

Fish Oils and Rheumatoid Arthritis

Summaries of the latest research concerning fish oils and rheumatoid arthritis

Fish oils benefit patients with lupus

BELFAST, NORTHERN IRELAND. Systemic lupus erythematosus (SLE) is a chronic inflammatory disease. It can manifest itself via a photosensitive facial rash, fatigue, anorexia, weight loss, and night sweats and can progress to life-threatening involvement of the heart, lungs, kidneys or central nervous system. Flare-ups of SLE are typically followed by periods of clinical remission. Fish oils and copper have both been found useful in the treatment of other inflammatory diseases, so researchers at the University of Ulster decided to see if supplementation with one or both of these would help alleviate SLE symptoms. Their clinical trial involved 52 SLE patients who were randomly assigned to receive 3 grams/day of fish oil providing 540 mg/day of EPA (eicosapentaenoic acid) and 360 mg/day of DHA (docosahexaenoic acid), 3 mg/day of copper in the form of a copper di-glycinate amino acid complex, both fish oil and copper, or a placebo. The study lasted 24 weeks and participants were assessed at baseline, 6, 12 and 24 weeks. The researchers found that disease activity at 24 weeks, as measured by the SLAM-R score, was significantly less in the groups that had supplemented with fish oil than in the placebo and copper only groups. They conclude that supplementation with fish oil may be effective in favourably modifying the symptomatic disease activity in SLE. *Duffy, EM, et al. The clinical effect of dietary supplementation with omega-3 fish oils and/or copper in systemic lupus erythematosus. Journal of Rheumatology, Vol. 31, August 2004, pp. 1551-56/*

Fish oils help reduce arthritis symptoms

EPSOM, UNITED KINGDOM. Dr. Gail Darlington of the Epsom General Hospital and Dr. Trevor Stone of the University of Glasgow have just released a major paper reviewing the current state of the art in regards to diet and inflammatory diseases such as rheumatoid arthritis (RA). About 2% of the world's population suffers from RA and the disease is three times more prevalent among women than among men. RA can strike at any age and involves an inflammation of joint tissues associated with the release of toxic substances in the synovium that leads to cartilage destruction. The main symptoms are swelling of the affected joints, morning stiffness, fatigue and general malaise. There is considerable evidence now that RA is caused by oxidative stress and involves an excessive production of pro-inflammatory compounds like tumor necrosis factor- α and interleukin-1 β . Research has shown that supplementation with fish oils (eicosapentaenoic acid and docosahexaenoic acid) can markedly reduce interleukin-1 β production and results in a significant reduction in morning stiffness and the number of painful joints in RA patients. Omega-6 polyunsaturated fatty acids (found in cooking oils and margarine), on the other hand, have been found to exacerbate RA symptoms. Fish oils have also been found useful in the management of systemic lupus erythematosus. Drs. Darlington and Stone point out that long-term supplementation with fish oils may affect immune function and caution against daily intakes of more than 750 mg of EPA. (*Editor's Note*: Other studies have found intakes of 5 grams/day or more to be entirely safe for periods as long as seven years.) They also point out that fish oil supplements should contain at least 3 mg of vitamin E per gram of fish oil in order to avoid excessive peroxidation. [225 references] *Darlington, L. Gail and Stone, Trevor W. Antioxidants and fatty acids in the amelioration of rheumatoid arthritis and related disorders. British Journal of Nutrition, Vol. 85, March 2001, pp. 251-69/*

