metabolic, genetic and psychological factors. The increase in consumption of fast-food-style foods, unhealthy, rich in carbohydrates, refined sugar and packaged foods containing excessive fat, which have entered our lives as a result of modern life, are among the main factors leading to obesity worldwide. In addition, the sedentary lifestyle resulting from the widespread use of advanced technology products such as mobile phones, televisions, laptop computers, home theater equipment has also led to an increase in the prevalence of obesity [3, 40, 48].

### 1.2. THE IMPORTANCE OF NUTRITION FOR HEALTH

Almost all the studies on the prevention of obesity and increasing the quality of life show that gaining the habit of proper nutrition and physical activity prevents the formation of obesity and reduces the risk of chronic diseases. In addition, many studies show that inadequate and unbalanced nutrition is one of the leading risk factors for the formation of many diseases. Considering all its dimensions, healthy nutrition is the most important and fundamental element of human health. The most basic solution to prevent obesity, which threatens our health seriously, and to reduce the risk of disease, is to eat a regular and balanced diet. In addition to the prevention of obesity and diseases, physical activity and gaining the right nutrition habits are also very important in terms of maintaining a quality and healthy life in the future [33, 36].

When the problems related to nutrition, especially obesity, are examined, the first problem that strikes our eyes is the lack of serious nutrition education in general. Nutrition education plays an important role for the society to gain adequate and balanced nutrition habits, to protect its health, to consume the

right, healthy and reliable foods, to avoid wrong diets and to choose the best diet option for their health. When we look at the world in general, it is seen that searches for health, nutrition and diet are common on the internet. According to a study conducted in the United States (USA), approximately 60% of adults living in the country conduct health information research on the Internet. Moreover, thousands of vitamins, medicines, nutritional supplements, diet types and diet products are researched and even purchased on the internet every day. With the prevalence of obesity, the increase in people's concerns about aesthetic and beautiful appearance, their desire to lose weight in a short time without effort, cause the emergence of new nutrition and diet products. This paves the way for the emergence of new internet sites that broadcast and sell every day. Among all this information and product pollution, it has become very difficult to reach the right information and [33, 36].

### 1.3. POPULAR DIET PRODUCTS

The increase in the number of overweight and obese individuals worldwide has led both individuals and health and industry organizations to seek solutions for safe weight loss strategies. While current guidelines state that low-fat foods should be consumed, calorie restriction should be made, and energy expenditure should be increased in order to achieve weight loss; He also underlines that losing weight is a long and arduous process. However, many diet recipes and diet products, which are increasing in popularity day by day, promise to lose weight in a short time without having to count calories and do sports, contrary to what it should be. Fruit-protein bars and fruit-vegetable detox drinks are among the most consumed popular diet products recently [26, 27, 43].

### 1.4. FRUIT-VEGETABLE DETOX DRINKS

As a result of global industrialization, short-term purification interventions are known as detoxification, in order to eliminate body toxins caused by chemicals and pollutants, to protect body health and to aid weight loss. It contains many methods and food types such as detoxification, dry brushing, sauna, consumption of herbs or water alone, fasting, exercise, meditation, whose popularity dates to the Greek, Roman, Indian and Native American periods. The detoxification method, which is the most frequently encountered recently and preferred by women who work for weight loss and do not have time to prepare a meal, is a type of detoxification for consuming detox drinks made from fruit and vegetable juices [4, 36, 37].

There is not enough evidence for the use of many detox drinks, including fruit and vegetable juices sold today, for the removal of body toxins. In addition, due to the low-calorie content of such detox drinks, it helps to lose weight, but what kind of benefit or harm it will cause on the person in the long run cannot be predicted due to the lack of research. Many scientists criticize the detoxification process and describe it as a "marketing myth" due to the lack of sufficient evidence to cleanse the body and toxins. When the current literature data is scanned, even now, there are not enough studies investigat-

ing the effects of commercially available detox drinks on health and weight loss. On the other hand, many studies on diet methods based on low-calorie food consumption have shown that uncontrolled energy restriction in the diet can lead to decreased fertility, lack of success, persistent feeling of fatigue, stress, anxiety disorder, and depression. While dieting is a stressful job on its own, the number of times the body is exposed to stress increases with low-calorie diets. In an experiment conducted on mice by Pankevich et al (2010), it was reported that energy restriction causes long-term changes in the nervous system, resulting in binge eating attacks [2, 4, 8, 28, 35, 39, 42, 46].

### 1.5. SNACK AND BARS

Today, the popularity of snack foods is increasing day by day due to the increasing workload, fast-paced lifestyle and cultural changes in the world population. Although it is debatable how healthy and nutritious it is to eat on your feet or to pass your daily meals with pocket snacks, which we can fulfill in a shorter time, it is a highly preferred diet in our age, especially among young age groups. Snacks, also known as cereal bars or fruit-vegetable bars, are among the widely consumed snacks around the world in recent years due to their ease of carrying, providing a feeling of satiety for a long time, low calorie and low price. In addition, since these products are rich in some sources such as vitamins, minerals, protein and fiber, they are among the daily food preferences of people who take care of their health and nutrition or consume low-calorie food to lose [7, 24, 25, 31].

The beneficial aspects of snack food consumption, which is generally thought to cause unnecessary and excessive weight gain by encouraging the consumption of empty calories, have been identified in recent studies. It has also among the research findings that these snack products prevent weight gain by keeping blood sugar balanced, reducing stress and accelerating body metabolism, due to their small portions, encouraging frequent meals, and intense nutrient content. There are many scientific data in the literature showing an inverse relationship between the frequency of eating and body weight. Many of these findings refer to the consumption of snack foods as beneficial for our diet [10, 14, 15, 17].

While there are many expert opinions that support the role of nutrient-dense foods such as fruit, vegetables, nuts and protein-fortified snacks in promoting health, there are also expert opinions that argue the opposite. Experts who advocate the opposite view say that snacks can make significant contributions to the total daily required energy and nutrient intake and emphasize that this contribution may vary according to the content of the snack product, the quality of the raw material, and the age, gender and body weight of the consumer. In addition, it is mentioned that choosing the wrong snack may increase hunger crises by facilitating hyperphagia, and as a result, it may lead to excessive weight gain and obesity by causing more calorie consumption [12, 15, 38].

## 2 CONCLUSION

Restriction of our daily activities as a result of the widespread

use of fast-food food culture and technological developments making our lives easier, has caused obesity to become widespread and a global public health problem. In order to get rid of obesity, reduce body weight, look more aesthetic and more beautiful, many people around the world resort to popular diets and diet products that promise to lose weight quickly and easily, instead of getting help from an expert dietitian every day.

Commercial advertisements and phenomenon promotions on the media also cause the popularity of these products to increase. However, the long-term effects of popular diets using fruit-vegetable detox drinks and the consumption of diet products such as snacks on health and diet are not known due to the lack of sufficient scientific evidence.

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