

Jace Callaway, Ph.D., University of Kuopio

KUOPIO, Finland — Medical researchers from the Departments of Pharmaceutical Chemistry and Clinical Nutrition at the University of Kuopio, Finland, recently teamed up to investigate the potential of hemp seed oil as a functional food. In a double blind, randomized, cross-over design, eight men and six women ingested either hemp seed oil or linseed oil, 2 tablespoons (30 ml) /day, for a period of four weeks. This was followed by a four week wash out period with neither oil, then four weeks on the other oil. All volunteers kept detailed food diaries, and were given instructions to decrease their intake of saturated fats throughout the study. Several basic parameters of health were measured, such as body weight, body mass index, blood pressure, plasma glucose, serum cholesterol, high and low density lipoproteins and serum triglycerides. Total intake of dietary energy, fat, protein, carbohydrates, fiber, cholesterol and alcohol were determined from the food diaries. “For these parameters, no significant differences were seen at any point in this study,” says J.C. Callaway, Ph.D., one of the principle investigators, “and this is probably because we did not ask our volunteers to drastically alter their eating habits.”. Several parameters of blood clotting were also examined but, again, the slight variations did not reach statistical significance. Both oils were cold pressed under nitrogen from hemp seed and linseed grown in Finland the previous year. The Finnish researchers also examined serum triglycerides and cholesteryl esters for their fatty acid profiles and found statistically significant differences between the two food oils, relative to each other and to the wash out period of the study. Consumption of hemp seed oil — in this case oil pressed from the Finola variety of hemp, which has twice as much GLA as other varieties — resulted in statistically higher levels of GLA in the serum; up by 57% in the triglycerides and 52% in the cholesteryl esters, compared to the wash out period. Consumption of linseed oil, which has no GLA but very high levels of alpha-linolenic acid (the essential omega-3 fatty acid), resulted in a net decrease of GLA in the serum; down by 23% in the triglycerides and 34% in the cholesteryl esters, compared to the wash out period. Both oils showed statistically significant increases in blood levels of linoleic acid (the essential omega-6 fatty acid) and alpha-linolenic acid. “Like vitamins, we can’t make these two fatty acids. They are essential and must be obtained from our daily diet, and it seems that a balance of the two is important.”, says Callaway. “This was a prospective study with healthy, mildly-hypercholesterolemic volunteers. We were not only surprised to see the stark increases in blood levels of GLA from the hemp seed oil, but also the significant decreases of blood GLA from the linseed oil” says Callaway. Increased serum levels of GLA might help explain some of the numerous anecdotal reports of seemingly miraculous cures from people taking hemp seed oil, particularly in chronic health problems such as allergies, dry skin, wound healing and even rheumatoid arthritis. The research team will continue into specific patient populations later this year, in order to determine whether or not hemp seed oil actually does have measurable properties as a functional food.

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Medical researchers at the University of Kuopio, Finland, have found evidence of the positive effects of hemp seed oil on eczema.

Researchers, led by Dr J Callaway, at the department of Pharmaceutical Chemistry and Clinical Nutrition at the University, followed a group of patients with atopic dermatitis, also known as eczema, which is a type of allergy that causes dry and itchy skin and often requires medical treatment.

"We are still processing some of the biochemical data," said Dr Callaway, "but the subjective results from the patients are already in and they have been correlated with the diagnostic reports from the dermatologist.

"In short, we saw a remarkable reduction in dryness, itching and an overall improvement in the symptoms of these patients while they were using the hemp seed oil, and no significant change at all while they were using the olive oil. We also noticed a reduction in the frequency of influenza when these patients were taking the hemp seed oil," continued the researcher.

The patients orally consumed two tablespoons of oil a day for two months in a randomised, double-blind crossover design. The other oil in the study was cold-pressed olive oil, and a two month washout period separated the two oil intervention periods.

Previously, these same researchers investigated the effects of hemp seed oil in a group of healthy volunteers and subsequently found elevated blood levels of GLA (gamma-linolenic acid; a naturally occurring fatty acid).

"This is a good thing because decreased GLA is thought to be associated with several chronic health problems, such as allergies and other disorders of the immune system," said Dr Callaway. Over the last 10 years, numerous anecdotal reports have claimed that hempseed oil improves skin integrity, strengthens finger-nails and thickens hair. *"In a way, this all makes sense because skin, hair and nails are all formed from the same line of dermal stem cells,"* said Dr Callaway.

While hemp seed oil is relatively new to the modern Western palate, it has been used as an inexpensive substitute for butter in most Eastern European cultures in the past, particularly in Russia. Hempseed oil is more than 90 per cent unsaturated and, for this reason, should not be used for frying.

"Hemp seed oil is an exceptional source of EFAs; the essential fatty acids that we must obtain from our daily diet because, like vitamins, we can't produce them on our own. Judging from the fatty acid profile of hempseed oil, the numerous anecdotal reports over the years and now the results of our initial clinical investigations, I'd have to conclude that this is probably the healthiest oil on the market," said Dr Callaway.

"Clearly, this is an important and useful discovery that will need to be investigated further," added Dr Callaway.