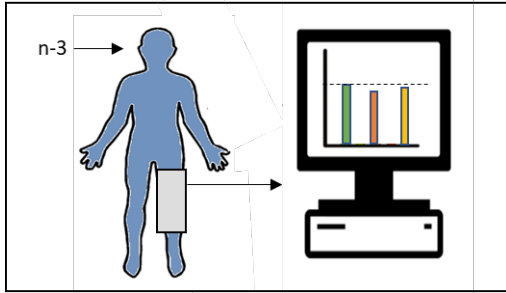


Omega-3 Fatty Acid Supplementation for the Attenuation of Skeletal Muscle Disuse Atrophy



Using n-3s to slow muscle loss during periods of immobilization with no known negative physiological side effects.

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Status

Seeking development partner

Stage of Research

Proof of principle data available

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Abstract

Currently, there are no known nutritional interventions that successfully mitigate skeletal muscle atrophy during acute limb disuse. Data have emerged suggesting that omega-3 fatty acid (n-3) supplementation may benefit skeletal muscle, which is thought to be mediated, at least in part, by the incorporation of n-3s eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) into the phospholipid membrane. However, whether n-3 supplementation attenuates human skeletal muscle disuse atrophy is unknown.

Researchers at McMaster have demonstrated that when young women consume n-3s for 4 weeks prior to a period of skeletal muscle disuse (2 weeks of single leg immobilization) they are protected against the loss of skeletal muscle mass, as well as derangements in mitochondrial function (a situation associated with many pathological conditions). Skeletal muscle recovery was also facilitated with n-3 supplementation. The dosage and treatment protocol have been optimized in this initial clinical study with further validation studies planned or underway.

Applications

- Nutritional supplementation protocol could be used as a strategy to offset skeletal muscle loss during periods of skeletal muscle disuse such as those experienced following surgery or bed rest, as well as to enhance recovery of muscles post-disuse

Advantages

- Therapeutic tool to reduce muscle loss in response to disuse and as a means to enhance recovery of skeletal muscle mass
- At the dose proposed by the researchers, this approach has no known negative physiological side effects