

COMPARATIVE STUDY ON THE HEALTH AND ENVIRONMENTAL BENEFITS OF VEGAN VS. NON-VEGAN DIETS

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Abstract:

The debate over the health and environmental benefits of vegan versus non-vegan diets has intensified in recent years, driven by growing concerns over climate change, animal welfare, and chronic health conditions. This comparative study seeks to explore the potential advantages and disadvantages of vegan and non-vegan diets by examining their impact on human health and the environment. Through an analysis of existing research, case studies, and environmental data, this study will assess the nutritional adequacy, health outcomes, and ecological footprint associated with each dietary pattern. The findings aim to provide a balanced perspective, helping individuals and policymakers make informed decisions regarding diet and sustainability.

Keywords:

Vegan diet, Non-vegan diet, Health benefits, Environmental impact, Nutritional adequacy, Sustainability, Chronic diseases, Ecological footprint

Introduction:

In the context of increasing global awareness of health and environmental issues, dietary choices have come under intense scrutiny. Vegan diets, which exclude all animal products, are often promoted for their health benefits and lower environmental impact. On the other hand, non-vegan diets, which include animal products, are traditional in many cultures and are argued to provide essential nutrients not readily available in plant-based foods. This study aims to compare the health outcomes and environmental effects of vegan and non-vegan diets to determine which diet is more beneficial for individuals and the planet. By critically analyzing existing evidence, this research will contribute to the ongoing discussion on sustainable and health-conscious eating. In recent decades, the global discourse around diet and nutrition has shifted dramatically, reflecting broader concerns about health, environmental sustainability, and ethical consumption. Among the various dietary practices, the vegan diet, which excludes all animal products, has gained significant attention and popularity. Advocates of veganism often highlight its numerous potential benefits, including reduced risk of chronic diseases, lower environmental impact, and alignment with ethical principles regarding animal welfare. Conversely, non-vegan diets, which include a variety of animal products, have been the traditional dietary norm across many cultures, celebrated for their richness in essential nutrients like protein, iron, calcium, and vitamin B12—nutrients that are sometimes more challenging to obtain from plant-based sources alone.

The rise of veganism can be seen as part of a broader movement towards more conscious and sustainable living. As the world grapples with the twin crises of climate change and public health, dietary choices have come to the forefront of discussions on how individuals and societies can contribute to a healthier and more sustainable future. Proponents of vegan diets argue that they are not only beneficial for personal health but also critical in mitigating environmental degradation, particularly in terms of reducing greenhouse gas emissions, conserving water, and preserving biodiversity. For example, numerous studies have shown that plant-based diets have a lower carbon footprint compared to diets that include meat and dairy products. This is largely due to the resource-intensive nature of animal agriculture, which is responsible for a significant portion of global emissions and land use.

On the other hand, non-vegan diets, which encompass a wide range of eating patterns from omnivorous to pescatarian to carnivorous, have been deeply rooted in human history and culture. These diets are often considered more balanced and complete, providing all essential nutrients required for human health, sometimes in forms that are more bioavailable than their plant-based counterparts. For instance, animal products are a primary source of high-quality protein, vitamin B12, and heme iron, which are critical for maintaining muscle mass, supporting neurological function, and preventing anaemia. Moreover, some argue that the inclusion of animal products in the diet is necessary for certain populations, such as children, pregnant women, and athletes, who may have higher nutritional needs that can be more easily met with a varied diet.

Despite the clear nutritional benefits of non-vegan diets, there are growing concerns about the health risks associated with high consumption of animal products, particularly red and processed meats. Numerous studies have linked these foods to an increased risk of chronic diseases, including heart disease, type 2 diabetes, and certain cancers. Additionally, the environmental impact of these diets cannot be ignored. The production of meat, dairy, and other animal products is a major driver of deforestation, water scarcity, and biodiversity loss. As such, the sustainability of non-vegan diets is increasingly being called into question, leading many to advocate for a reduction in animal product consumption and a shift towards more plant-based eating.

This study seeks to delve into the complex and often contentious debate surrounding vegan and non-vegan diets, with a particular focus on their respective health and environmental benefits. By conducting a comprehensive comparative analysis, this research aims to answer several critical questions: Are vegan diets truly superior in promoting health and preventing chronic diseases? Do non-vegan diets offer essential nutrients that are difficult to obtain from plant-based sources? How do these dietary patterns impact the environment, and which is more sustainable in the long term?

