SHORT COMMUNICATION

Veganism: Its Impact on Human Health

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ABSTRACT

Plant-based diets are increasingly popular for improving human health, animal welfare, and reducing environmental impact. They emphasize whole plant foods while avoiding meats, dairy, eggs, and processed foods. Compared to meat-based diets, plant-based diets generate fewer greenhouse gas emissions and have a smaller environmental footprint. These diets can lower blood pressure, cholesterol, HbA1C, and body mass index, while reducing mortality from ischemic heart disease. However, many healthcare professionals do not emphasize plant-based diets for chronic illness treatment due to lack of knowledge or resources. Proper food selection is crucial to prevent nutritional deficiencies and ensure acceptance.

Key words: Plant based diet, Vegan, Vegetarian

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INTRODUCTION

Plant-based diets have gained popularity as a way to improve human health and animal wellbeing while lowering the environmental impact of the diet. Vegetarians and vegans make up a smaller proportion of the population than omnivores, but their numbers have considerably increased in recent years.[1]

A plant-based diet emphasises predominate consumption of grains, vegetables, fruits, legumes, nuts, and seeds. The diet also advises against consumption of all meat, dairy, and animal products as well as any refined and processed meals and encourages entire, plant-based foods. Adopting a plant-based diet is a low-risk, cost-effective strategy that has the potential to reduce blood pressure, cholesterol, HbA1C, and body mass index.[1,2] They might also lower mortality rates from ischemic heart disease and lower the quantity of medications required to address chronic illnesses.[1]

Nationwide, worries about the rising expense of healthcare are being expressed, despite the fact that unhealthy lifestyle choices are causing an increase in cardiovascular disease, diabetes, and obesity. To

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combact these health care concerns, medical professionals are constantly searching for affordable solutions to these health concerns and encourage their patients to lead healthier lifestyles.[2] Compared to meat-based diets, plant-based diets are more environmentally friendly and have a smaller negative effect on the environment, including generating fewer greenhouse gas emissions.[3,4]

Despite the vast amount of evidence supporting plant-based diets, including studies demonstrating their widespread acceptance, many medical professionals are undervaluing their significance as a form of treatment for chronic conditions. This could be because there aren't enough resources for patient education or because people don't know enough about these diets.[4] Proper food selection and combination is critical to actively follow this lifestyle and also minimize nutritional deficiencies.[1]

Benefits of Plant-Based Diets: Every phase of life, including childhood, youth, pregnancy, breastfeeding, and old age, can benefit from a plant-based diet. A varied gut microbiota is also linked to plant-based diets, which are rich in fiber and polyphenols and produce metabolites with anti-inflammatory properties that may aid in the management of disease processes.[3] Since its discovery, several studies have emphasised the importance of microbiota in health and illness. Microbiota can be divided into four categories based on the localised areas: gastrointestinal, mouth, respiratory, and skin. Together with the host, the microbial populations maintain homeostasis and control immunological response. On the other hand, dysbiosis of the microbiota can result in diseases such as cancer, respiratory disorders, cardiovascular diseases (CVDs), and deregulation of body systems.[3]

Throughout the world, cardiovascular disease remains the leading cause of death and disability. The main risk factors for CVD, which are linked to poor diets, are dyslipidemia, obesity, hypertension, metabolic disorders, and diabetes. Improvements in a number of intermediate cardio-metabolic risk markers, such as body weight and blood lipids and cardiometabolic risk profiles have been observed in randomized controlled trials of vegan and vegetarian population.[1,3,4]

Many research investigations carried out globally demonstrated that, in comparison to control diets, adopting a plant-based diet was associated with notable improvements in depression, mental and physical well-being, quality of life, overall health, weight, HbA1c levels, and total LDL cholesterol levels.[1,3]

Whole grains, legumes, fruits, vegetables, nuts, and seeds are abundant in vegetarian and plant-based diets, and these foods have been associated with notable reductions in a number of modifiable risk factors, including blood glucose, inflammation, blood pressure, atherogenic lipoprotein concentrations, body mass index (BMI), and waist circumference.[3]

Experimentation has shown that switching to a plant-based diet can aid in weight reduction and numerous studies have connected plant-based diets to lower BMIs. In 2018 the publication of a 16-week randomised control clinical study, examined the effects of a diet high in vegetables and low in animal protein on body fat percentage, body mass index (BMI), and insulin sensitivity. The findings indicated a connection between a decrease in visceral fat deposits, insulin resistance, and BMI with the consumption of plant-based protein.[4,5]

One of the therapy options for overweight and obese people is dietary control. Creating an energy deficit that leads to weight loss and can be maintained over time is the main objective of dietary therapy for overweight and obese people. Many different diets have been suggested as obesity treatment methods. Palaeolithic, ketogenic, Mediterranean, high-protein, plant-based, low-carb, and intermittent fasting are some of the dietary approaches that have gained popularity because of their purported advantages for metabolic disorders and weight loss. There are a number of hypotheses in the literature on the suitability of a plant-based diet for weight loss.[6]

