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An overview on components and therapeutic effects of the paleolithic diet

Ahamed Mueen Mubeen [1,*], Balasubramaniyam Natarajan [1], Anamika Sekar [1], Bhavadaarini Veeramuthu [1], Dharshini Saravanan [1], Ganga Devi Balasubramaniam [1], Iswarya Murugesan [2], Jesline Sneha Ramesh Kumar [2] and Praveen Sekar [2,*]

[1] *Department of Pharmacognosy, Swamy Vivekanandha College of Pharmacy, Tiruchengode, Tamilnadu, India-637205.*
[2] *Department of Pharmaceutical Chemistry, Swamy Vivekanandha College of Pharmacy, Tiruchengode, Tamilnadu, India-637205.*

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Abstract

The most essential need for Humans to survive on this evergreen Earth is Air, Water, Food and Shelter. In the above factors, food plays a core role in Human Health. The food habits which are followed nowadays give a map to reach diseases; this is due to Modern foods which include fast foods, preserved foods and deep-fried and packed snacks. Unhygienic cooking can also lead to contamination of foods and causes serious health issues for all humans. This should not be extended to our future generations. 10,000 years ago, the Mortality rate was less while the people were healthy, strong and also free from many non-communicable diseases. One of the secrete behind this is food habits and physical activities. This review tells an idea about its History, Theory, Components and its effects on certain non-communicable diseases like Atherosclerosis, Osteoporosis, Stroke, Ischemic heart diseases, Type 2 diabetes mellitus, Sleep Apnoea, Inflammation deficiency, Gut health, inflammatory bowel disease, obesity, risk factors and its improvement on consuming Paleolithic diets. It also gives brief information about the paleo ketogenic diet and its treatment of rectal cancer, soft palate cancer. Modified Paleolithic diet also includes nutritional risk among people with multiple risk factors and also on metabolic syndrome.

Keywords: Paleolithic diet; Ketogenic diet; Diet chat; Food habits; Non-communicable diseases

1. Introduction

In recent days, the graph reaches a peak in people suffering from metabolic syndrome like CVS, diabetes and obesity. The main reason behind this is due to following modern food habits. To minimize this graph, a paleo diet is recommended. The paleo diet is also called as Paleolithic diet**,** Hunter-gatherers diet, Stone Age diet and caveman diet [1]. About some 2.5 million-30,000 years ago, the Lifestyle of humans was different, interesting and healthier. They always moved in search of food for their next meal. Until they discovered farming, their source of food was animals and plants which were edible [2]. The word *Paleo*" is not a term, but the word "*diet"* gives two meanings; on one hand, diet means "what is eaten on the other hand, it is "eating less food or different food" [3]. Paleo diet is defined as, "current foods that resemble the food group of before agricultural hunter-gatherer ancestors" [4]. It is composed of meat, fish, vegetables and nuts excluding food, dairy products and refined grains. Paleolithic diet frequently referred to as hunter-gatherer diet is focused on the disciplines of evolutionary biology. The Paleo diet has been followed from 2.6 million to 10,000 years ago. These diets include the large conception of animal food and hominins used to eat plant foods [1].

* Corresponding author: Praveen Sekar and Ahamed Mueen Mubeen

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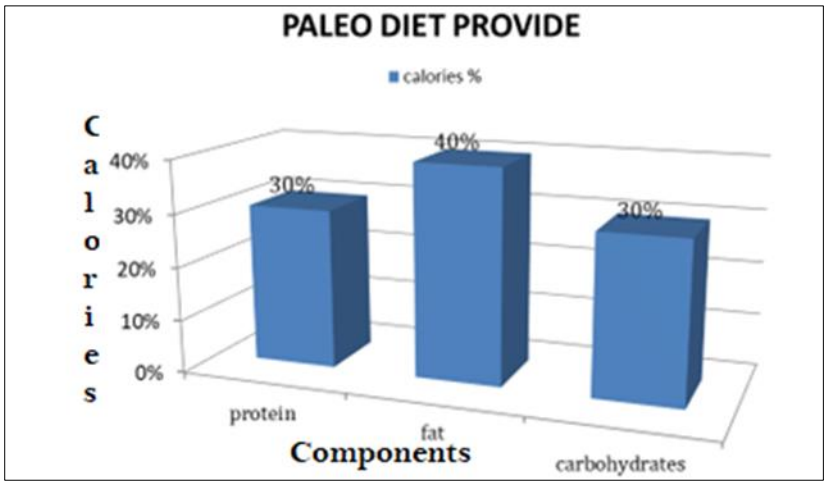