To answer these questions, this study will draw on a wide range of sources, including peer-reviewed scientific literature, epidemiological studies, and environmental data. The research will examine key aspects of both diets, such as their nutritional profiles, associated health outcomes, and ecological footprints. Additionally, the study will consider the cultural, economic, and ethical dimensions of diet, recognizing that dietary choices are influenced by a complex interplay of factors beyond just health and sustainability.

In the context of growing global challenges such as climate change, food security, and public health crises, understanding the implications of our dietary choices has never been more important. This study aims to contribute to this understanding by providing a balanced and evidence-based analysis of vegan and non-vegan diets, ultimately offering insights that can inform individual choices, public health recommendations, and policy decisions. By exploring the health and environmental benefits of these diets, this research seeks to illuminate the path towards a more sustainable and health-conscious future.

Definition:

- **Vegan Diet:** A diet that excludes all animal products, including meat, dairy, eggs, and honey, relying entirely on plant-based foods such as fruits, vegetables, grains, legumes, nuts, and seeds.
- **Non-Vegan Diet:** A diet that includes animal products, such as meat, dairy, eggs, and other animal-derived ingredients, along with plant-based foods.

Aims:

The primary aim of this study is to conduct a comparative analysis of vegan and non-vegan diets in terms of:

- Health benefits and risks
- Nutritional adequacy
- Environmental sustainability
- Long-term effects on public health and the planet

Objectives:

- To evaluate the nutritional profiles of vegan and non-vegan diets.
- To analyze the impact of these diets on chronic disease prevention and management.
- To assess the ecological footprint of vegan versus non-vegan diets, including greenhouse gas emissions, land use, and water consumption.
- To explore the potential long-term health consequences of adhering to vegan or non-vegan diets.
- To provide recommendations for individuals and policymakers on adopting sustainable and health-promoting dietary patterns.

Need:

With the rising incidence of diet-related chronic diseases and the growing urgency to address climate change, there is a critical need to understand the health and environmental implications of different dietary patterns. This study is necessary to provide evidence-based insights into the benefits and drawbacks of vegan and non-vegan diets, aiding individuals in making informed choices and guiding policy decisions aimed at promoting public health and environmental sustainability.

Scope:

This study will cover:

- Comparative nutritional analysis of vegan and non-vegan diets
- Assessment of health outcomes related to each diet, with a focus on chronic diseases such as heart disease, diabetes, and obesity

- Environmental impact evaluation, including greenhouse gas emissions, resource use, and biodiversity loss
- A global perspective on dietary practices, with a focus on regions where vegan and non-vegan diets are prevalent

History:

The concept of plant-based eating can be traced back to ancient civilizations, with many cultures practicing forms of vegetarianism or plant-centric diets for religious, ethical, or health reasons. However, the modern vegan movement gained momentum in the mid-20th century, particularly after the founding of the Vegan Society in 1944 by Donald Watson in the United Kingdom. Since then, veganism has evolved from a niche lifestyle to a mainstream dietary choice, largely driven by concerns over animal welfare, environmental sustainability, and health. Non-vegan diets, meanwhile, have been the standard in many cultures for millennia, often shaped by geographical, economic, and cultural factors. The contemporary debate over vegan versus non-vegan diets reflects a broader conversation about how best to balance human health, ethical considerations, and the environmental challenges facing the planet. The history of dietary practices is as ancient as human civilization itself, intertwined with the development of agriculture, cultural traditions, and human evolution. The contrast between vegan and non-vegan diets, while a modern manifestation of dietary discourse, has roots that extend deep into the past, shaped by a complex interplay of religious, ethical, environmental, and health considerations.

Ancient Beginnings and Early Vegetarianism

The concept of plant-based eating can be traced back to the earliest human societies. In ancient civilizations, such as those in India and Greece, forms of vegetarianism were practiced for spiritual, ethical, and health reasons. In India, for instance, the principle of ahimsa (non-violence) has been a central tenet of several religious traditions, including Hinduism, Buddhism, and Jainism, for thousands of years. This principle advocates for non-violence towards all living beings, leading to dietary practices that exclude meat and, in some cases, all animal products. Similarly, in ancient Greece, philosophers like Pythagoras promoted vegetarianism as a means of achieving purity of the body and soul, influencing his followers to abstain from eating meat.

