Sesame seed health benefit of oil by Ray Sahelian, M.D. --- http://www.raysahelian.com/sesame.html --- Dec 20, 2013

Sesame Seed contains lignans and phytosterols. In rodent studies, sesame oil consumption has a positive influence on blood glucose, glycosylated hemoglobin, lipid peroxidation, and antioxidant levels in diabetic rats.
Sesamin is extracted from Black Sesame Seed or White Sesame Seed, and is a type of natural lignan most present in Sesamum indicum L Seed oil (Normally 0.5%). Another lignan in sesame seed is sesamolin.

Sesame oil lowers blood pressure
Effect of sesame oil on diuretics or Beta-blockers in the modulation of blood pressure, anthropometry, lipid profile, and redox status.
Yale J Biol Med. 2006. Sankar D, Rao MR. Department of Biotechnology, Aarupadai Veedu Institute of Technology, Vinayaka Mission's Research Foundation University, Paiyanoor, Chennai, Tamilnadu, India.

The study was undertaken to investigate the effect of sesame oil in hypertensive patients who were on antihypertensive therapy either with diuretics (hydrochlorothiazide) or Beta-blockers (atenolol). Thirty-two male and 18 female patients aged 35 to 60 years old were supplied sesame oil (Idhayam gingelly oil) and instructed to use it as the only edible oil for 45 days. Substitution of sesame oil brought down systolic and diastolic blood pressure to normal. The same patients were asked to withdraw sesame oil consumption for another 45 days. Withdrawal of sesame oil substitution brought back the initial blood pressure values. A significant reduction was noted in body weight and body mass index (BMI) upon sesame oil substitution. No significant alterations were observed in lipid profile except triglycerides. Plasma levels of sodium reduced while potassium elevated upon the substitution of sesame oil. Lipid peroxidation (thiobarbituric acid reactive substances [TBARS]) decreased while the activities of superoxide dismutase (SOD), catalase (CAT), and the levels of vitamin C, vitamin E, Beta-carotene, and reduced glutathione (GSH) were increased. The results suggested that sesame oil as edible oil lowered blood pressure, decreased lipid peroxidation, and increased antioxidant status in hypertensive patients.

Cholesterol and lipids
Lipids. 2013. Sesamol treatment reduces plasma cholesterol and triacylglycerol levels in mouse models of acute and chronic hyperlipidemia. The active constituents of Sesamum indicum are sesamin and sesamolin

Sesame Seed Research
Sesamin ingestion regulates the transcription levels of hepatic metabolizing enzymes for alcohol and lipids in rats.
Alcohol Clin Exp Res. 2005.

Sesamin, a major lignan in sesame seeds, has multiple functions such as stimulation effect of ethanol metabolism in mice and human, and prevention of ethanol-induced fatty liver in rats. However, the mechanism has not been clarified yet. The changes of gene expression were investigated in rats given 250 mg/kg of sesamin (sesamin rats) or vehicle (control rats) for three days by using a DNA microarray analysis. At 4 hr after the final ingestion, the profiles of gene expression in rat livers were compared. These results suggested that sesamin ingestion regulated the transcription levels of hepatic metabolizing enzymes for alcohol and lipids.

Sesamol induces nitric oxide release from human umbilical vein endothelial cells.
Lipids. 2005.

Sesamol, which is derived from sesame seed lignans, is reportedly an antioxidant. Nitric oxide (NO), the most important vascular relaxing factor, is regulated in the endothelium. In addition, NO is involved in protecting endothelium and has antiatherosclerotic and antithrombotic activities. The endothelium produces NO through the regulation of both endothelial NO synthase (eNOS) expression and activity in endothelial cells. This study sought to investigate the effect of sesamol on NO released from human umbilical vein endothelial cells (HUVEC) and to examine the expression and activity of eNOS. The results demonstrate that sesamol induces NOS signaling pathways in HUVEC and suggest a role for sesamol in cardiovascular reactivity in vivo.

