

## Paleo Diet Sustainable or Fad

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### ABSTRACT

The Paleo diet is a diet based on food groups that were eaten by stone age humans such as fruits, vegetables, nuts, eggs, meat, and seafood excluding dairy, grains, and processed foods. Around 2.5 million years ago, it was the dietary pattern of the majority of people, including foods that could be get by hunting and gathering. The modern paleo diet is a modified version of the true paleo diet with some variations in food groups. The Paleo diet is high in protein, polyunsaturated fats, fiber and low in carbohydrates. As human evolution stopped 10,000 years ago thus, human genetics is more adaptable to the paleo diet as compared to the highly processed modern diet. There may be a few limitations of this diet due to the exclusion of some food groups, but it is still observed to be beneficial for weight loss and other chronic diseases.

**Keywords:** Paleo diet, agricultural revolution, modern diets, chronic diseases

### Introduction

The Paleo diet, also known as the “Stone Age diet or Caveman diet” got public attention in 2002 after the research published by Dr. Loren Cordain [1]. However, it has been the most controversial and popular diet because of the overstated health claims of the diet but there are also several health benefits. The Paleo diet was the dietary pattern of our ancestors due to the availability of wild foods rich in nutrients and fiber including fruits, vegetables, nuts, eggs, and meat/fish, and excluding grains and dairy products This diet emphasizes avoiding highly processed and refined food because of the unhealthy levels of sugar and salt in them. The Paleo diet may be associated with weight management and the prevention of chronic diseases [2]. Non-communicable diseases such as diabetes, cardiovascular diseases, cancer, and obesity are one of the major global health issues, and different diets such as the Mediterranean diet and DASH diet, low-fat diet, sodium-restricted diet, vegetarian diet, and whole grain diets are recommended to counter the issue. The Paleo diet has also gained popularity in this regard and several clinical trials have been conducted to assess its effectiveness [3].

During the transition from the Paleolithic (Paleo) era to the Neolithic agricultural era humans learned the art of growing crops and domesticating wild animals that changed their diet. Therefore, the agricultural revolution resulted in the end of the Paleolithic (Paleo) era leading to increased consumption of processed food consequently enhancing the risk of some health-related problems. Moreover, an unhealthy modern lifestyle such as poor diet, low physical activity, smoking, and alcohol consumption contribute to major health issues. But people have become more conscious of their body weight, health, and lifestyle, looking for ways to improve their life expectancy [4].

### Food Groups Included in the Paleo Diet

Based on the findings of anthropological studies of modern tribes, the Paleolithic (Paleo) diet probably consists of the following food groups:

**Animals** - lean meat, organ meat was readily available, dairy products were not included in the diet as animals were not domesticated.

**Plants** - wild barley flour, tubers, seeds, nuts, and flowers and they were likely to cook these foods as well.

**Seafood** - includes shellfish and other small fish. This was a major food group for the people living in coastal regions.

**Insect products:** such as honey and honeycomb were also a part of the paleo diet.

While dairy, grains, and pulses are excluded but the inclusion of potatoes and alcohols is still arguable [5].

### Variations of Paleo Diet

There are three variations of the paleo diet:

Variations	Food allowed
Primal paleo	White rice, dark chocolate, fermented dairy products, honey, ghee, maple syrup, and wine
Normal paleo	Chocolate, raw honey, ghee, butter, maple syrup, and wine
Strict paleo	Wine and grass-fed meat and butter only

### Nutritional Quality of the Paleo Diet

Nutritional quality refers to an adequate, balanced, and healthy diet that provides a good proportion of macro and micronutrients. The Paleolithic (Paleo) diet consists of about 33% protein, 25% carbs, and 42% fats derived from Cordain’s publication [1]. The current composition of the paleo diet has been established and the calorie contribution by each food group to the total energy intake is 15% from vegetables, fruits, and nuts, 27.5% from fish and meat group along with 2 eggs and olive oil in moderation. The meat group included in the paleo diet is grass-fed meat which is higher in protein and omega-3 than grain-fed meat.

A “dietary quality index” based on 10 nutritional indicators was used to assess the quality of diet and its association with disease, recommended by health organizations such as WHO. It is observed that the consumption of the paleo diet improved health and lowered the risk of diseases in vulnerable populations. The score of the dietary quality index for the paleo diet was 260 higher than the standard value of 100 [6].

### Health Benefits of the Paleo Diet

The idea of the Paleo diet first appeared in the 1970s but gained popularity in 2002 because of its multiple health benefits.

- The evolutionary discordance is more supporting the Paleolithic (Paleo) diet. As human evolution stopped before the development of the agricultural era 10,000 years back. So, a Paleolithic (Paleo) diet is more compatible with human genetics as it consists of foods that were only available in the stone age.
- Also, the morbidity of disease is associated with the contradiction between current dietary patterns and our Paleolithic (Paleo) DNA.
- The paleo diet is also good in sports nutrition due to 29.3% protein, which is more than the required RDA, thus, suitable for athletes with higher needs of protein to develop muscular strength and endurance.
- It provides 25% carbohydrates which are lower than dietary guidelines that recommend 45-65% caloric intake from

carbohydrates. This low carbs approach can be beneficial for weight loss among obese people [6].