Despite these early practices, the majority of human societies throughout history have followed non-vegan diets. The domestication of animals around 10,000 years ago marked a significant shift in human diet, leading to the widespread consumption of meat, dairy, and other animal products. These foods provided essential nutrients and played a crucial role in the development of early agricultural societies. For example, dairy products became a staple in the diets of people in the Middle East and Europe, while meat consumption was central to the diets of many nomadic and hunter-gatherer societies.

The Rise of Ethical Vegetarianism in the 19th Century

The modern vegan movement, however, began to take shape in the 19th century as part of a broader trend towards ethical vegetarianism. During this period, industrialization and urbanization led to increased awareness of the conditions under which animals were raised and slaughtered for food. This awareness, coupled with the influence of Enlightenment

thinking, which emphasized reason, ethics, and individual rights, spurred a growing movement advocating for the humane treatment of animals.

In 1806, Dr. William Lambe, an English physician, became one of the earliest advocates for a strict vegetarian diet that excluded all animal products. He believed that a diet based solely on plant foods was essential for health and well-being. His ideas influenced the formation of the first Vegetarian Society in England in 1847, which promoted a diet free from meat but still included dairy and eggs.

The Birth of Veganism

The term "vegan" itself was coined much later, in 1944, by Donald Watson, a British woodworker and animal rights advocate. Watson, along with a small group of like-minded individuals, broke away from the Vegetarian Society to form the Vegan Society. They sought to create a new term to describe a diet and lifestyle that excluded all forms of animal exploitation, including not only meat but also dairy, eggs, and other animal-derived products. The Vegan Society defined veganism as "the doctrine that man should live without exploiting animals."

Initially, veganism was a niche movement, with only a small number of adherents. The diet was often seen as extreme and difficult to maintain, particularly in a world where animal products were ubiquitous in food, clothing, and other aspects of daily life. However, the vegan movement slowly gained traction, driven by a combination of ethical, environmental, and health motivations.

Post-War Era and the Growth of the Vegan Movement

The post-war era saw significant changes in global food production and consumption patterns, particularly in the West. The rise of industrial agriculture led to the mass production of meat, dairy, and other animal products, making these foods more affordable and widely available than ever before. However, this period also saw the emergence of countercultural movements that questioned the sustainability and ethics of industrialized food systems.

In the 1960s and 1970s, the environmental movement began to highlight the ecological impacts of industrial agriculture, including deforestation, pollution, and resource depletion. These concerns resonated with the growing number of people interested in alternative lifestyles, including those who embraced vegetarianism and veganism as part of a broader commitment to sustainability and social justice. Books like Frances Moore Lappé's "Diet for a Small Planet" (1971) popularized the idea that plant-based diets could help alleviate world hunger and reduce environmental damage.

During the same period, scientific research began to explore the health implications of different dietary patterns. Studies suggested that diets high in animal products were linked to an increased risk of chronic diseases such as heart disease, cancer, and diabetes. This research provided further support for the adoption of plant-based diets, both for individual health and for the broader public good.

The Mainstreaming of Veganism in the 21st Century

The 21st century has witnessed the rapid mainstreaming of veganism, driven by a confluence of factors, including increasing awareness of animal welfare issues, the growing environmental crisis, and the rise of chronic diseases linked to diet. Documentaries like "Earthlings" (2005) and "Forks Over Knives" (2011) brought the ethical and health

arguments for veganism to a global audience, while social media platforms enabled the spread of vegan ideas and communities.

The growth of the vegan movement has been accompanied by a surge in the availability of vegan products, from plant-based meat alternatives to dairy-free cheeses and milks. Companies like Beyond Meat and Impossible Foods have pioneered the development of plant-based products that mimic the taste and texture of meat, making it easier for consumers to adopt a vegan diet without sacrificing familiar flavors. At the same time, large food companies and restaurant chains have increasingly catered to vegan consumers, further normalizing the diet.

