

## Linkage between a Plant-based Diet and Visual Impairment: A Systematic Review and Meta-Analysis

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**Abstract :** Purpose: An increased risk of visual impairment has been observed in individuals lacking a balanced diet. The purpose of this paper is to characterize the relationship between plant-based diets and specific ocular outcomes among adults. Design: Systematic review and meta-analysis. Methods: This systematic review and meta-analysis were conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement guidelines. The databases MEDLINE, EMBASE, Cochrane, and PubMed, were systematically searched up until May 27, 2021. Of the 503 articles independently screened by two reviewers, 21 were included in this review. Quality assessment and data extraction were performed by both reviewers. Meta-analysis was conducted using STATA 15.0. Fixed-effect and random-effect models were computed based on heterogeneity. Results: A total of 503 studies were identified which then underwent duplicate removal and a title and abstract screen. The remaining 61 studies underwent a full-text screen, 21 progressed to data extraction and fifteen were included in the quantitative analysis. Meta-analysis indicated that regular consumption of fish (OR = 0.70; CI: [0.62-0.79]) and skim milk, poultry, and non-meat animal products (OR = 0.70; CI: [0.61-0.79]) is positively correlated with a reduced risk of visual impairment (age-related macular degeneration, age-related maculopathy, cataract development, and central geographic atrophy) among adults. Consumption of red meat [OR = 1.41; CI: [1.07-1.86]] is associated with an increased risk of visual impairment. Conclusion: Overall, a pescatarian diet is associated with the most favorable visual outcomes among adults, while the consumption of red meat appears to negatively impact vision. Results suggest a need for more local and government-led interventions promoting a healthy and balanced diet.

**Keywords :** plant-based diet, pescatarian diet, visual impairment, systematic review, meta-analysis

**Conference Title :** ICPNCNS 2022 : International Conference on Preventive Nutrition and Clinical Nutrition Supplements

**Conference Location :** New York, United States

**Conference Dates :** April 25-26, 2022