Fish oils recommended for rheumatoid arthritis

NEWCASTLE, AUSTRALIA. At least 13 published randomized, controlled clinical trials have reported significant benefits of fish oil supplementation in rheumatoid arthritis patients. Now researchers at the University of Newcastle weight in with the additional evidence to support these earlier findings. Their 15- week study involved 50 patients who had been diagnosed with rheumatoid arthritis. The patients were all consuming a diet which contained less than 10 grams/day of omega-6 fatty acids. These fats are known to promote inflammation through their eicosanoid metabolites. Half the patients were given fish oil capsules to provide a daily intake of 40 mg/kg body weight (about 2.8 grams for a 70 kg person); the other half received placebo capsules containing 50/50 corn/olive oil. All subjects continued with their regular diet and medications. About half the patients dropped out during the experiment, mainly due to changes in their medications. Complete clinical evaluations were carried out at baseline, 4, 8 and 15 weeks. There were no significant changes after 4 or 8 weeks, but at the 15-week evaluation major improvements were noted in the group receiving fish oil. Particularly impressive were the improvements in the duration of morning stiffness and the overall assessment of disease activity (by both patients and physicians). Significant improvements were noted in 6 of the 9 evaluation parameters in the fish oil group; no improvements were noted in the control group. Only the total number of joints affected, the erythrocyte sedimentation rate (ESR), and the C-reactive protein level were unaffected by supplementation. In an accompanying editorial Drs. Cleland and James of the Royal Adelaide Hospital emphasize the importance of maintaining a low intake of omega-6 fatty acids in order to keep the ratio of omega-6 to omega-3 as low as possible. They conclude that "dietary fish oil supplements should now be regarded as part of standard therapy for rheumatoid arthritis". *Volker, Dianne, et al. Efficacy of fish oil concentrate in the treatment of rheumatoid arthritis. Journal of Rheumatology, Vol. 27, October 2000, pp. 2343-46* *Cleland, Leslie G. and James, Michael J. Fish oil and rheumatoid arthritis: antiinflammatory and collateral health benefits. Journal of Rheumatology, Vol. 27, October 2000, pp. 2305-06 (editorial)/*

Borage and fish oils go together

JACKSONVILLE, FLORIDA. Supplementation with gamma-linolenic acid (GLA) found in borage and evening primrose oils reduces the symptoms of chronic inflammatory diseases such as rheumatoid arthritis and atopic dermatitis. It is believed that the transformation of GLA to DGLA (dihomo-gamma- linolenic acid) in the inflammatory cells (white blood cells) helps dampen the inflammatory effects of AA (arachidonic acid). Unfortunately, there is a fly in the ointment. While GLA supplementation results in a decrease in AA in the inflammatory cells it also causes, somewhat paradoxically, a very significant increase in AA in the blood serum itself. A high blood level of AA is associated with an increased risk of blood clotting and is a potent risk factor for heart disease. Researchers at the Mayo Clinic now report that the potentially harmful effects of GLA supplementation can be eliminated by simultaneous supplementation with fish oil. Their small clinical trial involved a control group of 2 healthy men and 2 healthy women who consumed a controlled diet while supplementing with 3 grams/day of GLA (5 capsules of borage oil morning and evening). The active treatment group (5 women and 7 men) followed the same protocol with the addition of 3 grams/day of EPA (eicosapentaenoic acid) taken in the form of 5 capsules of concentrated fish oil (each capsule containing 600 mg of EPA and 280 mg of DHA (docosahexaenoic acid). After 3 weeks of supplementation samples of white blood cells and samples of blood serum were analyzed to determine fatty acid profiles. Both groups experienced a marked increase in beneficial DGLA in their white blood cells. The control group (GLA supplementation only) also saw a significant increase in detrimental AA in their blood serum, but no such increase was observed in the group taking fish oil as well. The researchers conclude that the detrimental effects of GLA supplementation can be avoided by adding fish oils to the supplementation regimen. *Barham, J. Brooke, et al. Addition of eicosapentaenoic acid to gamma-linolenic acid: supplemented diets prevent serum arachidonic acid accumulation in humans. Journal of Nutrition, Vol. 130, 2000, pp. 1925-31/*

Fish oils and rheumatoid arthritis

BADALONA, SPAIN. Several studies have shown that supplementation with n-3 polyunsaturated fatty acids (n-3 PUFAs) found in fish oils is beneficial for rheumatoid arthritis (RA) patients. Spanish medical researchers now report that RA patients tend to have decreased levels of n-3 PUFAs in their blood and synovial (joint) fluid. Their study involved 24 female and 15 male RA patients (median age of 64 years). Blood and joint fluid samples were collected from the patients and from a control group consisting of 28 healthy volunteers (17 male and 11 female with a median age of 61 years). All samples were analyzed to determine their fatty acid profile. RA patients were found to have significantly lower levels of eicosapentaenoic acid (the main component of fish tissue oil) in both their blood plasma and synovial fluid. The level of alpha-linolenic acid was lower in the synovial fluid of RA patients, but not in their blood plasma. The level of docosahexaenoic acid (a major component of fish tissue oil) also tended to be lower in synovial fluids of RA patients, but not in their blood plasma. The researchers conclude that RA patients have an abnormal fatty acid profile and a significant deficiency in certain essential fatty acids. They believe this finding may explain why supplements such as fish oils and gamma-linolenic acid (from evening primrose and borage) have been found to be beneficial in the treatment of rheumatoid arthritis. *Navarro, Elisabet, et al. Abnormal fatty acid pattern in rheumatoid arthritis - A rationale for treatment with marine and botanical lipids. Journal of Rheumatology, Vol. 27, February 2000, pp. 298-303/*

