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The intake of omega-3 and omega-6 fatty acids in the vegan diet

There are two essential fatty acids: Alpha-Linoleic Acid (ALA; omega-3) and Linoleic Acid (LA; omega-6). Significant food sources of ALA include flaxseeds, walnuts, canola oil, and soybeans, whereas LA is found in vegetable oils, nuts, and seeds. ALA is converted to the beneficial omega-3 fatty acids, Eicosatetraenoic Acid (EPA) and Docosahexaenoic Acid (DHA), in the body. However, the conversion rate is very poor. In addition, LA and ALA metabolic pathways utilize the same enzymes. As such, a high consumption of LA will interfere with the synthesis of EPA and DHA. It is recommended to consume fish and seafood, as they are significant sources of EPA and DHA. However, vegans do not consume animal food sources. The results of this article demonstrated that vegans consume high amounts of LA and display low concentrations of EPA and DHA. Therefore, vegans may need to increase ALA, EPA, and DHA and decrease LA intakes.

Recent Publications

1. Froyen E, Maarafi Z. The consumption of omega-3 fatty acids in American adults. *Current Developments in Nutrition*. 2022;6(Supplement_1):902-902. doi:10.1093/cdn/nzac067.022

2. Froyen E. The effects of fat consumption on low-density lipoprotein particle size in healthy individuals: A narrative review. *Lipids in Health and Disease*. 2021;20(1). doi:10.1186/s12944-021-01501-0
3. Froyen E. The effects of linoleic acid consumption on lipid risk markers for cardiovascular disease. *IntechOpen*.

Biography

Erik Froyen is an Assistant Professor in the Department of Nutrition and Food Science at California State Polytechnic University, Pomona. He completed Ph.D. in Nutritional Biology from the University of California, Davis. My Ph.D. dissertation research involved investigating the effects of soy isoflavones on liver detoxification enzyme activities in rodent and cell culture models. His research interests include the mechanisms by which phytochemicals and fatty acids decrease the risk factors for cancer and cardiovascular disease. He has over 20 research oral and poster presentations on these topics – in addition to over 10 publications in peer-reviewed journals. Furthermore, he received two grants covering flavonoids and human health. Erik Froyen have served as a Research Mentor for 8 undergraduate and graduate students. He also teaches courses in Basic Nutrition, Introduction to Nutrition Research, Nutrient Metabolism, and Nutritional Genomics.

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