Figure 1 Graphical representation of components of the paleo diet

1.1. History

Recently, the plan of nutrition was relatively deployed on Paleolithic ancestors by their diets. Several organizations namely "The Sierra Club", which was introduced in 1892 by John Muir, that he pawned to explore and enjoy the wild places of the earth to produce. Theodore "Teddy Roosevelt" the 26th president, who additively builds the trapping environmentalist in 1887, Boone and Crocket Club in 1837 brutally, favored the national park service to be expanded and created. In the early 1900s detained Teddy Roosevelt's presumed "arduous life". The "primitive man", by the basic fact of Knowles, has a diet comprised of berries and trout.

He eventually wanted to kill the bear with the crude club in an experiment; Knowles assumes that, for garbing clothes from animal haut and vogued sandals from denied moist barks. Knowles sabred that journey which tremendously ameliorated his overall health, he lost weight but profited from muscle pigmentation enhanced, digestion gets modeled and he marveled at the aptness to cheer up over a gran with his legs. Dr. Arthur De Vany was born in 1937, he used up his working days to discern the exercise regimen of filmdom stunts, in which many of them heaved heavy weights and planned their meals De Vany by use of this investigation, created his "Evolutionary fitness regimen" mapped out to imitate the hunter-gatherer ancestors physical and dietary habits. The Paleolithic epoch dominated the health benefits, it was then brought into vogue by gastroenterologist Walter Voegtlin in 1957, who herself-issued the book "The Stone Age Diet". The human progenitor was, assured exclusively flesh-eaters by Voegtlin. The restoration of sugar was favored by Voegtlin and it was innovated in 1937 in 1969, it was out flawed by USFDA. Subsequently, it risked health problems mainly urothelial carcinoma. Walter Voegtlin's stone age diet was concealed by another rule of the diet of 1970s dietary guidelines for Americans. The nexus publication from the Department of Health and Human Services (HHS) and the Department of Agriculture (USDA) was brought out in 1980. Eaton and Konner's article leads us to believe the difference between the diet that has chief insinuation for health which leads to illnesses like CAD, HP, Diabetes and Types of cancers. Eaton and Konner cast off the 58th current hunter-gatherer groups in which they acquired food from animals in which the number of daily calories is noted [3].

1.2. Paleo Theory

The reason why people follow Paleodiet is due to rejected theory that states that the human body does not evolve enough to process the foods that are eaten today. Until farming was discovered the only source of food for humans around 30,000 years ago was the animals and plants around them. They could kill it and be noted as edible or eatable. Paleo foods consist of lean meat, fish, shellfish, eggs, nuts, seeds, fruits, vegetables, olive oil, coconut and honey. Certain foods like cereals whole grains, refined grains, sugars, dairy products, white potato, legumes, alcohol, coffee, salt, refined vegetable oil and most processed foods are not included in it. The hypothesis behind this diet says that farming introduced new food groups in our system, that our bodies were not capable to break (eg: dairy and grains were not metabolized and it cause weight gain and other health issues due to lack of enzymes). This mismatch between the human body's biotransformation and ability to adapt to post-farming food is called the discordance hypothesis [4].

2. Paleo Components of Diet

2.1. Preservatives and additives free food

It is a real food that is free from preservatives, artificial ingredients and chemical additives which resemble food hunted and gathered by paleolithic humans [5]. The United States Food and Drug Administration (USFDA) listed 3,968 additives approved for food use in America, but they are not considered natural. Eg: Item no.0545 or natural fruit juice has chemical formaldehyde (0543) [6].

2.2. Vegetables

It is an absolute core component (it is the basement), organic locally grown vegetables are referred as grown with chemicals or additives are not included. Steve Kamb, author of "The Beginner's Guide to the Paleodiet" suggested that as long as vegetables are not deep fried eat as you want [3]. It provides fullness at a lower caloric cost fresh vegetables that are rich in vitamins and minerals that contain phytonutrient soluble, fiber carbohydrates. Vegetables have less glycemic index (GI) impact than typical carbohydrate-rich Western foods like bread and white potatoes [7]. Vegetables are a major part of the paleo diet. They can be boiled, grilled, sauteed and baked [3].