Phytosterol composition of nuts and seeds commonly consumed in the United States.
J Agric Food Chem. 2005. Phillips KM, Ruggio DM, Ashraf-Khorassani M.
Departments of Biochemistry and Chemistry, Virginia Polytechnic Institute, Blacksburg, Virginia

Phytosterols were quantified in nuts and seeds commonly consumed in the United States. Total lipid extracts were subjected to acid hydrolysis and then alkaline saponfication, and free sterols were analyzed as trimethylsilyl derivatives by capillary GC-FID and GC-MS. Delta5-Avenasterol was quantified after alkaline saponification plus direct analysis of the glucoside. Sesame seed and wheat germ had the highest total phytosterol content (400-413 mg/100 g) and Brazil nuts the lowest (95 mg/100 g). Of the products typically consumed as snack foods, pistachio and sunflower kernel were richest in phytosterols (270-289 mg/100 g). beta-Sitosterol, Delta5-avenasterol, and campesterol were predominant. Campestanol ranged from 1.0 to 12.7 mg/100 g. Only 13 mg/100 g beta-sitosterol was found in pumpkin seed kernel, although total sterol content was high (265 mg/100 g). Phytosterol concentrations were greater than reported in existing food composition databases, probably due to the inclusion of steryl glycosides, which represent a significant portion of total sterols in nuts and seeds.

Dietary sesame seeds elevate alpha-tocopherol concentration in rat brain.
J Nutr Sci Vitaminol. 2005.

We have previously reported that dietary sesame lignan elevates alpha-tocopherol concentration and decreases lipid peroxidation in tissues and serum of rats fed alpha-tocopherol. In this study, the effect of dietary sesame seeds on alpha-tocopherol concentration and lipid peroxidation in rat brain was examined. In experiment 1, male Wistar rats (4 wk old) were fed a vitamin E-free diet, or a diet containing alpha-tocopherol with or without sesame seeds for 1, 4 and 8 wk. The dietary sesame seeds elevated the alpha-tocopherol and lowered the thiobarbituric acid-reactive substance (TBARS) concentrations in the brain of the rats fed alpha-tocopherol for 4 and 8 wk. The dietary sesame seeds maintained the high alpha-tocopherol concentration in the brain during the experimental period, while the concentration of the rats fed alpha-tocopherol without sesame seeds was lowered after 8 wk. Then, the alpha-tocopherol concentration in various regions of the brain of rats fed a basal level of alpha-tocopherol with sesame seeds was compared with that of rats fed an excess amount of alpha-tocopherol in experiment 2. The alpha-tocopherol concentration in the cerebrum, cerebellum, brain stem and hippocampus of the rats fed 50 mg alpha-tocopherol/kg with sesame seeds was higher than those of the rats fed 500 mg alpha-tocopherol/kg without sesame seeds. These results suggest that the dietary sesame seeds are more useful than the intake of an excess amount of alpha-tocopherol, for maintaining a high alpha-tocopherol concentration and inhibiting lipid peroxidation in the various regions of the rat brain.

Whole sesame seed is as rich a source of mammalian lignan precursors as whole flaxseed.
Nutr Cancer. 2005.

The mammalian lignans enterolactone and enterodiol, which are produced by the microflora in the colon of humans and animals from precursors in foods, have been suggested to have potential anticancer effects. This study determined the production of mammalian lignans from precursors in food bars containing 25 g unground whole flaxseed (FB), sesame seed (SB), or their combination (FSB; 12.5 g each). Thus, we demonstrated for the first time that 1) precursors from unground whole flaxseed and sesame seed are converted by the bacterial flora in the colon to mammalian lignans and 2) sesame seed, alone and in combination with flaxseed, produces mammalian lignans equivalent to those obtained from flaxseed alone.

Influence of sesame oil on blood glucose, lipid peroxidation, and antioxidant status in streptozotocin diabetic rats.
J Med Food. 2005.

The present study was carried out to assess the influence of sesame oil on blood glucose, lipid peroxidation, and status of antioxidants in normal and streptozotocin diabetic rats. Diabetes was induced in adult female albino Wistar rats weighing 180-200 g by administration of streptozotocin (40 mg/kg of body weight) intraperitonially. Both normal and diabetic rats were fed with a commercial diet containing 2% oil supplemented with 6% sesame oil for 42 days. Thus, sesame oil consumption influences beneficially the blood glucose, glycosylated hemoglobin, lipid peroxidation, and antioxidant levels in diabetic rats.

