

Research Data on Anti Inflammatory Health Benefit of Blackcurrant Seed Oil

Research information applies to Blackcurrant Seed Oil

Title	Research team	Overview	Source
<p>Cytokine and Prostaglandin Production By Monocytes of Volunteers and Rheumatoid Arthritis Patients Treated With Dietary Supplements of Blackcurrant Seed Oil.</p>	<p>- J. Watson - University of Strathclyde -Scotland -1993 http://www.strath.ac.uk/ http://rheumatology.oxfordjournals.org/cgi/content/abstract/32/12/1055?maxtoshow=&hits=10&RESULTFORMAT=&fulltext=Cytokine+and+Prostaglandin+&searchid=1&FIRSTINDEX=0&resourcetype=HWCIT</p>	<p>This study gave either BC seed oil or sunflower seed oil to rheumatoid arthritis (RA) patients as well as healthy volunteers. A significant improvement in morning stiffness was noted in RA patients receiving BC seed oil. It was observed that production from the cultured monocytes of the cytokines IL-1 beta, TNF alpha, and IL-6 as well as prostaglandin PGE2 was markedly altered in those subjects given BC seed oil. The results suggest that the beneficial effects of PUFAs in inflammatory diseases such as RA may be due to a reduction in the secretion of the inflammatory cytokines IL-beta and TNF-alpha via redirection of eicosanoids metabolism.</p>	<p>Blackcurrant Seed Oil (GLA)</p>
<p>Effect of Dietary BCSO on Mouse Macrophage Subclasses of Choline and Ethanolamine Glycerophospholipids</p>	<p>- Chapkin R.S., Carmichael S.L. -Department of Animal Science, Molecular and Cell Biology Section, Texas A&M University, Agricultural Experiment Station, College Station, TX. -1990 http://www.tamu.edu/ http://jn.nutrition.org/cgi/reprint/120/8/825.pdf</p>	<p>This study demonstrated that 4 weeks of blackcurrant seed oil administration to mouse peritoneal macrophages reduced arachidonic acid (AA) levels in all phosphatidylethanolamine (PE) subclasses. However, AA levels were not affected in the phosphatidylcholine (PC) subclass. In addition, blackcurrant seed oil increased anti-inflammatory eicosanoids precursor levels of DGLA, EPA, and DHA in the macrophage.</p>	<p>Blackcurrant Seed Oil (DGLA)</p>

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<p>Suppression of Monosodium Urate Crystal-induced Inflammation by Black Currant Seed Oil</p>	<p>- Tate G.A., Zurier R.B. - University of Pennsylvania School of Medicie, University of Massachusetts Medical Center, Worcester, MA. -1994</p> <p>http://www.med.upenn.edu/ http://www.umassmed.edu/index.aspx http://www.springerlink.com/content/m2273j454714j3u4/</p>	<p>This study examined the effect of blackcurrant seed oil-enriched diets on acute inflammation induced by monosodium urate crystals. Subcutaneous air pouches formed in Sprague-Dawley rats were used. The BCISO-enriched diet significantly suppressed both the cellular and fluid phases of inflammation (polymorphonuclear leucocyte and exudates accumulation) whereas the control diet had no influence. It was concluded that diets that provide both, n-6 (GLA) and n-3 (ALA) fatty acids as substrates alternative to AA for oxidative metabolism, modifies monosodium urate crystal-induced acute inflammation.</p>	<p>Blackcurrant Seed Oil (GLA/ALA)</p>

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Treatment of Rheumatoid Arthritis with Blackcurrant Seed Oil	- Tate G.A., Zurier R.B. - University of Pennsylvania, The Philadelphia College of Pharmacy and Science, University of Massachusetts Medical Center -1994 http://www.med.upenn.edu/ http://www.umassmed.edu/index.aspx http://rheumatology.oxfordjournals.org/cgi/content/short/33/9/847	The objective of this study was to assess the clinical efficacy and side effects of blackcurrant seed oil. Patients with rheumatoid arthritis (RA) and active synovitis were treated with 15 BCSO capsules daily for 24-weeks. BCSO-treatment resulted in reduction in signs and symptoms of disease activity in the patients whereas patients receiving a placebo showed no change in disease. It was concluded that BCSO is a potentially effective treatment for active RA.	Blackcurrant Seed Oil (GLA/ALA)

