



## Various Potential Implications of a Meal Habit on Alzheimer's

Adnan Saifi\*

Department of National Clinical Research, Sweden

### Abstract

A vegan diet may help prevent neurodegenerative diseases like Alzheimer's disease (AD), according to research. The current understanding of the benefits and drawbacks of a vegan diet in relation to the risk of Alzheimer's disease is the primary focus of this review. A vegan diet is low in saturated fats and cholesterol, which helps maintain a healthy lipid profile in the blood and can help prevent Alzheimer's disease. It also has a lot of phytonutrients, like vitamins, antioxidants, and dietary fiber, that might help keep your brain from getting older. Quercetin, a natural inhibitor of monoamine oxidase (MAO) that can help maintain mental health and lower the risk of Alzheimer's disease, is also increased in veganism. However, it is impossible to determine whether vegetarianism or other diets outperform veganism in AD prevention due to a lack of data. A vegan diet may lead to nutritional deficiencies because it lacks certain vitamins and micronutrients. Vitamin B12, vitamin D, and DHA, which have been linked to Alzheimer's disease (AD), are more common in vegans who do not take micronutrient supplements. Therefore, all of the advantages and disadvantages that have been discussed here should be taken into consideration when determining the overall impact of a vegan diet on AD prevention and/or progression.

**Keywords:** Vegan Diet; Alzheimer's disease; Cognition

### Introduction

In recent years, veganism has gained worldwide acceptance. In Europe, vegetarians make up about 2% to 3% of the population, according to a 2021 study. The complex effect of a vegan diet on mortality, health, and environmental outcomes was reflected in the recommendation for a sustainable diet strategy based on the survey from 150 countries. In comparison to vegetarian, pescatarian, and flexitarian diets, a vegan diet was found to be the most effective for the following parameters [1]. A vegetarian or vegan diet may be desired for ideological, religious, or medical reasons. There is some evidence that a vegan diet may aid in the prevention of neurodegenerative diseases like Alzheimer's disease (AD), which is one of these reasons [2].

The prevalence of neurodegenerative diseases is also rising worldwide. Over 50 million people worldwide were thought to have dementia in 2019. In the next 30 years, this number is expected to triple, reaching 152 million in 2050. Promotion is primarily the cause of dementia, which is rapidly increasing in prevalence and a significant medical issue. AD onset can be predicted by a number of genetic and modifiable risk factors. Risk factors that cannot be changed include age, gender, a family history of dementia, and genetic susceptibility. Furthermore, Promotion is related with despondency and other modifiable gamble factors. Obesity, high blood pressure, type 2 diabetes, inactivity, a lack of education, and a poor diet are all risk factors for Alzheimer's disease [3]. Risk factors can be addressed to lower a person's risk, despite the fact that the disease has no known treatment at this time. One of the most crucial aspects of one's life that can be altered to prevent Alzheimer's disease is one's diet. The purpose of this review is to provide a summary of the most recent data on the advantages and disadvantages of a vegan diet for AD treatment and prevention [4].

### Brain function and the vegan diet

Proper nutrition is essential for maintaining healthy brain function as we get older. Research into Alzheimer's disease has increased, with plant-based diets among other dietary and lifestyle factors. It was discovered that diets like the Mediterranean, Dietary Approaches to Stop Hypertension (DASH), and the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) improve brain

health. Mental deterioration and promotion risk can be reduced by adhering to the Mediterranean, Run, or MIND diets. All of these diets recommend consuming a lot of fruits, vegetables, whole grains, and nuts, avoiding red or processed meat, and avoiding sugar and saturated fat. Numerous medical organizations have advocated for a plant-based diet to improve cognitive health and, possibly, prevent dementia. Plant-based eating can be a low-risk, beneficial lifestyle change that can aid in cognitive health maintenance and prevent cognitive aging [5].

However, a plant-based diet and veganism are not the same thing. Although a vegan diet typically includes plant foods, a plant-based diet is not considered vegan by definition. A diet based on plants consists primarily of plants, with a small amount of animal products also included. A whole-food, plant-based diet avoids highly refined foods like bleached flour, refined sugar, oil, and packaged, processed foods. Instead, it focuses on whole, unrefined plant foods [6]. A stricter form of vegetarianism is the vegetarian diet, which completely forbids the consumption of animal products. Vegans do not merely forego meat; Dairy, honey, and anything else made or derived from animals are also off limits. In addition, vegans avoid using products derived from animals in other aspects of their lives, such as beauty products, footwear, and clothing [7].