2.3. Types

- Leafy greens – Spinach, lettuce, kale, chard and broccoli
- Root vegetables– Carrot, turnips, parsnips, onions, beetroots
- Culinary vegetables - tomato, cucumber, pepper, eggplant and avocado [3].

2.4. Fruits

Fruits are a central component of the paleo diet Vegetables, there are rich in vitamins, minerals and phytochemicals. Especially fruits like prunes, bananas, the skin of apples and pears are rich in fiber [7].

These fruits can be suggested to reduce weight as it is high in calories, sucrose, fructose and carbohydrate s[8]. Examples: oranges, bananas, pineapple (high sugar), berries and melons (low sugar). Fruit juice is excluded from the paleo diet because it has a lot of sugar.

2.5. Meat

The chief source of protein and fat in the paleo diet is meat. In 1985 Konner and Eaton proposed that the average hunter-gatherer diet was comprised of 35% animal food and 65% plant food [9]. Lean meat that provides calories and low serum lipid or fat in the blood leads to health problems like obesity and heart disease [10]. Omnivorous poultry chicken, turkey, duck, pork, grass-fed pasteurized beef and bison, wild fish and shellfish [8]. Even organs like the liver, heart and tongue are rich in nutrients. Nutritional research spanning three decades shows the stark difference between grass-fed and grain-fed beef. Grass-fed varieties contain more omega 3 fatty acids and less omega 6 fatty acids. Omega 6 fatty acid is linked to arthritis, chronic inflammation and cancer [11]. Grass-fed beef contains more precursors for vitamins A and E, more cancer-fighting antioxidants like glutathione and superoxide dismutase and less total fat than grain-fed beef [12].

2.6. Nuts and Seeds

It is rich in protein, fat, vitamins and minerals, as nuts have a higher amount of omega-6 fatty acids than omega-3 fatty acids. Nuts and seeds contain two varieties of fatty acids, phytic acid and phytate. Excessive consumption of phytate leads to irritation in the lining of the gut by reducing digestive enzymes like trypsin and pepsin [13]. So, when nuts and seeds are soaked or boiled, they can break down phytate. Some examples include unsalted almonds, cashews, Brazil nuts, walnuts, pecans, pistachios, hazelnuts, sunflower seeds, pumpkin seeds and peanuts.

2.7. Fats and oils

It plays a different role in the paleo diet. Edible oil from corn, rice, bran, soybeans, cotton seeds and peanuts. These oils are obtained by extraction techniques. With the advent of agriculture, there is a greater variety of edible oil and cooking oil available in the paleo diet.

Edible fats fall into two categories:

- Saturated
- Unsaturated

Saturated fat comes from meat, dairy, eggs, coconut oil and palm oil. They consist of a carbon-atom fatty acid chain with a hydrogen atom and no double bond [14]. They are solidified at room temperature. Unsaturated fat has one double bond between carbon atoms. They remain liquid at room temperature. Monounsaturated fatty acids have one double whereas polyunsaturated fatty acids contain two or more double bond [14]. Monounsaturated fatty acids are found in many oils, including peanut, canola, olive, avocado, corn, sunflower and soybean. Sunflower oil is a prominent source of PUFA. The rancidity leads to digestive distress [3]. Animal fat, fish oil, olive oil, palm oil, coconut oil and avocado oil are the oils of the paleo diet.

2.8. Tubers

Tubers, which store nutrients for survival, growth and asexual reproduction (e.g., sweet potato, yam, cassava), are mostly eaten by modern humans. Comparing sweet potatoes and yams, yams are highly rich in carbohydrates and calories but have a low sugar (less glycaemic index) [15]. Sweet potato and yam are rich in carbohydrates; saponins include micronutrients like vitamin B5, manganese, potassium and beta-carotene [3].

2.9. Liquids

Proper hydration is the central point of the paleo diet. Ten cups of water should be taken by humans, [16] but on those days, people drink water whenever they feel thirsty. But it can cause dehydration and side effects like headache, fatigue, yellow urine, lethargy, dry mouth and lips leading to hypernatremia [3].