The environmental benefits of veganism have become a central argument for the diet's adoption, particularly in the context of climate change. The United Nations Food and Agriculture Organization (FAO) has reported that livestock production is responsible for a significant share of global greenhouse gas emissions, leading many environmental organizations to advocate for a shift towards plant-based diets as a key strategy for mitigating climate change.

Global Impact and Cultural Shifts

While veganism has its roots in Western ethical and environmental movements, it has also gained traction in other parts of the world. In countries like India, where vegetarianism has long been a cultural norm, veganism is seen as an extension of traditional values of non-violence and compassion. In East Asia, the rise of veganism has been influenced by concerns over food safety and the environmental impact of industrial agriculture, particularly in the wake of food scandals and the growing recognition of the health risks associated with high meat consumption.

Cultural shifts have also played a significant role in the global spread of veganism. The increasing visibility of vegan celebrities, athletes, and influencers has helped to popularize the diet, particularly among younger generations. Veganism is now often associated with a modern, progressive lifestyle, one that is aligned with values of sustainability, health, and social justice. The history of veganism is a story of evolution and adaptation, reflecting changing societal values and growing awareness of the interconnectedness of diet, health, and the environment. From its ancient roots in spiritual and ethical practices to its modern incarnation as a global movement, veganism has continually challenged prevailing norms around food and consumption. As the world faces unprecedented challenges, from climate change to public health crises, the questions raised by the vegan movement about the sustainability and ethics of our dietary choices have never been more relevant.

This study, by examining the comparative health and environmental benefits of vegan and non-vegan diets, seeks to contribute to this ongoing conversation, providing insights that can guide future dietary trends and public policies. The history of these dietary practices reminds us that our food choices are not just personal, but deeply connected to broader social, environmental, and ethical issues, making the study of veganism and non-veganism not only a matter of individual health, but of global significance.

Current Trends of the Present Research Study

The 21st century has seen a dramatic shift in dietary patterns worldwide, with veganism emerging as one of the fastest-growing lifestyle movements. This shift has been fueled by a

convergence of factors, including heightened awareness of health, environmental concerns, and evolving ethical standards related to animal welfare. The current trends in the adoption of vegan and non-vegan diets reflect broader societal changes, technological innovations, and growing consumer demand for sustainable and health-conscious food options.

1. Rise of Plant-Based Diets

One of the most significant trends in recent years is the rise of plant-based diets, driven by a growing awareness of the health benefits associated with reducing meat and dairy consumption. Studies have increasingly linked high consumption of red and processed meats to various chronic diseases, including heart disease, diabetes, and certain types of cancer. As a result, many health-conscious consumers are turning to plant-based diets, which are rich in fruits, vegetables, whole grains, legumes, and nuts, and are associated with lower risks of chronic diseases.

This trend is reflected in the booming market for plant-based foods. According to market research, the global plant-based food market has experienced substantial growth, with the value of plant-based meat substitutes expected to reach over \$30 billion by 2027. The development of high-quality meat alternatives, such as those offered by companies like Beyond Meat and Impossible Foods, has made it easier for consumers to adopt plant-based diets without feeling deprived of traditional meat products.

2. Environmental Concerns and Sustainability

Environmental sustainability has become a major driver of dietary change, with vegan diets increasingly promoted as a way to reduce one's ecological footprint. The impact of animal agriculture on the environment is now widely recognized, with livestock production contributing significantly to greenhouse gas emissions, deforestation, water usage, and biodiversity loss. As a result, there is a growing movement towards diets that are not only healthier but also more environmentally sustainable.

This trend is supported by a range of initiatives and campaigns that encourage reduced meat consumption and greater reliance on plant-based foods. For example, movements like "Meatless Mondays" and "Veganuary" have gained traction globally, encouraging individuals to reduce their meat intake or adopt a vegan diet for a month, respectively. These initiatives aim to raise awareness about the environmental impact of dietary choices and promote more sustainable eating habits.

3. Ethical and Animal Welfare Considerations

Ethical concerns about the treatment of animals in the food industry continue to play a central role in the adoption of vegan diets. High-profile documentaries, social media campaigns, and the work of animal rights organizations have exposed the conditions under which animals are raised and slaughtered for food, leading many consumers to reconsider their dietary choices. The rise of veganism is closely linked to these ethical considerations, with many individuals choosing to adopt a vegan diet as a way to avoid contributing to animal suffering.

