

# Sustainable Nutrition the Impact of Food Consumption

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## ABSTRACT

World is changing and global warming is the most important changer. Food production and transportation affect to environment and climate change. Sustainable nutrition principles can be practise more sufficiently. Sufficient nutrition for the world population needs special effort without harming the environment and destroying natural resources. Food waste is the other problem for sustainable nutrition in addition to sustainable production systems. Sustainable agriculture studies showed that the methods applied today do not use natural resources efficiently, they have negative effects on the environment. Sustainable diets such as the Mediterranean Diet and the New Nordic Diet benefit global health and the environment through their ingredients and the way food is produced.

**Keywords:** Agriculture; Diet; Food; Nutrition; Environment

## Introduction

Climate change is an important challenge in the latest century. Carbon emission is the cause of climate change, which is made by the life activity of people [1]. Global warming is increasing each passing day, affect to food harvesting, production, processing, and consumption. Food production imbalance should be a cause of energy and nutrient deficiency. According to UNICEF, climate change is an important factor in increasing maternal and child nutrition malnutrition [2-4]. Although the United Nations (UN) Framework Convention on Climate Change (1992) was accepted within the scope of combating climate change, international consensus could not be reached in preventing environmental disasters. At the Paris Climate Conference, 196 states agreed to limit global warming to 2°C [4]. In this review article, the effects of sustainable food consumption on health and the environment are presented based on current literature.

## Environmental Effects of Nutrition

Efficient use of natural resources and environmental concerns have been in dietary guidelines since the 1980s [5]. Food is

considered one of the biggest health and environmental problems of the 21<sup>st</sup> century, which is in the Anthropocene age. Sustainable development goals were affected by food production systems [6]. Sufficient nutrition for the world population needs special effort without harming the environment and destroying natural resources. Food waste is the other problem for sustainable nutrition in addition to sustainable production systems [3,4]. Nowadays, more than 820 million people are malnütre, 2 billion people have micronutrient deficiencies, but on the other hand, more than 2 billion people are dealing with health problems caused by obesity [6,7]. At this point, sustainable nutrition systems have more attention [7]. 48% of fertile agricultural land and 70% of clean water are used for global food production. Limited natural resources and greenhouse gas emissions (responsible for 20-35%) as a result of production/consumption increase the need for a sustainable food system [8,9]. Among the environmental problems caused by the existing food systems; there are factors such as water and food losses/wastes during processing/packaging/transport and fossil fuel use. The environmental impact of meat and dairy products is the highest

[8]. According to a study conducted in 2016, red meat production is 568% of the global need [10].

In addition, excessive consumption of animal foods causes intake the high amount of saturated fat, cholesterol, and salt, they increase the risk of cardiovascular disease, cancer, stroke, obesity, and death in humans [8]. Diseases that can be transmitted from animals and meat and antibiotic drugs used in treatment also negatively affect health [11]. In a study conducted in 2018, in the analysis of plant foods, dietary modeling has been found to reduce premature deaths by 12% and greenhouse gas emissions by 84% instead of animal foods modeling [12]. Today, although there are studies that analyze the impact of agricultural production on sustainability in terms of nutrition, health and the environment, it needs to be supported by studies and evidence on the effects of agricultural products such as global climate change, water scarcity, micronutrient deficiencies [13,14]. Reliable studies should be conducted to evaluate the sustainability of methods such as sustainable aquaculture farms, regenerative agriculture and alternative foods such as cultured meat and insects that are likely to be implemented in the future. Multidisciplinary and scientific studies are needed to reduce the negative effects of the agricultural food production system on food safety and sustainability [15].

## Sustainable Diets

In the "Guidelines for Sustainable, Healthy Eating Principles" published by FAO (Food and Agriculture Organization) and WHO (World Health Organization) in 2019, it is stated that many people in the world do not have access to safe, affordable, and healthy diets, and one out of three people suffers from hunger, stunting, overnutrition, micronutrient deficiencies, overweight/obesity. It has been reported that people experience nutritional problems such as non-communicable diseases [9]. Healthy nutrition is expected to be provided by increasing plant foods in the diet and reducing animal foods, saturated fats, processed foods, and added sugar. For this expectation to be realized by 2050, the consumption of foods such as red meat and sugar should be reduced by 50% globally and the consumption of fruits, vegetables, legumes, and oilseeds should be increased by 100%. Global implementation of dietary changes is thought to prevent approximately 10.8-11.6 million deaths per year [7]. There are three principles were mentioned in creating a healthy and sustainable diet. Firstly, non-essential nutrients, highly processed, and high-energy ingredients of food consumption should be decreased. Secondly, plant-based foods should be recommended compared to animal foods. The third principle is sufficient energy intake of people, not-low and not-excessive. Balance of energy intake protects environmental energy use and decreases greenhouse gas emissions [16]. The

unprocessed, local and seasonal plant-based diet is closer to sustainability [17]. Another study stated that a sustainable diet should meet health, economic and social justice, clean air/water/soil and enjoyable food culture [18]. Mediterranean diet and the New Nordic diet are advantaged in terms of having the lowest environmental effects according to healthy diets including animal foods [5,9]. In a meta-analyzed in which 63 studies were examined, it was stated that the sustainability was more in the vegetarian diet and the diets containing a small number of animal foods [11]. Vegan and vegetarian diets have lower effects on the environment [5]. In a review study, when the dimensions of diets such as the low impact on greenhouse gas emissions, reduction in total death rates, and less land use in production were evaluated; vegetarian, pescetarian, Mediterranean diet, omnivorous diets [11].

## Results and Conclusion

Sustainable agriculture studies showed that the methods applied today do not use natural resources efficiently, they have negative effects on the environment. Sustainable diets such as the Mediterranean Diet and the New Nordic Diet benefit global health and the environment through their ingredients and the way food is produced. Multidisciplinary studies and projects are required for the implementation of sustainable food production/consumption.

## Financial Resource

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## Conflict of Interest

There is no conflict of interest.

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