ZYLENO FORTE

- **Available as a soft gelatin capsule containing: Eicosapentaenoic acid 180 mg + Docosahexaenoic acid 120 mg + Ubidecarenone [Coenzyme Q10] 100 mg**

(1) Indications (for elderly): prevention of cognitive decline

(2) Recent trials:

Abstract 1

Fish consumption, n–3 fatty acids, and subsequent 5-y cognitive decline in elderly men: the Zutphen Elderly Study

Maria van Gelder B., Tijhuis M, Kalmijn S and Kromhout D.
American Journal of Clinical Nutrition 2007; 85 (4): 1142-1147

Background: Indications have been seen of a protective effect of fish consumption and the intake of n–3 fatty acids on cognitive decline. However, studies are scarce and results inconsistent.

Objective: The objective of the study was to examine the associations between fish consumption, the intake of the n–3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) from fish and other foods, and subsequent 5-y cognitive decline.

Design: Data on fish consumption of 210 participants in the Zutphen Elderly Study, who were aged 70–89 y in 1990, and data on cognitive functioning collected in 1990 and 1995 were used in the study. The intake of EPA and DHA (EPA+DHA) was calculated for each participant. Multivariate linear regression analysis with multiple adjustments was used to assess associations.

Results: Fish consumers had significantly (P = 0.01) less 5-y subsequent cognitive decline than did nonconsumers. A linear trend was observed for the relation between the intake of EPA+DHA and cognitive decline (P = 0.01). An average difference of ≈380 mg/d in EPA+DHA intake was associated with a 1.1-point difference in cognitive decline (P = 0.01).

Conclusions: A moderate intake of EPA+DHA may postpone cognitive decline in elderly men. Results from other studies are needed before definite conclusions about this association can be drawn.

Abstract 2

Neurological Benefits of Omega-3 Fatty Acids

Dyall SC and Michael-Titus AT.
NeuroMolecular Medicine 2008; 10(4): 219-235.

The central nervous system is highly enriched in long-chain polyunsaturated fatty acid (PUFA) of the omega-6 and omega-3 series. The presence of these fatty acids as structural components of neuronal membranes influences cellular function both directly, through effects on membrane properties, and also by acting as a precursor pool for lipid-derived messengers. An adequate intake of omega-3 PUFA is essential for optimal visual function and neural development. Furthermore, there is **increasing evidence that increased intake of the long-chain omega-3 PUFA, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), may confer benefits in a variety of psychiatric and neurological disorders, and in particular neurodegenerative conditions.** However, the mechanisms underlying these beneficial effects are still poorly understood. Recent evidence also indicates that in addition to the positive effects seen in chronic neurodegenerative conditions, omega-3 PUFA may also have significant neuroprotective potential in acute neurological injury. Thus, these compounds offer an intriguing prospect as potentially new therapeutic approaches in both chronic and acute conditions. The purpose of this article is to review the current evidence of the neurological benefits of omega-3 PUFA, looking specifically at neurodegenerative conditions and acute neurological injury.

Abstract 3

ω-3 Fatty Acids in Physical and Mental Health and Disease

Djazayery A and Jazayery S.
Chapter 21 of Book: Wild-Type Food in Health Promotion and Disease Prevention

Basic and epidemiological evidence shows that ω-3 fatty acids—α-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA)—play important roles in the protection and promotion of health and prevention and treatment of several physical and mental disorders and diseases. They can favorably influence inflammatory intermediate production and gene expression, two basic physiological processes, which would, in turn, lead to **desirable improvements in physical and mental health—from growth of the fetus and the infant to cognition in the elderly.** They also have effective roles in the vascular and retinal health, asthma and allergy alleviation, and cognitive development in children, slowing age related cognitive decline and cancer risk reduction. ω-3 fatty acids are beneficial in cardiovascular disease (CVD) as well as diabetes mellitus. They may enhance vasodilator mechanisms in forearm microcirculation and help reduce blood pressure and bring about *desirable changes in the blood lipid profile*.

Marine fish oil, the richest source of ω-3 fatty acids, can reduce plaque progression and risk of fatal coronary heart disease (CHD) events at a dose equivalent to 1 g EPA + DHA/d. In addition, clinical trials have shown that daily consumption of poseidonol-PUFA-ω-3 fatty acid family-may lead to increases in plasminogen activator and decreases in coagulation and the atherogenic index in type 2 hyperlipidemic diabetics with CVD. At least in some types of cancer, the ω-6:ω-3 fatty acid ratio may have a role in prevention and treatment, a low-ratio downregulating the cell adhesion/invasion-related molecules. There is some evidence showing that the cardioand cancer-protective effects of ω-3 fatty acids may share common pathways—ionic channels, Ca homeostasis, PKC activation, and matrix metalloproteinase.
There are not many published reports on the role of ω-3 fatty acid in depression, Alzheimer disease, or schizophrenia. The available evidence indicates, however, that **they may have desirable effects in the prevention/ alleviation of these mental disorders as well.**

Abstract 4

Coenzyme Q treatment of neurodegenerative diseases of aging.

Galpern WR, Cudkowicz ME.
Mitochondrion. 2007 Jun;7 Suppl:S146-53. Epub 2007 Mar 27.

The etiology of several neurodegenerative disorders is thought to involve impaired mitochondrial function and oxidative stress. **Coenzyme Q-10 (CoQ10) acts both as an antioxidant and as an electron acceptor at the level of the mitochondria**. In several animal models of neurodegenerative diseases including amyotrophic lateral sclerosis, Huntington's disease, and Parkinson's disease, CoQ10 has shown beneficial effects. Based on its biochemical properties and the effects in animal models, several clinical trials evaluating CoQ10 have been undertaken in many neurodegenerative diseases. CoQ10 appears to be safe and well tolerated, and several efficacy trials are planned.

Abstract 5

Coenzyme Q10: a review of its promise as a neuroprotectant.

Young AJ, Johnson S, Steffens DC, Doraiswamy PM.
CNS Spectr. 2007 Jan;12(1):62-8.

Coenzyme Q10 (CoQ10) is a powerful antioxidant that buffers the potential adverse consequences of free radicals produced during oxidative phosphorylation in the inner mitochondrial membrane. Oxidative stress, resulting in glutathione loss and oxidative DNA and protein damage, has been implicated in many neurodegenerative disorders, including Alzheimer's disease, Parkinson's disease, and Huntington's disease. Experimental studies in animal models suggest that CoQ10 may protect against neuronal damage that is produced by ischemia, atherosclerosis and toxic injury. Though most have tended to be pilot studies, there are **published preliminary clinical trials showing that**

CoQ10 may offer promise in many brain disorders. For example, a 16-month randomized, placebo-controlled pilot trial in 80 subjects with mild Parkinson's disease found significant benefits for oral CoQ10 1,200 mg/day to slow functional deterioration. However, to date, there are no published clinical trials of CoQ10 in Alzheimer's disease. Available data suggests that oral CoQ10 seems to be relatively safe and tolerated across the range of 300-2,400 mg/day. Randomized controlled trials are warranted to confirm CoQ10's safety and promise as a clinically effective neuroprotectant.

(3) Dosage in elderly:

One capsule once a day or as prescribed by clinician.

(4) Common side effects:

Zyleno forte may cause fishy taste, stomach gas (belching), stomach upset, nausea, or diarrhea.