

Functional foods in the prevention of non-communicable diseases

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ABSTRACT

Non-communicable diseases (NCDs) such as cardiovascular disorders, diabetes, obesity, and cancers account for the majority of global mortality. Conventional medical interventions address symptoms but often fall short in prevention. Functional foods, which provide health benefits beyond basic nutrition, offer a complementary approach to reducing NCD risk factors. Functional foods counteract the key drivers of NCDs, primarily chronic inflammation, oxidative stress, and metabolic dysfunction. Their bioactive components produce health benefits through several key mechanisms. This research examines the role of a patented high-potency fermented extract, combined with synergistic nutrients, in fighting NCDs. Prebiotics and probiotics found in fermented foods can promote a healthy gut microbiome. This influences immune function, reduces inflammation, and can improve metabolic health. Emphasis is placed on the fermentation and extraction technologies patented across more than 10 countries, including Japan, the USA, Australia, and Europe, which ensure high bioavailability and safety of bioactive compounds. Studies indicate that significant immunomodulatory and antioxidative properties. When formulated with immune vitamins, the functional food demonstrates enhanced efficacy in reducing oxidative stress, improving immune responses, and maintaining metabolic balance. Evidence suggests that benefits include reduced inflammation, improved lipid profiles, regulated blood sugar levels, and increased resilience against chronic diseases. These outcomes highlight the synergistic effects of functional food with supporting nutrients in preventing the onset of NCDs. Functional foods enriched with scientifically validated bioactive compounds combined with vitamins to enhance health immunity represent a promising, sustainable, and safe dietary intervention in combating NCDs. By addressing root mechanisms, including oxidative damage, immune dysfunction, and metabolic imbalance, these formulations provide preventive and complementary strategies for global public health. Integrating such functional foods into daily nutrition could serve as an accessible tool to reduce the growing burden of NCDs. Academic research is necessary to fully understand the mechanisms and optimise the utilisation of functional foods.

Keywords: Functional Food, Non-Communicable Diseases, Food Fermentation, Immunomodulation, Preventive Nutrition