Fish oils relieve rheumatoid arthritis

ALBANY, NEW YORK. Rheumatoid arthritis is a systemic inflammatory disease involving an excessive release of leukotriene B4 and interleukin 1 in the body. Both animal experiments and human studies have shown that supplementation with fish oils reduces the release of these inflammatory compounds and in the process relieves the common arthritis symptoms of morning stiffness and tender joints. Dr. Joel Kremer of the Albany Medical College has summarized the current knowledge concerning fish oils and rheumatoid arthritis and concludes that taking 3-6 grams daily of fish oils (n-3 dietary fatty acids) for 12 weeks or more will significantly diminish joint pain and morning stiffness in RA patients. Several studies have shown that the improvement in some patients is significant enough to allow them to materially reduce or completely discontinue their use of non-steroidal anti-inflammatory drugs (NSAIDs) such as diclofenac and naproxen. Dr. Kremer also points out that fish oil supplementation has been found to benefit patients with inflammatory bowel disease. *Kremer, Joel M. n-3 fatty acid supplements in rheumatoid arthritis. American Journal of Clinical Nutrition, Vol. 71 (suppl), January 2000, pp. 349S-51S/*

Fish oils benefit rheumatoid arthritis patients

BOSTON, MASSACHUSETTS. Many small studies have concluded that fish oil supplementation leads to a marked improvement in rheumatoid arthritis symptoms. However, precisely because these studies have been small their publication has not had a major impact on the medical treatment of arthritis. A team of researchers from the Harvard Medical School has now combined and analyzed the results of these smaller studies. Their meta-analysis covered 10 double-blind, randomized, placebo-controlled studies aimed at determining the effect of fish oil supplementation on 8 measures of arthritis severity including the number of tender joints, number of swollen joints, extent of morning stiffness, grip strength, erythrocyte sedimentation rates, and overall global assessment of disease severity. The studies involved a total of 368 participants who took fish oil supplements for at least three months. The meta-analysis revealed a highly significant decrease in the number of tender joints and a significant shortening in the duration of morning stiffness among patients supplementing with fish oils. No statistically significant changes were observed for the other measured indicators of disease severity. *Fortin, Paul R., et al. Validation of a meta-analysis: the effects of fish oil in rheumatoid arthritis. Journal of Clinical Epidemiology, Vol. 48, 1995, pp. 1379-90/*

Fish oil may replace NSAIDs in some RA patients

ALBANY, NEW YORK. There is considerable evidence that fish oil supplementation can alleviate the symptoms of rheumatoid arthritis (RA). What is less clear is how much is required and whether fish oils are effective enough to eliminate the need for non-steroidal anti-inflammatory drugs (NSAIDs). Researchers at the Albany Medical College have released the results of a study which throws light on both of these questions. The double-blind, placebo-controlled study involved 66 patients with active RA as indicated by the presence of at least 3 of the following symptoms: * 6 or more tender joints; * 3 or more swollen joints; * 30 minutes or more of morning stiffness; * a sedimentation rate of 28 mm/hour or higher. The patients were weaned off their current anti-inflammatory medications and were then started on the NSAID diclofenac (75 mg twice a day). After 2 weeks they were randomized into 2 groups receiving 130 mg/kg per day of either fish oil (EPA+DHA ethyl esters) or corn oil (an omega-6 fatty acid). The daily dose of fish oil corresponds to about 9 grams/day for a person weighing 70 kg. After 18 or 22 weeks the diclofenac was replaced by a placebo and the fish and corn oil supplementation continued for another 8 weeks after which all patients were switched to the corn oil plus diclofenac placebo until the end of the study at week 48. The researchers found that the fish oil group achieved a significant lessening of their symptoms from the start of supplementation and until the replacement of diclofenac with the placebo. No statistically significant benefits were observed in the corn oil group. Several patients in the fish oil group maintained their improved status even after diclofenac withdrawal. The researchers conclude that some RA patients using fish oil supplementation may be able to discontinue NSAIDs without experiencing a flare-up of their disease. They also noted that the benefits achieved from supplementing with 9 grams/day of fish oil were no greater than those observed in other studies using only 3 to 6 grams/day. *Kremer, Joel M., et al. Effects of high-dose fish oil on rheumatoid arthritis after stopping nonsteroidal antiinflammatory drugs. Arthritis & Rheumatism, Vol. 38, August 1995, pp. 1107-14 /*