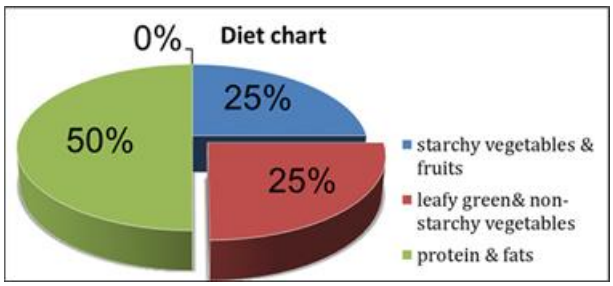

Figure 2 Pie chart on components of paleodiet

Table 1 Foods should to be taken and to be avoided

Foods should be taken	Foods should not be taken
Fruits: Berries, melons, banana and plantains, apples, pear, peaches, plums, citrus fruits, mangoes, papaya, grapes, dates, figs.	Grains: Wheat, corn, oats, rice, barley, quinoa, sorghum, etc.,Cereals, pasta, chips, bread
Vegetables: Greens, green beans, green peas, root vegetables, broccoli, cauliflower.	Legumes:Beans, peas, peanuts, peanut oil, lentils, soybeans.
Meat: Grass-fed beef, turkey and chicken, pork, wild-caught fish, shellfish, organ meats	Dairy: Milk, butter, cheese, ice cream, yogurt.
Nuts and seeds: Almonds, cashews, hazelnuts, pistachios, brazil nuts, walnuts, etc., Sunflower seeds, pumpkin seeds, pine nuts.	Proccessed meats: Deli meat, sausages, Grain-fed beef, farm-raised fish and seafood.
Fats and oils: Animal fat, olive oil, coconut oil, palm oil, avocado oil.	Fats and oils: Vegetables oils, corn oil, peanut oil, soybean oil, canola oil, sesame oil, etc.,
Liquids: Water, coffee, tea, 100% coconut water	Liquids: Alcohol, soda, fruit juice, energy drinks.

3. Effects of a Paleo Diet on the following Diseases

3.1. Atherosclerosis

The intake of fat is not the only dietary factor that influences atherosclerotic action in animal experiments. Numerous trials have revealed that casein nurtures atherosclerosis more than soy protein [17] and one test suggested that meat proteins are slightly more atherogenic than soy protein and casein [18]. The harmful impact of milk protein on serum cholesterol and atherosclerosis is commonly known as an effect of animal protein.

3.2. Osteoporosis

The wide geographic variation in osteoporotic fracture incidence rates suggests that there are more lifestyle factors at play in addition to those already mentioned (physical inactivity, inadequate calcium intake, vitamin D deficiency, weight loss, smoking and alcohol use). The original paleolithic way of life contained advantageous elements such as frequent outdoor exercise at low latitudes, high calcium bioavailability due to a restricted diet of cereals and beans and little urinary calcium loss due to low sodium intake [19,20]. The intake of calcium from green and leafy vegetables was occasionally high. Additionally, they contain a lot of potassium, which has an alkalinizing effect on urinary calcium loss. The Paleolithic diet excluded cheese, cereals, beans [21] and added salt, but it did have more fruits and vegetables than people currently do, which may have had a positive overall effect [22].

3.3. Stroke and ischemic heart disease

According to the available data, groups that maintain traditional subsistence and lifestyle patterns are rare and free of obesity, hypertension, diabetes and cardiovascular disease [7]. The evidence is particularly strong for ischemic heart disease, but even stroke has been conclusively linked to urbanization in East Africa during the 20th century. As urbanization increased in the area starting in 1920, three surveys conducted in Uganda showed that stroke went from being absent to becoming the most prevalent neurological disorder [23,24,25]. A similar phenomenon is occurring in Papua New Guinea, where stroke, a neurological condition that was previously unknown, has emerged as one of the major causes of death and disability in that country. Male smoking rates were 75% and female smoking rates were 80%, supporting the idea that smoking might not be enough to induce cardiovascular disease alone. Smokers had greater serum triglycerides, a lower level of high-density lipoprotein cholesterol, apoprotein Al and triceps skinfold thickness (TSF) than non-smokers, but no difference in fibrinogen [26,27,28]. The estimated level of physical activity was slightly higher than that of sedentary Westerners at 1.7 multiples of basal metabolic rate.