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<p>Gamma Linolenic Acid Regulates Expression of Maspin and the Motility of Cancer Cells.</p>	<p>-Wen G. Jiang, -University of Wales College of Medicine -United Kingdom -1997 http://legacy.uwcm.ac.uk/ http://www.ncbi.nlm.nih.gov/pubmed/9299418</p>	<p>This study from the University of Wales College of Medicine, examined the effect of GLA on the expression of maspin as well as the motility of cancer cells. Maspin is known to suppress tumors and has a profound effect on cell motility. 6 human cell lines including colon cancer, mammary cancer, and melanoma were used; however, 4 of the 6 cell types expressed maspin being negative. Treating the maspin positive cells with GLA resulted in a concentration dependent stimulation of the expression of maspin protein, seen in as early as 4 hours. In comparison, LA had inhibitory effects, and ALA and AA had no significant effect. In addition, there was a marked reduction in cell motility in regards to spreading and migration on extracellular matrix coated surface. It was concluded that GLA up-regulates the expression of maspin which is associated with a reduction in the motility of cancer cells.</p>	<p>Blackcurrant Seed Oil (GLA)</p>

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<p>The Role of Prostaglandins in the Inhibition of Cultured Carcinoma Cell Growth Produced By Gamma-Linolenic Acid.</p>	<p>-J.H. Botha -University of Natal -South Africa -1989 http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6WPH-4C305NM-47&_user=10&_coverDate=02%2F28%2F1989&_rdoc=1&_fmt=high&_orig=search&_sort=d&_docanchor=&_view=c&_searchStrId=1388104429&_rerunOrigin=google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=b2d450c99064be18779b58775452c78e</p>	<p>This study from the University of Natal, South Africa, tested the hypothesis that correcting GLA deficiency in malignant cells, which increase prostaglandin production, inhibits human breast carcinoma cell growth. Treatment with 50mg/mL GLA increased PGE and PGF production, inhibited cell growth, and caused accumulation of lipid containing cytoplasmic granules. While treatment with the same dose of DGLA increased PG production to a significantly greater extent than GLA administration, it had no apparent effect on cell growth of morphology and did not inhibit cell growth. These findings suggested that some action other than the ability to increase PG production may be responsible for the inhibitory effects produced by GLA in malignant cells.</p>	<p>Blackcurrant Seed Oil (GLA)</p>

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<p>Dietary Gamma-linolenic Acid Dose-dependently Modifies Fatty Acid Composition and Immune Parameters in Rats</p>	<p>-Kaku S. -University of Kumamoto -Japan -2001 http://ewww.kumamoto-u.ac.jp/ http://www.ncbi.nlm.nih.gov/pubmed/11728173</p>	<p>GLA has been reported to improve several inflammatory disorders through regulation of eicosanoid production. However, since GLA is a precursor of arachidonic acid, it may bring about increasing tissue arachidonic acid levels with subsequent pro-inflammatory events. To explore this possibility, we examined the effect of high-dose GLA acid on the fatty acid profile of immune cells, leukotriene B4 production by peritoneal exudate cells and immunoglobulin productivity of mesenteric lymph node lymphocytes of Sprague-Dawley rats. The results showed the distinction in activity of metabolizing GLA between immune cells and liver. Thus, in immune cells such as mesenteric lymph node and spleen lymphocytes and peritoneal exudate cells, more dihomo-gamma-linolenic acid was found than in the liver. Leukotriene B4 production by peritoneal exudate cells was significantly suppressed when fed the highest level of GLA suggesting a lower risk of allergic reaction. Moreover, immunoglobulin productivity in mesenteric lymph node lymphocytes was promoted by dietary GLA. The present study indicates that a high dose of GLA may exert anti-inflammatory effects through suppression of leukotriene B4 release and strengthening of gut immune system, thus ameliorating allergic reaction.</p>	<p>GLA</p>

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Title	Research team	Overview	Source
<p>Regulation of the Expression of E-Cadherin on Human Cancer Cells by γ-Linolenic Acid (GLA).</p>	<p>-Wen G. Jiang -University of Wales College of Medicine -United Kingdom -1995 http://legacy.uwcm.ac.uk/ http://cancerres.aacrjournals.org/content/55/21/5043.long</p>	<p>This study by the same researchers tested the effect of GLA on the expression of E-cadherin in human cancer cells. E-cadherin plays an important role in cell adhesion, and the loss of its function or expression has been associated with cancer progression and metastasis. Treating cells with GLA (50μM) for 24 hours increased the E-cadherin in lung, colon, breast, melanoma, and liver cancer cells, but not in endothelial cells and fibroblasts. Increases were seen at 12 hours and maximum changes were seen after 24 hours. The raised levels of E-cadherin were associated with increased cell aggregation and reduced in vitro invasion, suggesting that the expressed protein was functional. LA, AA, and EPA caused only small increases. It was concluded that the up-regulation of E-cadherin expression in human cancer cells may contribute to the anticancer properties of GLA.</p>	<p>GLA</p>