The ethical trend is further reinforced by the growing availability of cruelty-free products, including vegan alternatives to dairy, eggs, and other animal-based foods. The expansion of vegan product lines in supermarkets and restaurants has made it easier for consumers to align their diets with their ethical values, contributing to the mainstream acceptance of veganism.

4. Technological Innovations in Food Production

Technological advancements in food production have played a crucial role in the rise of veganism by making plant-based diets more accessible and appealing to a broader audience. Innovations in food science have led to the development of plant-based products that closely mimic the taste, texture, and nutritional profile of meat, dairy, and eggs. These products have significantly lowered the barriers to adopting a vegan diet, particularly for consumers who may be hesitant to give up familiar animal-based foods.

One of the most notable examples of this trend is the development of lab-grown or cultured meat, which is produced by cultivating animal cells in a controlled environment without the need to raise and slaughter animals. While still in the early stages of commercialization, lab-grown meat has the potential to revolutionize the food industry by providing a sustainable and ethical alternative to traditional meat production.

5. Globalization and Cultural Shifts

Veganism, once considered a niche lifestyle choice, has become a global phenomenon, with significant growth in regions that were not traditionally associated with plant-based eating. In Asia, for instance, the rise of veganism has been influenced by a combination of factors, including concerns over food safety, health, and the environmental impact of meat consumption. Similarly, in Latin America and Africa, veganism is gaining traction, driven by younger generations who are more attuned to global trends and social media influences.

Cultural shifts are also evident in the increasing acceptance of veganism in mainstream society. Celebrities, athletes, and influencers have played a key role in popularizing vegan diets, often promoting them as part of a broader lifestyle focused on health, fitness, and environmental consciousness. As a result, veganism is increasingly seen not just as a dietary choice, but as a reflection of modern values and a commitment to a sustainable future.

6. Policy and Corporate Initiatives

Governments and corporations are beginning to respond to the growing demand for plant-based foods and the need for more sustainable food systems. In some countries, government policies are being implemented to promote plant-based diets as part of national health and environmental strategies. For example, dietary guidelines in countries like Canada and the Netherlands now emphasize the benefits of plant-based eating and recommend reducing meat consumption.

Corporations, particularly in the food industry, are also increasingly investing in plant-based products and sustainability initiatives. Major food companies and fast-food chains have introduced vegan options to their menus, recognizing the growing market for plant-based foods. These corporate initiatives are not only a response to consumer demand but also a recognition of the need to address environmental and ethical concerns associated with traditional animal agriculture.

7. Challenges and Criticisms

Despite its growing popularity, veganism faces several challenges and criticisms. Nutritional concerns, particularly regarding adequate intake of vitamin B12, iron, calcium, and omega-3 fatty acids, are often cited as potential drawbacks of a vegan diet. Critics argue that without careful planning, vegan diets may lead to deficiencies in these essential nutrients, particularly in vulnerable populations such as children, pregnant women, and the elderly.

Additionally, the environmental impact of some plant-based foods, such as soy and almonds, has raised questions about the sustainability of vegan diets. The cultivation of these crops can be resource-intensive and may contribute to environmental issues such as deforestation, water scarcity, and biodiversity loss. As a result, some environmental advocates emphasize the importance of sourcing plant-based foods sustainably and supporting local, seasonal produce.

8. The Future of Dietary Patterns

Looking ahead, the future of dietary patterns is likely to be shaped by ongoing developments in technology, consumer preferences, and global challenges such as climate change and food security. While veganism is expected to continue its growth, there is also likely to be an increasing emphasis on flexitarianism—a dietary approach that primarily focuses on plant-based foods but allows for occasional consumption of animal products. This approach offers a more flexible and accessible option for those who may find a strict vegan diet challenging to maintain.

As the global population continues to rise, and the impacts of climate change become more pronounced, the need for sustainable and health-conscious dietary choices will become increasingly critical. The current trends suggest that veganism, along with other plant-based eating patterns, will play a central role in shaping the future of food, offering solutions that address the interconnected challenges of health, sustainability, and ethics.