3.4. Type II Diabetes Mellitus

Patients have abnormalities like insulin resistance, hypertension, dyslipidemia, hyperuricemia and coagulopathy. This is due to the following Western diet, which includes refined grains, high-fat dietary products and processed meat, but the paleo diet excludes the above and includes meat, fish, fruits, vegetables and nuts, which prevent these disorders as they decrease sodium and increase potassium concentration, antioxidants and micronutrients. Oster Dahl et al. did a short-term study following a paleo diet to find out the change in glucose levels, but there was an improvement in BP and weight loss but not in carbohydrate and lipid metabolism. Another study was made by Lundeberg and colleagues on 29 non-hypertensive patients and found a good result: the glucose level was lowered for 12 weeks with no effect on BP or weight loss. They compared paleodiet people with standard diet nutrients given by the American Diabetes Association (ADA diet) with 25 patients with type II diabetes. Basic data were collected on urine, electrolytes, lipid profile, HbA1c, fructose amide, insulin sensitivity and BP for 7 to 14 days. A urine sample was collected and compared with both groups, which was analyzed by Quest Diagnostics (San Jose, CA, USA) and the results showed that the paleodiet group had better results in controlling diabetes with HbA1c and fructose amide levels were also normal when compared to the ADA diet [29]. Long-term studies of the Palaeolithic diet in patients are not yet available. A group of diabetic Australian aboriginals was studied by Karin O'Dea [30], who returned to a paleolithic form of living for a seven-week period. Development was substantial for most measures, especially those associated with overweight and insulin resistance. The low glycemic load and low energy density appear to be advantages for such patients. The intake of high protein may have a damaging effect on renal function; however, the consequences of these results are questionable [7,31,32,33]. The significance of protein quality was recommended by a small number of animal studies.

3.5. Sleep Apnoea

80% of women with obesity develop sleep apnoea after menopause. This is due to fat mass distribution and a change in sex hormones. A paleolithic diet reduces body weight and improves metabolic factors, so a study was made to compare the effect of a paleolithic diet on sleep apnoea in overweight women after menopause with that of a low-fat control diet. According to Nordic nutritional recommendations conducted in UMEA, Sweden, with 210 females with a BMI greater

than 27 kg/m2. The paleo diet has 30% protein and 40% fat and the Nordic nutritional recommendation has 15% protein, 25–30% fat and 55–60% carbohydrate. The baseline was recorded after 6 months and 2 years, which included the sleepiness scale, weight and height. The results were found to be that females who follow the paleolithic diet are free from sleep apnoea compared to those who follow the standard diet. Body weight was also decreased in the paleolithic diet when compared to the standard diet in 2 years [34].

3.6. Inflammation deficiency

Acidogenic foods drop the body's pH. which leads to cascade enzyme activation, inflammation and tumors, but paleodiet finds solutions for this. Various clinical cases and cohort studies have proven the paleo diet prevents metabolic syndrome [35].

3.7. Gut health

One more advantage added to the paleo diet is that it improves gut health by examining anthropometric and cardiometabolic outcomes. The main objective of this study is to determine the association between dietary intake, markers of colonic health, microbiota and serum trimethylamine-N-oxide (TMOA), a gut-derived metabolite associated with cardiovascular disease. Both men and women aged 18–70 participated in these studies, followed by a paleo diet and a controlled diet. Their BMI was around 30 kg/m^2. Blood, urine and stool samples were taken and reported over a 48-hour period by portable freezers (Waeco-CF-40, domestic, Australia) and physical activity was assessed by International Physical Activity Questionaries. The results showed that the intake of resistant starch was lower in paleolithic groups compared to control groups. Permanova analysis shows a difference in microbiota composition with a higher abundance of TMA producer Hungatella in paleo diet groups. TMOA is increased in the paleo diet and improved gut and cardiovascular health [36].

3.8. Inflammatory Bowel Disease

The human gastrointestinal tract is weakly evolved to accept the modern diet that resulted from the development of the latest agricultural practices. Exposure to foods that weren't available at the time of human evaluation leads to modern diseases. The paleo diet includes cereal grains, fruits, vegetables and protein like lean meats, fish, shellfish, nuts, seeds, beverages and honey. The foods that cannot be included in the paleo diet are potato, corn, yucca, butternut, squash, yam, beet, domesticated meat, all legumes, peanuts, dairy products, soft drinks, alcoholic beverages, fruit juice, refined sugar, artificial sweeteners and so on. The diet does not focus on eliminating certain foods but rather on the source and balance of caloric intake. Lean protein contains 30% to 35% of daily calorie intake, a high-fiber diet and plant sources for 45 to 100g of calorie intake, so this type of diet relieves the symptoms of inflammatory bowel diseases for the patients [37].

