

Mapping the literature on diet and multiple sclerosis: a data-driven approach

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A variety of scoping and systematic reviews have been conducted in the field of diet and MS. However, these conventional literature reviews are limited by the sensitivity of their search strategy, so manuscripts of relevance can be missed. Further, their reliance on investigating specific narrow research questions means they cannot deliver a holistic view of the literature landscape. Using a data-driven approach,⁽¹⁾ we aimed to provide an overview of the literature on diet and MS, revealing the trends and gaps in knowledge. All available publications about diet and MS over the past 50 years and their citations were exported from Web of Science Core Collection. Citation network analysis was conducted using CitNetExplorer. We conducted topic analysis of each cluster identified by citation networks and prepared word clouds using R.⁽²⁾ Additionally, we identified the most researched foods and nutrients in relation to MS with text mining of publication titles. We identified four main clusters from 1626 publications in the field of diet and MS: MS risk and symptomatology; cuprizone mouse models; gluten sensitivity; and dysphagia. We further identified subclusters of different sizes and focus, such as specific diets (ketogenic diets, complementary and alternative medicine), nutrients (vitamin D, anti-inflammatory compounds), and study approaches (intervention studies, in vivo, in vitro studies). The most frequently studied nutrients in relation to MS were vitamin D, lipids and fatty acids, and protein. Commonly mentioned foods were salt, olive oil, milk, and fish. Citation network analysis revealed a gap in the literature between 1973 and 1991, with no highly cited articles published during that time. We identified notable gaps among research topics. Relatively few studies were focused on MS disease progression compared to risk factors for MS, and limited evidence was available for many foods and nutrients in relation to MS, with fewer than 20 articles over the past five decades for some foods and nutrients (e.g., meat, iron and zinc). We have visualised the citation network of the literature on diet and MS and identified trends and gaps in knowledge. Future studies could focus on filling the identified knowledge gaps, such as researching associations between diet and MS progression, as well as foods and nutrients that are infrequently investigated in MS.

References

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