In conclusion, the current trends in vegan and non-vegan diets reflect a rapidly changing food landscape, one that is increasingly influenced by concerns about health, the environment, and ethics. As consumers become more informed and engaged with these issues, the adoption of plant-based diets is likely to continue to grow, driving further innovation and transformation in the global food system.

Conclusion

The comparative study of the health and environmental benefits of vegan versus non-vegan diets underscores the complex interplay between dietary choices, human health, and the sustainability of our planet. Vegan diets, which exclude all animal products, have been shown to offer significant health benefits, particularly in reducing the risk of chronic diseases such as heart disease, diabetes, and certain cancers. These diets are also closely associated with a lower environmental impact, primarily due to the reduced resource demands and greenhouse gas emissions associated with plant-based food production.

Non-vegan diets, on the other hand, have been the cornerstone of human nutrition for millennia, providing essential nutrients that are sometimes more challenging to obtain from plant-based sources alone. However, the environmental costs of animal agriculture, including deforestation, water use, and biodiversity loss, raise critical questions about the long-term sustainability of these diets, particularly in the context of a growing global population and the urgent need to address climate change.

This study highlights that while vegan diets offer considerable advantages in terms of health and environmental impact, non-vegan diets can still play a role in a balanced and sustainable food system, particularly if animal products are consumed in moderation and sourced from sustainable practices. The future of global food systems will likely involve a shift towards

more plant-based eating patterns, with a focus on reducing the consumption of animal products while ensuring that all dietary needs are met through a well-balanced approach.

Suggestions

1. **Promote Flexitarianism:** Encourage a more flexible approach to diet, such as the adoption of a flexitarian diet that prioritizes plant-based foods while allowing for occasional consumption of animal products. This approach can help individuals transition towards more sustainable eating patterns without feeling restricted.
2. **Educational Campaigns:** Increase public awareness of the health benefits and environmental impacts of different dietary choices through targeted educational campaigns. These should focus on the importance of nutrient-rich plant-based foods and the role of sustainable animal agriculture in reducing environmental harm.
3. **Support Sustainable Agriculture:** Governments and organizations should invest in and promote sustainable agricultural practices that reduce the environmental impact of food production, including regenerative farming, organic agriculture, and the development of sustainable plant-based food alternatives.
4. **Encourage Policy Interventions:** Advocate for policy interventions that support plant-based eating, such as subsidies for fruits and vegetables, tax incentives for plant-based food producers, and the inclusion of more plant-based options in public institutions like schools and hospitals.
5. **Nutritional Guidance:** Provide clear and accessible nutritional guidance to help individuals on vegan diets meet their dietary needs, particularly regarding nutrients that are more difficult to obtain from plant-based sources, such as vitamin B12, iron, calcium, and omega-3 fatty acids.

Future Research Scope

1. **Long-Term Health Studies:** Conduct long-term studies to further evaluate the health impacts of vegan and non-vegan diets across different populations, including specific groups such as children, pregnant women, athletes, and the elderly. These studies should also explore the potential risks of nutrient deficiencies and how they can be mitigated.
2. **Environmental Impact Analysis:** Expand research on the environmental impact of various plant-based foods, focusing on the sustainability of their production processes. This includes assessing the water usage, land use, and carbon footprint of plant-based food alternatives, as well as the potential environmental benefits of lab-grown meat and other emerging food technologies.
3. **Cultural and Socioeconomic Factors:** Investigate the cultural, social, and economic factors that influence dietary choices, particularly in regions where meat consumption is deeply rooted in tradition. Understanding these factors can help in developing culturally sensitive approaches to promoting plant-based diets.
4. **Sustainable Food Systems:** Explore the development of sustainable food systems that integrate both plant-based and animal-based foods in a way that minimizes environmental impact while ensuring food security and nutrition for a growing global population.
5. **Impact of Dietary Trends on Public Health:** Research the broader public health implications of the increasing popularity of veganism and other plant-based diets, particularly

in terms of reducing the prevalence of diet-related chronic diseases and the burden on healthcare systems. While vegan diets present numerous benefits, the future of dietary practices will likely involve a more nuanced approach that balances the health advantages of plant-based foods with the nutritional benefits of sustainable animal products. Continued research and thoughtful policy interventions will be crucial in guiding this evolution towards a more health-conscious and environmentally sustainable global food system.

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