Long-term fish oil supplementation benefits RA patients

LEUVEN, BELGIUM. Belgian researchers have released the results of a major study aimed at determining the long-term effects of fish oil supplementation in rheumatoid arthritis patients. Sixty patients completed the year-long, double-blind, randomized study. The participants were divided into 3 groups with 1 group receiving a daily supplement of 6 capsules containing 1 gram of olive oil each (placebo); another group receiving 3 olive oil capsules plus 3 fish oil capsules (containing 1 gram of fish oil each); and the third group receiving 6 fish oil capsules daily (corresponding to 2.6 grams/day of omega-3 fatty acid). All patients continued on their regular arthritis medications. Three months into the study it became clear that the patients on fish oil alone had improved considerably when compared to the other 2 groups and this improvement became even more pronounced after 12 months of supplementation. Fifty-three per cent of the patients in the fish oil group showed significant overall (global) improvement as compared to 10% in the placebo group and 33% in the fish oil plus olive oil group. Forty-seven per cent of the patients in the fish oil group were also able to reduce their intake of NSAIDs and disease-modifying anti-rheumatic drugs as compared to 15% in the placebo group and 29% in the olive oil plus fish oil group. The researchers conclude that long-term supplementation with fish oils benefits rheumatoid arthritis patients significantly and may lessen their need for NSAIDs and other RA medications. *Geusens, Piet, et al. Long-term effect of omega-3 fatty acid supplementation in active rheumatoid arthritis. Arthritis & Rheumatism, Vol. 37, June 1994, pp. 824-29 /*

Fish oil and margarine don't go together

ADELAIDE, AUSTRALIA. Fish oil supplements containing EPA (eicosapentaenoic acid) have an anti-inflammatory effect and may benefit people suffering from *rheumatoid arthritis* and psoriasis. This beneficial effect is significantly reduced when the diet is high in linoleic acid. A seven week controlled experiment involving 30 male volunteers was recently completed in

Australia. The participants were given 1.6 gram EPA and 0.32 gram DHA (docosahexaenoic acid) daily. Half the volunteers were kept on a diet high in linoleic acid by using margarine as a spread and polyunsaturated oils for cooking. The other half used butter and olive oil which are low in linoleic acid. The experiment clearly showed that the incorporation of fish oil is enhanced by a diet containing butter and fish oil. Margarine and polyunsaturated oils had an inhibiting effect and should therefore be excluded from the diet in order to obtain maximum benefit from fish oil.

Cleland, Leslie G., et al. Linoleate inhibits EPA incorporation from dietary fish-oil supplements in human subjects. American Journal of Clinical Nutrition, Vol. 55, February 1992, pp. 395-99/

Fish oils alleviate rheumatoid arthritis symptoms

ALBANY, NEW YORK. Rheumatoid arthritis is believed to involve an overactivity of certain inflammatory agents derived from arachidonic acid. Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), the main components of fish oils, are known to inhibit the formation of these inflammatory agents. Research has shown that fish oil supplementation is beneficial in alleviating the symptoms of several inflammatory diseases. Researchers at the Albany Medical College and the State University of New York now report that fish oils are quite effective in relieving the symptoms of rheumatoid arthritis. Their study involved 33 arthritis patients (25 women and 8 men) aged between 23 and 74 years who had suffered from arthritis for more than 3 years. Half the patients were assigned to supplement daily with 15 fish oil capsules (containing a total of 2.7 grams EPA and 1.8 grams DHA) while the other half received 15 placebo capsules every day (containing olive oil). After 14 weeks of supplementation and a 4-week wash-out period during which everyone took placebo capsules the group on fish oil switched to placebos and vice versa for a further 14 weeks. After 14 weeks on fish oil there was a very noticeable decrease in the average number of tender joints among the patients (from 9 to 5.5) and a 2.5-hour increase in the time to the first onset of fatigue after getting up in the morning. Although not statistically significant a trend to a shorter duration of morning stiffness and fewer swollen joints were also observed. The researchers conclude that fish oil supplementation relieves arthritis symptoms, but point out that at least 12 weeks of fish oil ingestion is required before the benefits are felt. /

