

Plant-Based Diet and Its Effect on Coronary Artery Disease: A Narrative Review

Priyal Mehta^{1, 2}; Sawsan Tawfeeq²; Smitesh Padte^{1, 2}; Rayyan Sunasra³; Heet Desai⁴; Salim Surani^{2, 5}; Rahul Kashyap^{2, 6}

Reviewer #1:

Scientific Quality: Grade C (Good)

Language Quality: Grade B (Minor language polishing)

Conclusion: Minor revision

Specific Comments to Authors:

1. "I read with great interest the article entitled "A plant-based diet and its effect on coronary artery disease: a narrative review". Although there are similar publications in the literature including respectable databases such as "[uptodate.com](https://www.uptodate.com)", the article is noteworthy because it provides an overview of the attitudes and potential benefits of this diet for CV patients."

Response 1: Thank you for your words of appreciation. We are very pleased that you found the review article interesting.

2. "It is unclear why the authors mention only one disease in their article – 2.7 Atrial fibrillation. I advise either omitting that paragraph or specifying the specifics of the diet for other major CV entities such as arterial hypertension, diabetes, myocardial infarction and stroke, etc."

Response 2: Thank you so much for your suggestion. We have made the necessary modification by omitting the paragraph on atrial fibrillation and incorporated this into section 2.4 Comparison between vegan, vegetarian, and omnivorous diets. Protection against atrial fibrillation serves as an instance of advantages of meat-less diet.

3. "It is necessary to edit the References section according to the detailed instructions of the journal."

Response 3: Thank you for your advice. We have made the necessary amendments to the reference section.

Reviewer #2:

Scientific Quality: Grade C (Good)

Language Quality: Grade B (Minor language polishing)

Conclusion: Accept (General priority)

Specific Comments to Authors: The manuscript can be accepted.

Response: Thank you so much. Now, we have polished the language and two native English speakers have suggested and reviewed these changes. Please review 85+ punctuations and grammatical as well as vocabulary changes throughout the manuscript. We are confident that it now meets the standards of publication.

Company Editor-in-Chief:

1. "I have reviewed the Peer-Review Report, the full text of the manuscript, and the relevant

ethics documents, all of which have met the basic publishing requirements of the World Journal of Clinical Cases, and the manuscript is conditionally accepted.”

Response 1: Thank you so much for conditionally accepting our manuscript. We are very grateful and obliged.

2. “I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report, Editorial Office’s comments and the Criteria for Manuscript Revision by Authors. Before final acceptance, the author(s) must add a table/figure to the manuscript. There are no restrictions on the figures (color, B/W) and tables.”

Response 2: We are thankful for your recommendations to enrich our manuscript. We have added a decomposable figure depicting the mechanism of plant-based diets in preventing atherosclerotic plaque formation. We have also added one decomposable table depicting the current market trends of paradigm shift towards plant-based options worldwide. Thank you.

3. “Before final acceptance, when revising the manuscript, the author must supplement and improve the highlights of the latest cutting-edge research results, thereby further improving the content of the manuscript.”

Response 3: Thank you for guidance in reviewing the latest cutting-edge technologies corresponding to plant-based diet. We have added the following paragraph under section 2.11 What’s New in this Field?:

