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Promoting Heart Health With Omega-3 Supplements

With cardiovascular (CV) events such as myocardial infarction (MI) and stroke occurring approximately every 40 seconds in the United States, there is a need for complementary cardiac care beyond the management of cholesterol.^{1,2} The omega-3 essential fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are important nutrients for CV health.³⁻⁷

HEART HEALTH BENEFITS OF OMEGA-3 FATTY ACIDS

EPA and DHA are found in the membranes of cells, where they are believed to exert most of their biochemical and physiologic effects to support a variety of CV protective functions, such as regulating inflammatory pathways, slowing the progression of atherosclerosis, and improving endothelial function.⁸⁻¹² The FDA has indicated that supportive, but not conclusive, research suggests that consuming EPA and DHA omega-3 fatty acids may help reduce blood pressure and reduce the risk of hypertension, a risk factor for coronary heart disease.¹³

Evidence-based clinical practice guidelines from the American College of Cardiology and the American Heart Association (AHA) recommend omega-3 intake to support primary and secondary risk reduction for various CV conditions.¹⁴⁻¹⁶ The guideline-recommended dosages of omega-3 range from 1000 mg to 4000 mg daily, through either eating fatty fish, taking a fish oil supplement, or taking a prescription omega-3 pharmaceutical where appropriate.¹⁴⁻¹⁶ FDA-approved prescription omega-3 products are available as an adjunct to diet to reduce triglyceride levels in adult patients with severe hypertriglyceridemia (≥ 500 mg/dL)^{17,18} and as an adjunct to maximally tolerated statin therapy to reduce the risk of MI, stroke, coronary revascularization, and unstable angina requiring hospitalization in adult patients with elevated triglyceride levels (≥ 150 mg/dL) and either established CVD or diabetes mellitus with at least 2 additional CV risk factors.¹⁸

OPTIMAL DOSAGE OF OMEGA-3 FATTY ACIDS FOR HEART HEALTH

For most Americans, it can be a challenge to achieve recommended amounts of EPA and DHA through consumption of fish alone.^{19,20} A variety of omega-3 dietary supplements are available as an option for those who do not have adequate EPA and DHA intake. When selecting an omega-3 supplement, it is important to consider the dose needed to promote heart health and product concentration. Highly concentrated forms of supplements can have EPA and DHA fatty acid content of greater than 80%. These supplements are often used in clinical studies and are frequently recommended by physicians and pharmacists.

Clinical Data

Several studies have investigated the dose of omega-3 fatty acids that provide CV-related health benefits. A meta-analysis aimed to determine the relationship between daily dosage of EPA and DHA supplementation and CV-related outcomes.²¹ Linear meta-regression modeling was used on pooled results from 40 randomized controlled trials that evaluated the effectiveness of omega-3 supplementation on various CV outcomes. The study population included 135,267 adults who received an average dose of 1221 mg of EPA and DHA per day (ranging from 400 to 5500 mg daily) across the 40 studies. As a novel finding from this study, for each additional 1000 mg per day of EPA and DHA consumed, the relative risks of CV events and MI were significantly reduced by 5.8% and 9.0%, respectively.²¹

The Omega-3 Index (O3I), a quantitative value obtained through a blood test, indicates the percentage of EPA and DHA that make up the fatty acid content of erythrocyte membranes.⁸ In clinical studies, a low O3I value (4%) was correlated with increased risk of CV-related events, whereas a value greater than 8% was cardioprotective, measured as the reduction in all-cause mortality, cardiac death, and sudden death in patients after experiencing an MI.^{8,22} Based on the findings from separate clinical studies, an average healthy adult with a low O3I would require at least 1000 mg/day of EPA and DHA for 5 months to achieve a cardioprotective O3I (8%), and nearly 2000 mg per day was needed for 90% of the population to reach that index.²²

ROLE OF THE PHARMACIST

Pharmacists have the flexibility to offer omega-3 products that fit an individual's needs. Highly concentrated forms of supplements can provide amounts of EPA and DHA that promote heart health and reduce the number of pills needed to achieve a recommended dose.

Pharmacists are uniquely positioned to help answer questions regarding the available omega-3 formulations based on the desired health outcome and individual needs. Important information to consider when selecting among the options available includes labeled information on potency, concentration, and formulation.

Dosing

The dose delivered per capsule of an omega-3 supplement is an important consideration when selecting among options available. Not all products have the same concentration of EPA and DHA. Some dietary supplements contain as little as 1 mg of combined EPA and DHA content per daily dose.¹³ The FDA has concluded that dietary supplements providing dosages of up to 5000 mg of EPA and DHA per day are safe when used as recommended or

suggested in their product labeling.¹³

As with any supplement, it is important to review the dosing on the label and understand how that information can support consumers in achieving the desired level of omega-3 intake. Pharmacists can assist by reviewing the labels to ensure the product provides an adequate dosage and determine how many capsules are required to achieve the recommended amount of EPA and DHA for heart health. Some products require 4 or more capsules daily to deliver the recommended total daily doses of EPA and DHA due to the low concentration. Higher-potency products allow intake of fewer capsules per day to achieve comparable amounts of these essential omega-3 fatty acids.⁸

Additional Considerations

Omega-3 products may be available as liquid, oral capsule, chewable tablets, and soft gel formulations. This may be an especially important consideration for children and elderly populations who wish to take an omega-3 supplement and have difficulty swallowing. Several omega-3 products are coformulated with added

ingredients, such as CoQ10 and vitamin D. This may be beneficial for consumers who wish to reduce their pill burden. Consumers may also note that they prefer products that do not have a fishy odor. In general, higher-purity, higher-potency products are less likely to be associated with fishy burp or smell compared with those of lower purity.

As accessible health care professionals, pharmacists can use every opportunity to reinforce the importance of a heart-healthy diet and lifestyle for the prevention of CV disease. The AHA recommends 2 weekly servings of fatty fish (eg, salmon, mackerel, herring, trout, sardines, anchovies, albacore tuna) that have high levels of omega-3 fatty acids, defined as containing 500 mg or more of DHA and EPA per 3 ounces.²⁰ In addition to discussing consumption of fatty fish as a part of a heart-healthy diet, pharmacists should encourage limiting intake of red meat, refined carbohydrates, and sweetened beverages and eating more vegetables, fruits, nuts, whole grains, and lean vegetable or animal protein. The benefits of physical activity and smoking cessation also should be emphasized.^{14,15}

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