- The diet is also rich in vitamins A, C, and E which boost our immune system and prevent oxidative damage in the body.
- Some short-term clinical trials and studies also reveal that the Paleolithic (Paleo) diet provides a balanced proportion of calories and macronutrients also associated with weight management, satiety, improved insulin sensitivity, and blood pressure.
- According to research, a high-protein paleo diet can reverse the effects of non-alcoholic fatty liver disease [2].
- Consumption of highly processed food causes a reduction of gut microbiome diversity that can be a cause of chronic diseases, but Paleolithic (Paleo) dietary patterns may modulate the microbial diversity and reduce the risk of morbidity [7].
- It is not possible to mimic the exact diet that our ancestors had but we can at least incorporate some key foods and lifestyle habits into our modern lifestyle.

### Paleo Diet Vs Modern Diets

The quest for an ideal diet that promotes health and longevity has become difficult as a wide range of diets is available in this modern era. Therefore, a comparison of the paleo diet with other diets concerning NCDs has been considered in several studies.

**Mediterranean diet-** Nutritional quality index of the paleo diet was found to be higher at 260 followed by the Mediterranean diet with a score of 178. Furthermore, the Paleo diet provides more polyunsaturated fatty acid than other diets consequently reducing the LDL and cholesterol levels of the body [6].

**Regular American diet-** When compared with a regular American diet, the paleo diet was found to have a higher percentage of potassium, antioxidants, vitamins, minerals, and fiber that are required for proper metabolic functions of the body [1].

**DASH diet-** Both paleo diet and DASH diets are low in sodium but in some research studies paleo diet is seen to have more impact on NCDs.

**Diabetic diet (ADA)-** In a clinical trial of obese patients with type 2 diabetes, compared with the diabetic diet (ADA), the paleo diet led to improved insulin sensitivity and body weight [8].

**Vegan diet-** Paleo diet is more likely to manage body weight as it includes many protein and iron-rich foods.

### Drawbacks of the Paleo Diet

The paleo diet is currently overhyped but there are also some drawbacks related to this diet:

- Poor nutrition is often associated with a lack of education and awareness but sometimes resources also interfere with adequate nutrition and a paleo diet is 10 % more expensive than another diet with similar nutritional quality and value so people with low income will not prefer a paleo diet.
- Calcium intake is about 50% of the RDA as dairy products are excluded from the diet, leading to an increased risk of osteoporosis.
- Modern man does not have a stone age lifestyle and wild animals as food are not readily available.
- Long-term and heterogeneous trials are still required to validate the usefulness of this diet.
- The consumption of excess seafood can elevate the toxin levels of the body [9].

### Conclusion

Nutrition has been a critical part of health and development and over recent decades increased nutritional awareness among the public has led to the advent of multiple healthy as well as fad diets such as the Ketogenic diet, Mediterranean diet, Vegan diet, and Dukan diet. The popularity of these diets depends upon consumer acceptance and palatability. But our concept should be to develop a "right diet" that consists of an adequate and balanced amount of nutrients from a variety of food groups. Fruits, vegetables, nuts, dairy, cereals, healthy fats, and seafood with moderate amounts of red meat and unsaturated fat must be included in sufficient proportions along with increased

physical activity. The Paleo diet is observed to have valuable effects on human genetics and improve life expectancy.

### References

- [1] Agoulnik D, Lalonde MP, Ellmore GS, McKeown NM. Part 1: the origin and evolution of the paleo diet. *Nutr Today*. 2021 May;56(3):94-104.
- [2] Tarantino G, Citro V, Finelli C. Hype or reality: should patients with metabolic syndrome-related NAFLD be on the hunter-gatherer (Paleo) diet to decrease morbidity. *J Gastrointest Liver Dis*. 2015 Sep;24(3):359-68.
- [3] de Menezes EV, Sampaio HA, Carioca AA, Parente NA, Brito FO, Moreira TM, *et al*. Influence of Paleolithic diet on anthropometric markers in chronic diseases: systematic review and meta-analysis. *Nutr J*. 2019 Dec;18(1):1-2.
- [4] Singh A, Singh D. The Paleolithic diet. *Cureus*. 2023 Jan 25;15(1):1-4.
- [5] Challa HJ, Bandlamudi M, Uppaluri KR. Paleolithic diet. *StatPearls*. 2021 Aug;1-5.
- [6] Cambeses-Franco C, González-García S, Feijoo G, Moreira MT. Is the Paleo diet safe for health and the environment?. *Sci Total Environ*. 2021 Aug;781:1-13.
- [7] Barone M, Turroni S, Rampelli S, Soverini M, D'Amico F, Biagi E, *et al*. Gut microbiome response to a modern Paleolithic diet in a Western lifestyle context. *PLoS One*. 2019 Aug;14(8):1-14.
- [8] Masharani U, Sherchan P, Schloetter M, Stratford S, Xiao A, Sebastian A, *et al*. Metabolic and physiologic effects from consuming a hunter-gatherer (Paleolithic (Paleo) )-type diet in type 2 diabetes. *Euro J Clin Nutr*. 2015 Aug;69(8):944-948.
- [9] Pitt CE. Cutting through the Paleo hype: The evidence for the Palaeolithic diet. *Austr Fam Physi*. 2016 Jan;45(1-2):35-38.