In recent times, several ethical, environmental, and health issues have fuelled awareness regarding plant-based diets on an international scale. A global survey in 2019 reported that 40% of consumers are trying to reduce their consumption of animal proteins, while 10% avoided red meat completely. Table 1 represents the market trends of various countries worldwide. The predilection of meat-loving consumers for products that expressly resemble the taste and texture of real meat has inspired the transformation of plant-based meat substitutes and the corresponding production technologies, including electro-spinning, high-moisture extrusion cooking (HMEC), and shear cell technology with the extrusion method, known for their ability to create fibrous structures reminiscent of meat. Plant-based proteins are the most frequently employed elements in replacement meats. Mushrooms, soy, and wheat gluten are the primary ingredients. Cultured meat, a sustainable substitute with mitigated land utilisation and an opportunity to expiate nutrient content through amendments in the growth medium, constitutes a single instance of a breakthrough advancement in the domain of plant-based diets. The global revenue for vegetarian meat substitutes is reckoned to pullulate from USD 1.6 billion in 2019 to USD 3.5 billion by 2026. Similar plant-derived proteins are employed to devise seafood alternatives as well as milk substitutes. The Plant Based Foods Association reports that the demand of plant-based yoghurts, cheeses, and creamers have increased by 55%, 43%, and 131%, respectively, in the US. Another fascinating emergence is microalgae, which are prolific in almost every essential amino acid. Some species even contain an amino acid content strikingly equivalent to the amount found in eggs. Nevertheless, factors like digestibility and bioavailability have an enormous influence on how proficiently these nutrients are adopted. The findings of a study conducted by Jakše et al. demonstrate that, even when consumed arbitrarily, transitioning from a modern western-style diet to a low-fat, unrefined whole food PBD supplemented with plant-based meal replacement conduce substantial noteworthy diminution in cardiovascular risk

factors. We anticipate continuing to enjoy flavourful food while also expecting future developments in food to be more considerate of the environment. Therefore, we must manufacture the sustenance deploying "precision processing". These are inventive techniques that conform to the available resources at disposal whilst optimising their quality and function.

Thank you.

4. "To this end, authors are advised to apply a new tool, the RCA. RCA is an artificial intelligence technology-based open multidisciplinary citation analysis database. In it, upon obtaining search results from the keywords entered by the author, "Impact Index Per Article" under "Ranked by" should be selected to find the latest highlight articles, which can then be used to further improve an article under preparation/peer-review/revision. Please visit our RCA database for more information at: <https://www.referencecitationanalysis.com/>."

Response 4: Thank you for this extraordinary AI tool that aided us in finding the high impact articles for citations. We used the search terms "Plant-based diet", "coronary artery disease", "dyslipidemia" and "phytosterols" and found the following 5 pertinent articles:

- Quek, J., Lim, G., Lim, W. H., Ng, C. H., So, W. Z., Toh, J., Pan, X. H., Chin, Y. H., Muthiah, M. D., Chan, S. P., Foo, R. S. Y., Yip, J., Neelakantan, N., Chong, M. F. F., Loh, P. H., & Chew, N. W. S. (2021). The Association of Plant-Based Diet With Cardiovascular Disease and Mortality: A Meta-Analysis and Systematic Review of Prospect Cohort Studies. *Frontiers in Cardiovascular Medicine*, 8. <https://doi.org/10.3389/fcvm.2021.756810>
- Craddock, J. C., Probst, Y. C., Neale, E. P., Geraghty, N., & Peoples, G. E. (2023). A comparison of diet quality and cardiovascular and inflammatory responses between aerobically trained male adults following either a long-term vegan or omnivorous dietary pattern. *Nutrition Bulletin*, 48(2), 227–242. <https://doi.org/10.1111/nbu.12615>
- Koch, C. A., Kjeldsen, E. W., & Frikke-Schmidt, R. (2023). Vegetarian or vegan diets and blood lipids: a meta-analysis of randomized trials. *European Heart Journal*. <https://doi.org/10.1093/eurheartj/ehad211>
- Nabel, E. G., & Braunwald, E. (2012). A Tale of Coronary Artery Disease and Myocardial Infarction. *New England Journal of Medicine*, 366(1), 54–63. <https://doi.org/10.1056/NEJMra1112570>
- Hansson, G. K. (2005). Inflammation, Atherosclerosis, and Coronary Artery Disease. *New England Journal of Medicine*, 352(16), 1685–1695. <https://doi.org/10.1056/NEJMra043430>

We have also attached the audio (.mp3) for the core tips section of the manuscript.

In case of any further rectification of the manuscript, kindly do not hesitate to contact us. Thank you so much for all your guidance and support.

Best Regards,
Dr Priyal Mehta