It has been demonstrated that a diet high in plants can improve brain health and cognitive function. Weight loss, cardiovascular and metabolic health, and a lower risk of cancer appear to be among the many benefits of a vegan diet. Its effects on the brain, on the other hand, are unknown. Are vegetarianism and a healthy diet better for the brain than being a strict vegan? The health benefits of vegetarian diets may not necessarily apply to vegan diets due to the stricter nature of a

\*Corresponding author: Adnan Saifi, Department of National Clinical Research, Sweden, E-mail: saifia987@gmail.com

**Received:** 01-Dec-2022, Manuscript No: tpctj-22-83738; **Editor assigned:** 08-Dec-2022, Pre-QC No: tpctj-22-83738 (PQ); **Reviewed:** 22-Dec-2022, QC No: tpctj-22-83738; **Revised:** 26-Dec-2022, Manuscript No: tpctj-22-83738 (R); **Published:** 31-Dec-2022, DOI: 10.4172/tpctj.1000169

**Citation:** Saifi A (2022) Various Potential Implications of a Meal Habit on Alzheimer's. Psych Clin Ther J 4: 169.

**Copyright:** © 2022 Saifi A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

vegan diet, which only includes plant-based foods. Due to the rapid rise of veganism, a better scientific understanding of the effects of a vegan diet on human health is required, particularly in relation to the brain and cognitive processes [8].

### Abatement of inflammation

AD is significantly influenced by inflammation. When amyloid beta (A) levels remain consistently high, inflammatory cascades may contribute to AD pathogenesis by activating microglia and mobilizing the innate immune system. Increased levels of inflammatory markers, which are also linked to cognitive decline, are frequently seen in AD patients [9].

The beneficial effect of a vegan diet on the reduction of inflammatory markers, which is a secondary prevention against AD, may be one of the protective mechanisms. Biomarkers of low-grade inflammation appear to be positively correlated with a meat-based diet, whereas a fruit- and vegetable-based diet appears to be negatively correlated. However, there are few and inconsistent studies on vegans' inflammatory biomarkers [10]. Menzel and colleagues directed a cross-sectional focus on 36 omnivores and 36 vegetarians. found that there were no significant differences between the subjects in any of the seven inflammatory biomarkers—high-sensitivity C-reactive protein (hsCRP), adiponectin, ICAM-1, IL-18, IL-1 RA, omentin-1, or resistin. Those who followed a vegetarian diet for more than 4.8 years were bound to have lower hsCRP levels than those who ate vegetarian for less than 4.8 years. This indicates that the amount of time spent following the diet may have a significant [11].

impact on the reduction of systemic inflammation. According to ebeková and others, plasma CRP levels did not differ significantly between vegans and omnivores. Franco de Moreaes et al., Notwithstanding, contrasted with omnivores and veggie lovers, severe vegans (the individuals who consume creature items not exactly one time each month) had lower CRP, incendiary markers, and the TNF-/IL-10 proportion. After Sutcliffe and co. implemented a vegan diet for three weeks, their circulating CRP decreased. The decrease in CRP levels between baseline and follow-up could have been caused by a variety of factors because the study only included overweight and obese participants. Due to the fact that obesity and overweight are linked to high levels of inflammation, lowering the BMI was probably the most important factor. Compared to vegans and omnivores, scientists discovered that participants who ate vegetarian prior to the study had the best CRP profiles. As a result, a vegetarian diet may assist in reducing explosive cycles. Last but not least, vegans have lower CRP levels than omnivores, according to a recent meta-analysis [12].

### GI System

A growing body of research indicates that the gut microbiome is a significant factor in the pathogenesis of AD. The gut microbiomes of people with and without cognitive impairment differ in composition and diversity. The nervous system or chemical substances that cross the blood-brain barrier mediate interactions between the intestine and the brain. By encouraging immune activation, systemic inflammation, A aggregation, and insulin resistance in the brain and peripheral areas, a dysbiotic gut microbiome may aid in disease progression and exacerbation. As a secondary AD prevention strategy, veganism has the potential to cultivate a healthier gut microbiota [13].