Questions

Q. Which oil do you think is healthier, sesame oil or coconut oil?

A. I think it is better to have a little bit of a variety of different oils rather than a lot of one type of oil.

Q. I found your web postings while searching for information about sesame use in healing. My purpose is to find the latest reputable literature linking the two subject for the book I am editing, Sesame: the genus Sesamum, to be published in the

Medicinal and Aromatic Plants, Industrial crops series by CRC Press. Many of the articles you cite in connection with sesame are ones I found myself using the conventional scientific databases: PubMed [Medline], BioAbstracts, etc. Would you be willing to assemble an article as a chapter for this book, similar to what you are posting online? I believe that you have the right credentials to write this piece. Or if you are simply swamped and pressed for time, would you grant permission to use your web posting as it stands, with your name? I would prefer a longer article because my research shows effects of sesame against tumors, anti-fungal, anti-microbial, and other benefits. I recently met a French student working on his PhD in Greece. He is examining the polyphenols in the seed coats of sesame, that are waste byproducts in manufacture of halvah and tahini. I look forward to your reply, and hope for your contribution about medicinal and nutritional benefits of sesame consumption.

A. I am really swamped these days but you are welcome to use the sesame web posting as long as you clearly and prominently indicate in the article the website it is from. Take care good luck with your project.

Q. I'm making tea of black sesame seeds. I drink the tea and after it I eat the seeds. I have candida in my body and I can notice the candida is killed by eating the seeds. Is it a known fact that black sesame seeds are anti-fungal?

A. I have not seen any human or animal studies with the use of black sesame seeds as an antifungal agent.

Q. Have you heard of Sesame Oil Pulling? It consists of taking a tablespoon of sesame oil and swishing it around your mouth for 10-20 minutes, and then expectorating the oil. It's Ayurvedic therapy. I wondered if sesame oil pulling has the same affects on high blood pressure and anti-fungal values as ingesting the oil?

A. I have heard of sesame oil pulling but have not seen scientific papers on it and don't have personal experience with this practice.

Q. I am interested in how much is known about the toxicity of sesame oil. The FDA has listed 162.5 mg as the permissible oral dosage level for sesame oil and I have read where larger doses have been used and shown to provide health benefits. If this is the case, why would the FDA list such a small permissible dosage? Can you provide literature references where people report administering larger doses of sesame oil without adverse effect or help me to find information on the acute and chronic effects of ingesting sesame oil?

A. There are a number of oils available for human consumption and it is a good idea to expose the body to a variety of oils each having different sets of fatty acids rather than consume the same type of oil in large quantities. I am not aware of the FDA stating any warnings regarding sesame oil to be limited to 162.5 mg. I am not aware of long term sesame oil ingestion studies in humans but peoples of varied nations have consumed reasonable amounts of sesame oil for a lifetime with no obvious adverse effects.

Q. Do whole sesame seeds simply pass through the body and are excreted or are they digested, thereby realizing the full benefit of sesame oil? What is the shelf life of the oils once extracted from the seeds? When infused as a tea, or added to "normal" teas, do they show the benefit of the oil?

A. Some sesame seeds may pass through the body, but the portion depends on what else is being consumed at the time and the digestive strength of the individual. The advantage of digesting more of the sesame seeds is getting the benefits of the nutrients, the advantage of not digesting and absorbing some of the seeds is the reduction in caloric intake. The shelf life depends whether it is refrigerated or not and this is not something we have looking into in great detail.

I recently began using toasted sesame oil as a condiment, and find it delicious. Then, after a flare up of chronic dermatitis, I used it topically, and it worked very well to suppress itching, and made for a better skin lotion than most commercial skin lotions. I also noticed that use of the toasted sesame oil also seemed to coincide with an elevation of my mood. Later I read online that one of the constituents of sesame oil, sesamol, is used to make Paxil, and wondered if sesame oil could actually affect mood. Is there any medical basis for the effects I seem to have experienced? Also, is there a nutritional difference between sesame oil and toasted sesame oil?

I have not heard of sesame oil influencing mood, and doubt it would have a significant influence. Anytime an oil is heated it could reduce its benefits.