3.9. Lung neutrophils

The roles of neutrophils are phagocytosis, degranulation and the release of nuclear material in the form of neutrophil extracellular traps. The inflammation in the tissue leads to neutrophil degranulation, which leads to hypoxia in the lungs. The protein content (glutamine) in the paleo diet provides an energy source for hypoxic and sugar-starved neutrophils, as demonstrated by Watts et al. The mechanism of inhibiting the development of proinflammatory neutrophils by the glutaminolysis pathway [38].

3.10. Obesity

On comparing the effects of the paleo diet and the guideline sustained diet (GSD), On anthropometric indicators of obesity in people for 60 days, the result was found to be that the paleo diet group had the highest weight loss and highest BMI and WHR was reduced compared to the GSD; therefore, the paleo diet is used to treat obesity and reduce anthropometric markers [39].

4. Case Study

4.1. Case Study on Mice

Lamont et al. performed a case study on mice, which are omnivores, for 1 year and found that the mice contain high carbohydrate and low-fat content. This was compared to humans who follow a paleo diet and the results showed that mice experienced worse health outcomes than humans who follow low-carb, high-fat diets (LCHFDS). That prevents obesity and manages diabetes [40].

4.2. Case Study on Pregnant Neanderthal Women

Bryan Hockett made a case study on the model of pregnant Neanderthal women who lived 40,000 years ago and found out the consequences faced by them on their consumption of terrestrial herbivores, which includes foods like bison, deer ribs, brains, liver, tongue, stomach, oxtails, snowshoe hare, lard, meat and 39% of fats and cholesterol. This model was compared to modern humans who follow the paleo diet and studied the dietary intake and energy requirements. Finally, he concluded that the terrestrial herbivores consumed by the pregnant Neanderthal women kill the mother as well as the fetus and face many more consequences than the modern pregnant women who follow the paleo diet [41].

5. Risk Factors and Their Improvements

Comparing the paleo diet with several reference diets, we collected data from 3 uncontrolled trials and 6 randomized controlled trials (RCT) and reported that the paleo diet caused improvements in anthropometry, blood pressure control, lipid profile and insulin sensitivity. The high protein content of the paleo diet causes a decrease in appetite, which leads to weight loss, which is used for the treatment of type-2 diabetes. Fat content in the paleo diet is higher than in modern diets, such as omega-3/omega-6 ratio fatty acids, which cause improvement in inflammatory markers and lipid profiles that prevent cardiovascular diseases. The Paleo diet contains low carbohydrates as there is no refined sugar except honey, which leads to a decrease in body weight. The total fiber content of the paleo diet ranges from 80 g/d to 150 g/d. This prevents hypertension and reduces blood pressure in patients. The Paleo diet has less sodium and more potassium intake; it is also rich in antioxidants like vitamin C, vitamin E, beta-carotene, selenium, folate, phenolic compounds and other phytochemicals from green leafy vegetables, which reduce the risk of cardiovascular diseases [42].

A metabolically controlled study was performed with healthy volunteers and people followed a paleo diet for 10 days. The result was found to be improved in the following areas: blood pressure, glucose tolerance, decreased insulin secretion, increased insulin sensitivity, colorectal cancer, [43] lipid profiles and weight loss for the people who follow the paleolithic diet compared to the people who follow a normal diet [44].

5.1. Paleo-Ketogenic Diet

The Paleo ketogenic diet is an animal-fat, meat-based diet that was proposed by Voegtlin and has a fat-to-protein ratio of 2:1 (in grams). The paleo-ketogenic diet contains fat and red meat. And exclude the following: Cereal grains, milk and dairy products, vegetable oils (including coconut oil and olive oil), oil seeds, nightshades, legumes, refined sugars, artificial sweeteners and foods with additives [45].

5.2. Palaeolithic Ketogenic Diet in Rectal Cancer

A case study was done on the treatment of rectal cancer with an animal-fat meat-based diet. The patient does not consume any medications or any other dietary supplements while on the diet. The patient initially received 6 weeks of radiation therapy. During the first 5 months of diet therapy, the patient had improvements in laboratory parameters, including decreased tumor marker levels and decreased tumor size. The MRI imaging showed no increase in the size of the tumor 22 months after diagnosis [45].