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<p>Inhibition of Hepatocyte Growth Factor-induced Motility and in vitro Invasion of Human Colon Cancer Cells by Gamma-linolenic Acid.</p>	<p>-Wen G. Jiang -University of Wales College of Medicine -United Kingdom -1995</p> <p>http://legacy.uwcm.ac.uk/ http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2033731/pdf/brjcancer.00050-0092.pdf</p>	<p>This British study focused on the effect of GLA on the motility and invasive/metastatic nature of human colon cancer cell lines. At concentrations up to 100 µM, cell motility and invasion induced by HGF/SF were noticeably reduced by GLA and its lithium salt (LiGLA). However, GLA and LiGLA did not affect cell growth. Furthermore, GLA resulted in increased E-cadherin expression after 24 hours. Increased cell-surface E-cadherin may at least be partly responsible for the decreased colony scattering. Testing data showed that GLA inhibited the attachment of cells to extracellular matrix components (Matrigel and fibronectin) as well as the invasion into Matrigel. The reduced attachment may be accountable for the diminished invasion because of the critical importance of attachment of cells before invasion.</p>	<p>GLA</p>

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<p>Effects of Gamma-linolenic and Dihomo-gamma-linolenic Acids on 7, 12-dimethylbenz(α)anthracene-induced Mammary Tumors in Rats.</p>	<p>-Ramchurren N, Karmali R -Rutgers University -1995 http://www.rutgers.edu/ http://www.ncbi.nlm.nih.gov/pubmed/7480079</p>	<p>This study of researchers from Rutgers University and Harvard investigated the effect of pure GLA and DGLA on DMBA-induced mammary tumors in Sprague-Dawley rats. 0.15g of GLA, DGLA or corn oil were administered twice per week for 12 weeks. The testing data showed that tumor incidence, tumor multiplicity, and percent of tumor-bearing rats were highest in the corn oil (placebo) group, and that tumor multiplicity was significantly reduced in the GLA group. Feeding of GLA and DGLA resulted in significant changes their levels found in phospholipids of mammary tissue, thymus, colon, liver, stomach, and ovary. The findings suggested that GLA may have a small but significant inhibitory effect on the development of DMBA-induced mammary tumors in rats.</p>	<p>GLA/DGLA</p>

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<p>Efficacy of Hyperthermia and Polyunsaturated Fatty Acids on Experimental Carcinoma.</p>	<p>-Satoshi Kokura -Kyoto Prefectural University of Medicine -Japan -1997 http://www.f.kpu-m.ac.jp/j/english/ http://cancerres.aacrjournals.org/content/57/11/2200.full.pdf</p>	<p>This study from the Kyoto Prefectural University of Medicine, Japan, investigated the efficacy of hyperthermia and GLA on experimental carcinoma (cancer). GLA, LA, ALA, or Oleic Acid was injected into the feeding arteries of rats, which had AH109A carcinoma implanted into their hind limbs. Amongst the tested fatty acids, GLA had the greatest effect as it significantly increased free radical reactions in cancer tissue and thus demonstrated to be effective in suppressing tumor growth.</p>	<p>GLA</p>
<p>Treatment of Rheumatoid Arthritis with Gammalinolenic acid (used Borage Seed (GLA))</p>	<p>- Leventhal L.J. - University of Pennsylvania, The Philadelphia College of Pharmacy and Science, University of Massachusetts Medical Center -1993 http://www.med.upenn.edu/ http://www.ncbi.nlm.nih.gov/pubmed/8214997</p>	<p>This study assessed the clinical efficacy and side effects of GLA used in the treatment of rheumatoid arthritis (RA). 37 patients with RA and active synovitis were treated with 1.4g GLA daily or a placebo. Supplementation with GLA resulted in clinically important reduction in the signs and symptoms of disease activity in RA patients. GLA intake reduced the number of tender joints by 36%, the tender joint score by 45%, swollen joint count by 28%, and the swollen joint score by 41%, whereas the placebo group did not show significant improvements in any measure or even experienced worsening of the disease. GLA in the used dose was found to be well-tolerated and an effective treatment for active rheumatoid arthritis.</p>	<p>GLA</p>

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Gamma-Linolenic Acid Treatment of Rheumatoid Arthritis. A randomized, placebo-controlled trial	- Zurier R.B. -University of Massachusetts Medical Center -1996 http://www.umassmed.edu/index.aspx http://www.ncbi.nlm.nih.gov/pubmed/8912502	The aim of this study was to assess the clinical efficacy and adverse effects of GLA in the treatment of active rheumatoid arthritis (RA). 56 patients with active RA were either given 2.8g of GLA per day or sunflower seed oil (placebo) for six months. GLA treatment for 6 months resulted in statistically significant and clinically relevant reductions in the signs and symptoms of disease activity in RA patients. During the second 6 months, both groups were given GLA and exhibited improvement in disease activity. Patients taking GLA during the entire study (12 months) showed progressive improvement during the second 6 months. It was therefore concluded that GLA supplementation at the used doses is effective against active RA.	GLA

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Just the Berries PD Corporation
Hiroko Yamamoto