Through food-based therapy, it may be possible to alter the composition of the gut microbiota, opening up new options for AD prevention and treatment. One of the most significant influences on the

gut microbiota ecosystem is diet. A vegetarian diet is distinct from an omnivorous diet in terms of the ratio of macronutrients. A vegan diet includes more carbohydrates and fiber, but less protein, less total fat, and less saturated fat. The composition of the gut microbiota is altered by the macronutrient balance, which in turn affects the production of metabolites that can be beneficial or harmful to health. A vegan diet seems to encourage a broader range of microbial species and a more diverse gut microbiome. The diversity and strength of the vegetable lover's stomach microbiota is largely attributable to a higher intake of complex carbohydrates, fiber, and polyphenols. In any case, the exact way in which a vegetarian diet influences the variety of the microbiome has been the subject of clashing discoveries from specialists. During the four-week vegetarian diet mediation, the omnivorous members' stomach microbiota remained essentially unchanged. These members were randomly assigned to eat vegetarian or omnivorous. There was no way to distinguish between the vegetarian and omnivore subjects' alpha varieties; However, following the trial, only a small number of samples revealed the majority of the changes in Coprococcus, Roseburia, and Blautia abundance. Coprococcus was found to be depleted in the gut microbiota of 3xTg-AD mice and the feces of AD patients, and its presence was found to be positively correlated with scores on the Mini Mental State Exam (MMSE). Additionally, Prochazkova and others discovered that vegans' and omnivores' microbiomes did not significantly differ over time [14].

According to a recent systematic review of cross-sectional studies, vegans have a higher abundance of Bacteroidetes on the phylum level and Prevotella on the genus level than omnivores do. When a single species of bacteria ferments fiber, short-chain fatty acids (SCFAs) are produced. Prevotella is one of these bacteria. One of the most abundant metabolites of the stomach microbiota, SCFAs play a crucial role in facilitating interactions between the stomach and brain. They have been linked to the onset and progression of AD, regulating synaptic plasticity, reducing neuroinflammation, and reducing pathology in A and tau, all of which contribute to the disease process. In waste examples, SCFAs frequently shift from amnesic mild mental degeneration (MCI) to promotion. Due to the increased fiber intake, a vegan diet should theoretically result in higher SCFA concentrations. Nonetheless, not the examinations' all's results are something similar. Prochazkova and others, However, despite the fact that vegetarian dung and serum metabolomes contained a greater centralization of SCFAs, De Filippis and others discovered no significant differences in waste SCFA fixations between omnivores and vegetarians. Even in omnivores, regardless of the type of diet, they discovered a positive correlation between the levels of SCFAs and adherence to a Mediterranean diet. They also found that eating a vegan diet produced more SCFAs.

It has been discovered that the vegan gut microbiota contains fewer pathobionts associated with mild inflammation, indicating that this diet may also improve health by reducing inflammation discovered that healthy controls and A-negative AD patients' guts contained fewer pro-inflammatory bacteria than those of A-positive patients. The presence of pro-inflammatory microorganisms in the gut was positively correlated with the inflammatory state, cognitive impairment, and A presence in the brain [15].

### Conclusions

A growing number of people are becoming less and less interested in animal products. Because AD pathology is strongly linked to cardiovascular disease, diabetes, obesity, insulin resistance, and other conditions, nutritional interventions, for instance, may help lower the risk of AD. However, extensive, long-term research is required to

confirm this effect, and the vegan diet has not yet been studied for its long-term effects. The primary focus of observational studies has been the ability of a vegetarian diet to lower promotion risk. As a result, it is difficult to determine with certainty whether the benefits are solely attributable to the vegetarian diet. Moreover, the deficiency of express improvements could direct the supportive effects of a veggie sweetheart eating regimen.

Vegetarians consume fewer carbohydrates because they require particular nutrients and micronutrients and may be susceptible to nutritional deficiencies. Vegans who do not take micronutrient supplements have a higher prevalence of vitamin B12, vitamin D, and docosahexaenoic acid (DHA), all of which have been linked to Alzheimer's disease (AD). A vegetarian diet, on the other hand, is low in cholesterol and saturated fat, both of which contribute to healthy blood lipid profiles. It also contains a lot of phytonutrients, like vitamins, antioxidants, and dietary fiber, which may help prevent the aging of your brain.

