



Omega-3s and menstrual pain

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Menstrual pain is the most common gynaecologic complaint and the leading cause of short-term absence from school among adolescents (1). Omega-3 fatty acids from fish may provide help in some cases. Menstrual pain is usually associated with increased contractions of smooth muscles in the womb. Contraction and relaxation of the womb is controlled by the autonomic nerve system and fine-tuned by sexual hormones and local acting hormones of the prostaglandin and leucotrien type. These local acting hormones are produced with polyunsaturated fatty acids as starting material. Fatty acids from seeds and vegetables, the so-called omega-6 fatty acids, are used in the production of prostaglandin and leucotriens increasing smooth muscle contractions.

Fatty acids from fish, the marine omega-3 fatty acids, however, produce prostaglandin and leucotriens, which do not cause contractions to the same extent. Increased intake of omega-6 fatty acids from soybean oil, corn oil, sunflower oil etc. may therefore increase contractions in susceptible women, in particular young women. The modern diet is loaded with the omega-6 oils while the intake of omega-3 oils have been dramatically reduced by the fact that people, especially young people, do not eat fish.

After ovulation there is a build up of fatty acids of the cell membranes in the womb. After the onset of progesterone withdrawal before menstruation, fatty acids are released and a cascade of prostaglandins and leucotriens are produced in the womb. The response mediated by these local acting hormones produce not only cramps but also nausea and headache. Furthermore they cause constriction of blood vessels, which may also cause pain. Currently menstrual pain is treated by preventing ovulation using oral contraceptives but also by inhibiting prostaglandin synthesis with Aspirin and nonsteroidal anti-inflammatory drugs.

Since omega-3 fatty acids lead to production of local hormones not causing contractions of the womb one therapeutic approach to menstrual pain would be to increase intake of fish or omega-3 food supplements. One Danish study correlated the intake of omega-3 fatty acids from fish to menstrual pain (2). Food questionnaires were sent to 220 Danish women aged 20-45 years that were not pregnant and were not using oral contraceptives. 181 questionnaires were evaluated. Women with menstrual pain had on average about 80% lower intake of omega-3 fatty acids compared to those without pain, a statistically significant difference. The intake of omega-6 fatty acids was about equal between the groups. No correlation was found to socio-economic parameters. The results support the hypothesis that a high intake of marine omega-3 fatty acids reduces menstrual pain.

In a study from Cincinnati Medical Centre, USA, the therapeutic impact of omega-3 fatty acids to relieve menstrual pain was tested in a controlled clinical study (3). 42 girls with menstrual pain were recruited and randomly allocated to treatment with 1,8 g of EPA/DHA or placebo. These fatty acids are the two most common omega-3 fatty acids in fish oil. Treatment duration with EPA/DHA was two months, the first group starting with active treatment and ending with two months placebo, the other group starting with two months placebo followed by two months active treatment.

The Cox Menstrual Symptom Scale was similar between the two groups when entering into the study. After two months there was a significant reduction of the scores during EPA/DHA treatment indicating less menstrual symptoms. Furthermore the amount of painkillers used was significantly less during active treatment compared to the placebo periods. Four of seven girls with severe dysmenorrhea did show no improvement with the omega-3 treatment. However, at the end of the study 70% of the girls claimed that they would recommend treatment with omega-3 fatty acids for menstrual pain.



In conclusion there are clear indications that the modern diet with high contents of omega-6 fatty acids from vegetable oils and low intake of fish and omega-3 fatty acids may increase menstrual pain. Symptoms are related to local acting hormones being produced from fatty acids. Omega-6 derived compounds increase womb activity that goes with menstrual pain while omega-3 derived hormones have virtually now biological activity. Increasing the dose of omega-3 fatty acids by a higher intake of fish alternatively by regular intake of omega-3 capsules may provide symptom relief to girls and young women with menstrual pain. Omega-3 fatty acids have to be taken on a regular basis and not only when menstrual pain is expected due to a build-up of these fatty acids in cells producing local acting hormones.

REFERENCES

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