Health News from 3Care Therapeutics

Omega-3 Linked to Healthy Strong Bones

Increased intakes of omega-3 fatty acids, and DHA in particular, may increase bone mineral content and produce healthier, stronger bones, suggest results from a study with rats.

According to findings of a new study, "DHA appears to be a vital constituent of marrow" and enhances bone mineral content. The findings did not extend to EPA, however.

Led by Purdue's Dr Bruce Watkins, the researchers used dual-energy X-ray absorptiometry to assess the impact of DHA on bone mineral content, compared with the omega-6 DPA (docosapentaenoic acid; *which is actually an omega-3 not omega-6 fatty acid and direct precursor to DHA*) or DHA plus DPA. Rat pups bred to be omega-3 deficient were randomly assigned to receive linoleic acid (LA)- enriched rat milk, or the LA milk supplemented 1 per cent DHA, 1 per cent DPA, or 1 per cent DHA plus 0.4 per cent DPA. Once the animals reached adulthood, the fatty acid levels in their tissues were measured, and their bone mineral density (BMD) determined.

Outcomes showed that the DPA-supplemented animals, "generally had the lowest bone mineral content and bone mineral density values." Researchers also noted that DPA did not replace DHA in the bones and this indicated "an indispensible role of DHA in bone health".

Results Conform with NASA Research

Scientists from NASA recently reported in the Journal of Bone and Mineral Research that the omega-3 may protect against bone loss during space flight, a result that supports the Purdue data.

Led by Dr Sara Zwart from the Universities Space Research Association in Houston the researchers looked at levels of a protein called NF-kappaB that is linked to a range of functions, including bone resorption, muscle wastage, and immune health. Data showed that NF-kappaB levels were higher in astronauts following periods of spaceflight. However, astronauts who reported higher intakes of fish, and therefore the omega-3s they contain, had lower levels of bone loss after spaceflight.

These observations were supported by cell studies, said the researchers, which showed that omega-3 decreased the activation of NF-kappaB.

Scientists from Purdue University, Indiana University School of Medicine, Korea Maritime University, and the US National Institutes of Health, report their findings in the British Journal of Nutrition.

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"Bone mineral content is positively correlated to n-3 fatty acids in the femur of growing rats"
Authors: Y. Li, M.F. Seifert, S-Y. Lim, N. Salem, B.A. Watkins

For Joint Health, Don't Forget the Omega-3

While fish-sourced omega-3 fatty acids are better known for their cardiovascular benefits, omega-3s have also been reported to benefit joint health. The anti-inflammatory activity of the fatty acids has been reported to be responsible for many of the joint health benefits attributed to omega-3.

Omega-3-rich extracts from New Zealand green-lipped mussel (Perna Canaliculus), for example, were reported to show significant benefits in patients with osteoarthritis of the hip and knee. Korean scientists reported in 2003 that the green lip mussel extracts produced significant pain relief, and improved joint function, in 80 per cent of the participants after eight weeks of supplementation (Eur Ann Allergy Clin Immunol. 2003, Vol. 35; pp. 212-216).

A recent study by Berlin-based CRO Analyze & Realize, reported that combining omega-3 fatty acids with glucosamine could be a better approach than using glucosamine alone.

The study, published in the journal Advances in Therapy, is said to be the first clinical trial to employ the combination of glucosamine omega-3 fatty acids in people suffering from osteoarthritis.

The combination of glucosamine sulfate (1500 milligrams per day) and omega-3 fatty acids (providing 444 mg of fish oil, of which 200 mg were omega-3-fatty acids), was found to produce significant pain reduction, compared to glucosamine alone.

Commenting on the potential mechanism, the scientists noted the ingredient probably acted synergistically. "Omega-3 fatty acids inhibit the inflammation process in osteoarthritis, whereas glucosamine sulfate further supports the rebuilding of lost cartilage substance," they stated.