Is staying away from creature items more unfavorable to wellbeing than gainful? Any diet can be bad for your health if you don't get enough of the essential nutrients you need, even if you don't like vegetables. For a variety of reasons, vegetarians adhere to a diet, which may have an impact on the way they eat and, as a result, their mental health. Since more vegan foods are highly processed, it is now possible to eat a vegan diet without eating a lot of whole plants. One must adhere to a balanced diet that includes a wide variety of foods in order to reap the benefits of veganism. Vegan diets can provide sufficient nutrition for all life stages with careful planning; However, they must be supplemented and closely monitored.

It is impossible to determine, based on the data at this time, whether vegetarianism or diets that occasionally include meat are better for brain health or lower AD risk. Cognitive health and Alzheimer's disease prevention may benefit from plant-based diets. Veganism, on the other hand, does not appear to have any effect on thinking. The mind benefits from an eating regimen high in plants, as per a bigger group of proof. In addition, it is unclear whether plant-based dietary nutrients and bioactive compounds, or a combination of the two, are responsible for the health benefits of avoiding meat and the calories that are linked to obesity. Veganism is not compared to other popular diets in many prospective cohort and randomized controlled trials. Taking into account all of the benefits and drawbacks listed here, it should be possible to determine the overall effect of a vegan diet on

AD prevention and/or progression based on the evidence presented in this review. Future research on a vegan diet in AD should include micronutrient supplementation to maximize any positive effects.

## References

1. Abdelhafiz AS, Alorabi M (2020) Social Stigma: The Hidden Threat of COVID-19. *Front Public Health* 8: 429.
2. Yoshioka T, Maeda Y (2020) COVID-19 Stigma Induced by Local Government and Media Reporting in Japan: It's Time to Reconsider Risk Communication Lessons From the Fukushima Daiichi Nuclear Disaster. *J Epidemiol* 30: 372-373.
3. Link BG, Phelan JC (2001) Conceptualizing Stigma. *Annu Rev Sociol* 27: 363-385.
4. Link BG, Phelan JC (2006) Stigma and its public health implications. *Lancet* 367: 528-529.
5. Bagcchi S (2020) Stigma during the COVID-19 pandemic. *Lancet Infect Dis* 20: 782.
6. Bhanot D, Singh T, Verma SK, Sharad S (2021) Stigma and Discrimination During COVID-19 Pandemic. *Front Public Health* 8: 577018.
7. Sotgiu G, Dobler CC.(2020) Social stigma in the time of coronavirus disease 2019. *Eur Respir J* 56: 2002461.
8. Villa S, Jaramillo E, Mangioni D, Bandera A, Gori A, et al. (2020) Stigma at the time of the COVID-19 pandemic. *Clin Microbiol Infect* 26:1450-1452.
9. Smith RA, Hughes D (2014) Infectious Disease Stigmas: Maladaptive in Modern Society. *Commun Stud* 65: 132-138.
10. Preis H, Mahaffrey B, Heiselman G, Lobel M (2020) Vulnerability and resilience to pandemic-related stress among U.S. women pregnant at the start of the COVID-19 pandemic. *Soc Sci Med* 266: 1133-1148.
11. Yan H, Ding Y, Guo W (2020) Mental health of pregnant and postpartum women during the coronavirus disease 2019 pandemic: A systematic review and meta-analysis. *Front Psychol* 11: 617001.
12. Koren G, Boskovic R, Hard M, Maltepe C, Navioz Y, et al. (2002) PUQE (pregnancy-unique quantification of emesis and nausea) scoring system for nausea and vomiting of pregnancy. *Am J Obstet Gynecol* 186: 210-214.
13. Koren G, Piwko C, Ahn E, Boskovic R, Maltepe C, et al. (2005) Validation studies of the Pregnancy Unique-Quantification of Emesis (PUQE) scores. *J Obstet Gynaecol* 25: 241-244.
14. Takegata M, Haruna M, Matsuzaki M, Shiraiishi M, Okano T, et al. (2017) Aetiological relationship between factors associated with postnatal traumatic symptoms among Japanese primiparas and multiparas: A longitudinal study. *Midwifery* 44: 14-23.
15. Bowling A (2005) Just one question: If one question works, why ask several? *J Epidemiol Community Health* 59: 342-345.