5.3. Soft Palate Cancer

Tumor cells with dysfunctional mitochondria are unable to use ketones but depend on glucose for energy, so they are adopting the paleolithic ketogenic diet, which shifts carbohydrates toward fat. The patient has soft palate cancer and started on a paleo-ketogenic diet for 20 months without symptoms or side effects the patients were safe [46].

5.4. Treatment of Epilepsy in Palaeolithic Ketogenic Diet

A case study on a 7-year-old child with absence epilepsy was successfully treated with a paleolithic ketogenic diet. The child was free from seizures within 6 weeks and improvement in behavior was noted after following this diet. The carbohydrate-restricted paleolithic diet is called the paleolithic ketogenic diet. An electroencephalogram (EEG) examination showed a frequency wave discharge of 2.5 Hz during both sleep and wakefulness. The child was observed to be free from epilepsy [47].

5.5. Modified Palaeolithic Diet

A modified paleolithic diet includes a daily intake of leafy green vegetables, sulfur-containing vegetables, colored fruits and vegetables (FV), meat, fish, cod liver oil, methyl folate, methyl B12 and vitamin D3. Excluding eggs, dairy and gluten-containing grains may increase the risk of micronutrient deficiency [48].

5.6. Nutritional Risk of Multiple Sclerosis

A study was made with participants following a modified paleolithic diet compared to individuals recommended to use nutrient adequacy ratios (NARs). Blood was drawn at baseline to calculate the intake of micronutrients and evaluate the biomarker changes. A modified paleolithic diet is associated with minimal nutritional risk. The result found an increase in vitamin D, vitamin C, niacin, magnesium, zinc, vitamin B12, B6, K1, K2, A, sodium and folate in the modified paleolithic diet compared to the NAR group [48].

5.7. Modified Palaeolithic Diet Treatment Metabolic Syndromes

Metabolic syndrome is a combination of metabolic risk factors causing non-communicable diseases such as diabetes and cardiovascular diseases. A modified paleo diet has an effect on inflammation, adipokines, hepatocytes and the profile of endothelial microparticles in individuals with metabolic syndrome [49].

6. Research

The research says that the paleo diet is not the best or most applicable for all humans. This diet produces similar effects to a balanced diet and regular exercise. A study was done by the Harvard School of Public Health on the effects of a paleo diet and a balanced diet with exercise in Sweden. The controlled trial was conducted on 70 postmenopausal women with obesity for 2 hours. They were divided into three groups:

- Paleo diet
- A balanced diet
- Nordic nutrition recommendations

Paleo diet contains calories of 30%proteins,40%fats and 30%carbohydrates, On the other hand balanced diet contains calories of 50%proteins,25-30%fats,55-60%carbohydrates. Nordic nutrition recommendations include low fat products and high fiber contents. On comparing the above three groups paleodiet gives a best result in improving weightloss ,glucose tolerance,blood pressure control,triglycerides levels and appetite management [2].

7. Conclusion

Processed foods and modern food habits lead to health problems like cardiovascular diseases, diabetes, cancer, high blood pressure and many other diseases, but the Paleo diet followed by our ancestors, which was eaten by gathering and hunting, teaches us that, how they stayed healthy and also lived longer. Many studies have been conducted to compare the paleo diet to other types of diets and modern foods and the results show that the paleo diet has a greater effect on diseases and treatment by lowering blood pressure and body weight, increasing insulin secretions, decreasing tumor size and so on when compared to other types of diets. The paleo diet makes us healthy as well as disease-free, which is very essential for a happy and sustained life. Avoiding processed and modern food habits can put an end to harmful lifestyles. The Paleo diet is filled with nutrients and also reduces nutrition risk factors. It has also been modified and called the modified Palaeolithic diet and the Palaeolithic ketogenic diet. The above diets have undergone many research studies and proved that they also contribute to a healthier life. Therefore, in the above review, we conclude that, the Paleo diet is effective, safe in patients and free from side effects so, we recommend the Paleo diet but before to follow, consult with physician and dietician.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors hereby disclose no conflicts of interest regarding the publication of this paper.

Author's contribution

All the authors have contributed equally.

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