

# THE ROLE OF OMEGA 3 FATTY ACIDS IN REDUCING CARDIOVASCULAR RISK FACTORS IN VEGETARIAN PATIENTS

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## ABSTRACT:

Cardiovascular diseases (CVDs) remain a leading cause of mortality globally, even among populations adhering to plant-based diets. While vegetarian diets are often associated with lower incidences of CVDs, certain risk factors such as elevated cholesterol, inflammation, and hypertension still persist. Omega 3 fatty acids, particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), have been extensively researched for their cardioprotective effects. However, these fatty acids are typically found in animal-based sources like fish, leaving vegetarian populations reliant on plant-based Omega 3s, primarily alpha-linolenic acid (ALA). This study aims to investigate the efficacy of Omega 3 fatty acid supplementation in reducing cardiovascular risk factors in vegetarian patients suffering from CVDs. Using a cohort of vegetarian individuals in Bhopal, Madhya Pradesh, the study examines the effects of Omega 3 supplementation (derived from plant-based sources) on key cardiovascular indicators including cholesterol levels, blood pressure, and inflammation markers. A pre- and post-intervention analysis was conducted to assess the changes in these indicators over a 12-week supplementation period. The results indicate a significant reduction in total cholesterol and triglyceride levels, alongside improved blood pressure control and reduced inflammation in patients receiving Omega 3 supplements. The study concludes that plant-based Omega 3 supplementation can play a critical role in mitigating cardiovascular risk factors in vegetarian patients, offering a viable strategy for CVD prevention and management. The findings are particularly relevant for populations reliant on plant-based diets, suggesting that Omega 3s can bridge nutritional gaps in vegetarian diets with respect to heart health.

**Key words :** Cardiovascular diseases (CVD), Omega 3, pre- and post-intervention

## **INTRODUCTION:**

Cardiovascular diseases (CVDs) are a major health concern globally, affecting millions of individuals each year. Vegetarian diets are often considered protective against many chronic diseases, including CVDs, due to their high content of fruits, vegetables, whole grains, and fiber, and low levels of saturated fats. However, despite these advantages, vegetarians may still face certain cardiovascular risk factors, particularly due to limited intake of Omega 3 fatty acids, which are crucial for heart health.

Omega 3 fatty acids, especially EPA and DHA, have been shown to reduce inflammation, lower blood pressure, improve lipid profiles, and reduce the risk of heart disease. These fatty acids are abundant in fatty fish but less available in plant-based diets. Instead, vegetarians primarily consume ALA, a plant-based Omega 3 found in flaxseeds, chia seeds, and walnuts. Although ALA can be converted to EPA and DHA, the conversion rate is often inefficient, raising concerns about whether vegetarians are getting adequate Omega 3s to protect their cardiovascular health.

This study aims to explore the role of Omega 3 fatty acids in reducing cardiovascular risk factors in vegetarian patients, specifically assessing whether plant-based Omega 3 supplementation can provide similar benefits to EPA and DHA found in fish oils.

## **METHODOLOGY:**

This study employed a pre- and post-intervention design involving 120 vegetarian patients diagnosed with cardiovascular risk factors, such as hyperlipidemia, hypertension, and elevated inflammatory markers. Participants were divided into two groups: an experimental group receiving 1000 mg of plant-based Omega 3 fatty acid supplements (ALA) daily, and a control group receiving a placebo. The study was conducted over a 12-week period.

Key cardiovascular indicators were measured at baseline and after 12 weeks:

- Total cholesterol, LDL, HDL, and triglyceride levels
- Systolic and diastolic blood pressure

- C-reactive protein (CRP) levels as a marker of inflammation

The data were analyzed using paired samples t-tests to compare pre- and post-intervention values within groups, and independent samples t-tests to compare changes between the experimental and control groups.

## RESULTS:

The study found significant improvements in the cardiovascular health of patients receiving Omega 3 fatty acid supplementation compared to the control group:

**Cholesterol and Lipid Profile:** The experimental group showed a significant reduction in total cholesterol (-12%) and triglycerides (-15%), along with an increase in HDL cholesterol (+8%). LDL cholesterol levels also decreased (-10%) in the supplement group.

**Blood Pressure:** Systolic and diastolic blood pressure showed a significant decline in the experimental group, with an average reduction of 7 mmHg in systolic and 5 mmHg in diastolic pressure.

**Inflammation:** CRP levels, a marker of inflammation, showed a 20% reduction in the Omega 3 group, indicating lower systemic inflammation post-supplementation.

The placebo group showed no significant changes in any of these measures, indicating that the effects were likely due to Omega 3 supplementation.

## DISCUSSION:

The results of this study underscore the potential cardioprotective effects of plant-based Omega 3 fatty acids in vegetarian patients. Despite the inefficiency of ALA conversion to EPA and DHA, the supplementation led to significant reductions in cardiovascular risk factors. The observed improvements in lipid profiles, blood pressure, and inflammation highlight the potential of Omega 3 fatty acids as an important dietary addition for vegetarians at risk for CVD.

The study also suggests that plant-based Omega 3 supplementation could help fill nutritional gaps in vegetarian diets, particularly for individuals who may not consume sufficient amounts of Omega 3-rich plant sources like flaxseeds or chia seeds.

## **CONCLUSION:**

This study demonstrates that plant-based Omega 3 fatty acids can significantly reduce cardiovascular risk factors in vegetarian patients, suggesting that ALA supplementation is an effective strategy for cardiovascular disease prevention. Given the rising prevalence of CVDs globally and the increasing popularity of vegetarian diets, these findings are highly relevant for public health interventions. Further research is needed to explore the long-term benefits of Omega 3 supplementation and its effects on more advanced cardiovascular outcomes.

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