The idea that plants are low in fat and calories is the most widely recognised. Numerous plant-based compounds, such as polyphenols, phenolic acids, flavonoids, and alkaloids, have been reported to have potential weight-loss benefits. One practical method for preventing lipid buildup and adipogenesis is to consume a diet rich in natural substances that are active against obesity. Reduced intake of fat and calories are the main features of a plant-based diet. The efficacy of this weight-control strategy is most likely due to the combination of these two elements.[6]

Health Concerns related to consumption of Plant-Based Diets: Higher intakes of fibre, beta carotene, vitamin K and C, folate, magnesium, and potassium, as well as a better dietary health index, have been shown to be among the nutritional benefits of plant-based diets. However prolonged consumption can give rise to certain deficiency states which can be overcome by fortifying plant-based food.[2]

Vitamin B12, a nutrient that is primarily derived from animals is completely absent from vegan diets unless supplemented as B12-fortified products. Deficiency of B12 leads to decline in neurological and cognitive health, which is a major criticism of plant-based diets. Homocysteine builds up in an individual with vitamin B12 deficiency, which ultimately encourages the development of arterial plaques and raises atherothrombotic risk.[2,3] The only nutrient found to be lacking when completely eliminating animal products is vitamin B12 that may require supplementation in the form of oral or injectable B12.[6]

The availability of sufficient protein in a plant-based diet is the other issue. The building blocks of human tissues, proteins also regulate a number of hormones. They are essential to maintaining good health and enabling our bodies function at their best. Amino

acids are the building blocks of proteins. One or more essential amino acids, including histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine, may be lacking in plant proteins. The sulfur-containing amino acids cysteine and methionine are often low in legumes, but lysine is usually limiting in cereals. The availability of several plant-based protein isolates and concentrates (soy, pea, canola, potato, fava, etc.) in the food business has made it simpler for consumers to increase their intake of plant proteins. Because entire plant foods usually contain a low percentage of protein, it used to be challenging for people to consume relatively substantial amounts of protein from them. The increasing popularity of plant-based diets has sparked heated debate about the relative amounts of proteins from plant as compared to animal sources. Alternatives are also available, like plant-based products made with readily available plant proteins like soy.[1,7,8]

Vegetarians and vegans have been shown to have lower serum vitamin D levels than omnivores. For vegetarians, milk, eggs, and fortified foods ideally containing the highly accessible D3 form of the vitamin are the primary sources of vitamin D. Sunlight exposure and a few fortified plant-based foods, such as breakfast cereals, plant-based beverages, and mushrooms, which are a natural source of vitamin D, are the only reliable sources of vitamin D for vegans.[4] Despite the fact that sunlight can activate a skin precursor and provide vitamin D, there seems to be a global epidemic of vitamin D deficiency. A number of factors, such as age, lifestyle, latitude, skin pigmentation, clothing type, and sunscreen use, can influence how much vitamin D is synthesised through the skin. Therefore, it is necessary to consume this nutrient through food.[1,4]

Due to a number of factors, the iron status of vegetarians and non-vegetarians may be comparable. Plant-based food has enhancers or inhibitors of iron absorption such as phytates, polyphenolics, oxalates which can affect non-heme iron absorption. A practical solution to this problem could be combining non-heme iron with enhancers and avoiding combinations with inhibitors so as to prevent deficiency. To make more iron in plant meals bioavailable, various strategies are used. These techniques include ferritin content enrichment, biofortification, ascorbic acid addition, microencapsulating iron prior to adding it to the food carrier, and phytic acid reduction.[1]

Food neophobia, a dislike of eating new or unfamiliar foods, is often experienced by customers when they first try plant-based alternatives. When consumers are subjected to unfamiliar, processed or different products than the familiar foods they are used to, it more readily triggered neophobia. Hence early exposure to plant-based foods in childhood is crucial to promote healthy eating habits from a young age and also maintain a healthy lifestyle in adulthood.[1,4]

Overall, an array of investigations revealed that plant-based dietary interventions had a positive short-term impact on indicators of inflammation, glucose, insulin, plasma lipids, and weight status. However, there were few and largely unresolved studies on how plant-based diets affected neurological, behavioural, and microbiological disorders as well as other facets of brain function.[2]

Conclusion

In conclusion, eating nutritious, plant-based meals and avoiding or limiting animal products, added fats, oils, and refined and processed carbohydrates has been found to significantly improve an individual's general health and wellbeing. Patients who effectively follow a plant-based diet have several benefits, such as reduced drug requirements for managing various chronic illnesses, weight loss, decreased cancer risk, and a decreased risk of dying from ischaemic heart disease. We must realise that eating a plant-based diet helps people maintain a healthy lifestyle, which in turn helps prevent chronic illnesses, while also protecting the environment.

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