Kremer, Joel M., et al. Fish-oil fatty acid supplementation in active rheumatoid arthritis: A double-blinded, controlled, crossover study. *Annals of Internal Medicine*, Vol. 106, April 1987, pp. 497-503/

Coromega *Additional References* 1. Ariza-Ariza, R., et al. Omega-3 fatty acids in rheumatoid arthritis: an overview. *Seminars in Arthritis and Rheumatology**, Vol. 27, June 1998, pp. 366-70 *Conclusion:* Many studies show that fish oil supplementation relieves arthritis. 2. Lau, C.S., et al. Effects of fish oil supplementation on non-steroidal anti-inflammatory drug requirement in patients with mild rheumatoid arthritis: a double-blind placebo controlled study. *British Journal of Rheumatology**, Vol. 32, November 1993, pp. 982-89 *Conclusion:* Some arthritis patients were able to reduce their NSAID use by supplementing with fish oils. 3. Skoldstam, L., et al. Effect of six months of fish oil supplementation in stable rheumatoid arthritis: a double-blind, controlled study. *Scandinavian Journal of Rheumatology**, Vol. 21 (4), 1992, pp. 178-85 *Conclusion:* Fish oil supplementation can reduce need for NSAIDs in rheumatoid arthritis patients. 4. Neilsen, G.L., et al. The effects of dietary supplementation with n-3 polyunsaturated fatty acids in patients with rheumatoid arthritis: a randomized, double blind trial. *Eur J Clin Invest**, Vol. 22, October 1992, pp. 687-91 *Conclusion:* Fish oil supplementation reduced morning stiffness and joint tenderness in rheumatoid arthritis patients. 5. Kremer, J.M., et al. Dietary fish oil and olive oil supplementation in patients with rheumatoid arthritis: clinical and immunologic effects. *Arthritis and Rheumatism**, Vol. 33, June 1990, pp. 810-20 *Conclusion:* Fish oil supplementation reduced joint tenderness and swelling in rheumatoid arthritis patients. 6. van der Tempel, H., et al. Effects of fish oil supplementation in rheumatoid arthritis. *Annals of the Rheumatic Diseases**, Vol. 49, February 1990, pp. 76-80 *Conclusion:* Fish oil supplementation alleviates rheumatoid arthritis symptoms. 7. Kremer, J.M., et al. Fish-oil fatty acid supplementation in active rheumatoid arthritis: a double-blind, controlled, crossover study. *Annals of Internal Medicine**, Vol. 106, April 1987, pp. 497-503 *Conclusion:* Fish oil supplementation relieves fatigue in rheumatoid arthritis patients. 8. Cleland, L.G., et al. Clinical and biochemical effects of dietary fish oil supplements in rheumatoid arthritis. *Journal of*

Rheumatology*, Vol. 15, October 1988, pp. 1471-75 *Conclusion:* Fish oil supplementation reduced joint tenderness and improved grip strength in rheumatoid arthritis patients. 9. Belch, J.J., et al. Effects of altering dietary essential fatty acids on requirements for non-steroidal anti-inflammatory drugs in patients with rheumatoid arthritis: a double-blind, placebo-controlled study. *Annals of the Rheumatic Diseases*, Vol. 47, February 1988, pp. 96-104 *Conclusion:* Some arthritis patients are able to reduce their NSAID use by supplementing with fish oils. 10. Kremer, J.M., et al. Effects of manipulation of dietary fatty acids on clinical manifestations of rheumatoid arthritis. *Lancet*, No. 8422, January 26, 1985, pp. 184-87 *Conclusion:* Fish oil supplementation reduced joint tenderness and morning stiffness in rheumatoid arthritis patients. *OILOFPISCES.COM* *INTERNATIONAL HEALTH NEWS* Copyright © 2006 by Hans R. Larsen Oilofpisces.com does not provide medical advice. Do not attempt self- diagnosis or self-medication based on our reports.

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