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Cardiovascular Disorders and Microbiology

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Description

Obesity diabetes, cancer and aging-related disorders including Alzheimer's disease are all linked to diet, gut microbiome and chronic diseases. Our gut microbiome and metabolism are heavily influenced by our eating habits. Gut dysbiosis is a significant component of chronic illnesses, including various low-grade inflammatory disorders of the human gastrointestinal. Low dietary fibre consumption has been linked to long-term alterations in the gut microbiome, including lower production of beneficial microbial metabolites such as acetate, propionate and butyrate, which are implicated in the modulation of host immunological and inflammatory health. Low consumption of fruits, vegetables, salads, fish and mono and polyunsaturated fatty acids such as fish and olive oil, as well as excessive consumption of simple carbohydrates, are typical of Western style dietary [1].

The host's health and sickness are influenced by the gut microbiota. One of the most powerful modulators of gut microbiota is dietary choices. However, it is unclear how the two are related or which gut microbiota profile should be pursued to maintain optimal health. Currently, the majority of the world's population consumes Western diets, which are characterised by high saturated and omega-6 fatty acid intake, low omega-3 and fibre intake, excessive salt consumption and excessive refined sugar and processed food consumption. These causes, combined with a sedentary lifestyle, are increasing the global prevalence of obesity, with half of the world's population now considered overweight. As a result of their way of life inflammatory chemicals released by hypertrophied adipocytes might operate as false alarms in the immune system, causing the overall immune system to become less sensitive, delaying the response to an actual ailment. Several inflammation-related conditions, such as metabolic syndrome, cardiovascular disease, colorectal cancer and neurological diseases, can be aided by this. The majority of these illnesses have also been linked to changes in human microbiota composition, particularly those with low bacterial richness and diversity. These changes have been linked to disrupted gut barrier functioning, increased gut permeability and elevated plasma concentrations of lipopolysaccharide and other bacterial by-products, which promote low-grade inflammation and, in turn, insulin resistance, obesity and metabolic disease.

Not only in healthy but also in patients with obesity, diabetes and Crohn's disease, has switching to a Mediterranean-style diet been shown to improve serum inflammation biomarkers as well as their gene expression profile. Specific changes in the population level lowered blood cholesterol and produced various alterations in the microbiota and metabolome in overweight, obese people with lifestyle risk factors for metabolic disease, thus enhancing their metabolomic health. Tens of trillions of bacteria cells make up the human gut microbiome. The growing link between gut microbiome dysbiosis and diseases including obesity, diabetes and aging-related diseases like Alzheimer's disease necessitates the development of effective and safe treatments using gut microbiome modulators [2]. Many aspects of gut bacteria are influenced by our eating habits. One of the gut microbiome's key jobs is to metabolise dietary components in such a way that the biotransformation's products might enhance different areas of human health and metabolism. Mediterranean diets are a nutritionally balanced and scientifically suggested dietary pattern that is useful for the prevention and/or treatment of cardiovascular disease.Taxa enrichment was associated with lower frailty and the positive health effects. Mitsou et al. found a positive correlation with gastrointestinal symptoms, fecal moisture, total bacteria and Bifidobacteria, but a reduced representation of Lactobacilli and butyrate-producing bacteria induced by fast food consumption [3].

The main objective of the present was to relate the adherence to the to specific metagenomic traits, focusing on those bacterial taxa that are more abundant in individuals with a high adherence to the a specific food group consumption assessment was carried out to increase our knowledge of the impact of diet on gut microbiota composition the MD's beneficial health benefits. Matson et al. discovered a positive link between gastrointestinal symptoms, faecal moisture, total bacteria and Bifidobacteria, but a decreased representation of Lactobacilli and butyrate-producing bacteria as a result of fast food intake the primary goal of this study was to link adherence to specific metagenomic features, with an emphasis on bacterial taxa that are more numerous in people who follow the religiously. In addition, to further our understanding of the impact of diet on gut microbiota composition, a specific food category consumption evaluation was carried out. With a growing understanding of the importance of diet-microbiome interactions and their significant impact on human health, a novel and timely concept of exploring and developing'microbiota-directed foods' has emerged, which can function by modulating the functional spectrum of the gut microbial community, providing a precursor substrate for microbial biotransformation to bioactive molecules beneficial to the host's health, or a combination of both56. This could open up new avenues for enhancing host health by fostering/supporting healthy gut microbial communities, restoring microbial diversity lost as a result of Western-style diets and alleviating structural and functional dysbiosis linked to a variety of human disorders. Prebiotics are a type of microbiota-directed food that is defined as a non-digestible dietary element that has a positive effect on the host [4].

Our findings suggest that changes in gut microbiota caused by dietary behaviours may drive the well-known positive effects of an MD. The bacterium Bifidobacterium animalis has the strongest link to the MD. Several producing species, such as oscillibacter valericigenes, oscillospira plautii and roseburia faecis, benefit from fibre consumption. Fruit and nut eating faecis thrive. Ruminococcus bromii thrives on legumes, while Butyricicoccus pullicaecorum thrives on vegetables. The growth of Papillibacter cinnamivorans is aided by the consumption of nuts [5].

Conflict of Interest

None.

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