C3 Curcumin Complex

designs for health®
Science first.

Curcumin -- *the spice for life*

C3 Curcumin Complex is a patented, unique composition of three bioactive, health-promoting curcuminoids: Curcumin, Bisdemethoxy curcumin, and Demethoxy curcumin. These are the strongest, most protective and best-researched constituents of the turmeric root.

Supplement Facts

Serving Size 1 capsule
Servings Per Container 60

Amount Per Serving	% Daily Value
Curcumin C3 Complex®	400mg*
(*Curcuma longa*)(root & rhizomes) (containing three curcuminoids: Curcumin, (Bisdemethoxy curcumin, Demethoxy curcumin) [standardized to contain 95% curcuminoids]	
Lecithin Powder	100 mg*

*Daily Value not established.

Other Ingredients: Magnesium stearate (kosher), di calcium phosphate.

The naturally occurring turmeric root powder contains only 5-7% curcumin, while the C3 Curcumin Complex extract is concentrated to contain 95% curcuminoids, among which Curcumin represents the majority, 70% of the total extract. This means supplementing C3 Curcumin Complex would be far more therapeutic than simply adding turmeric to our foods. The crystalline structure of curcumin renders it difficult to absorb in the GI tract, similar to CoQ10. Designs for Health added lecithin, a powerful emulsifier, to enhance absorption; and bioavailability. We recommend taking this with a meal that contains fat or with DFH Omega Marine Fish Oil or Genuine Arctic Cod Liver oil, which act synergistically on inflammation. Curcumin shows excellent safety. It has been demonstrated to be safe in six human trials and has demonstrated anti-inflammatory activity.[8]

Excessive inflammation is a common risk factor for disease occurrence and progression. Inflammation may lead to joint tissue destruction, cancer, cardiovascular events, insulin resistance/diabetes and brain/liver/kidney degenerative diseases. Curcumin was shown to reduce inflammation, whether acute or chronic, caused by physical injury, joint wear and tear (as in osteoarthritis), chronic infections or inadequate antioxidant protection.[1-4, 8, 14, 15, 18, 56]

Curcumin was shown to be more effective than certain NSAIDs in reducing inflammation and pain associated with rheumatoid arthritis[15] or post-operative trauma.[52] It has a better cardiovascular safety profile than aspirin because it does not inhibit the arterial protective factor prostacyclin like aspirin does.[18] We learned from Clinical Rounds guest speaker and researcher, Dr. Aggarwal, that curcumin acts on the mother compound NF Kappa beta. By suppressing this inflammatory marker, curcumin has a domino effect of reducing the entire cascade of inflammatory compounds that would be produced thereafter. Dr. Bharat Aggarwal discovered NF Kappa beta while working at Genentech in California.

"Different molecules involved in inflammation that are inhibited by curcumin include phospholipase, lipooxygenase, cyclooxygenase 2, leukotrienes, thromboxane, prostaglandins, nitric oxide, collagenase, elastase, hyaluronidase, monocyte chemoattractant protein-1 (MCP-1), interferon-inducible protein, tumor necrosis factor (TNF), and interleukin-12 (IL-12)."

Curcumin has an advantage over pharmacological anti-inflammatory agents because it is a powerful antioxidant so it can also reduce COX expression along with being a COX 1 and COX 2 inhibitor. Where NSAIDS are known to have potential GI side-effects such as GI bleeding, curcumin was shown in one study to heal GI injury caused by the NSAID indomethacin.[4] Amazingly, curcumin and resveratrol have been proven to be even stronger antiinflammatories than ibuprofen and aspirin.

"Overall these results indicate that aspirin and ibuprofen are least potent, while resveratrol, curcumin, celecoxib, and tamoxifen are the most potent anti-inflammatory and antiproliferative agents of those we studied."[3]

Benefits shown in research using curcumin extracts:

IMMUNE SYSTEM REGULATION
- Inflammation[8] - injury, post-operative[52], joint wear and tear (osteoarthritis)[56]
- Allergic reactions - asthma[5]
- Autoimmune activity reduction[15, 28] - rheumatoid arthritis and multiple sclerosis in animals
- NK cell activity increase[2]
- Reduced cancer development and spread in certain animal models of carcinogenesis[40]: breast[19], prostate[35], colon[24], pancreatic [25], glioma[29], ovarian[49]

ANTIMICROBIAL
- Antiviral[6] Epstein Barr[2] and HIV virus [22,23]
- Antibacterial, antiparasitic[1]

GI PROTECTION & HEALING
- stomach ulcer, Crohn's or proctitis[5]

CARDIOVASCULAR PROTECTION
- reduces cholesterol oxidation and levels, increases HDL[26]
- reduces fibrinogen[34]
- reduces platelet aggregation[18, 37]

BRAIN PROTECTION
- reduced brain damage following ischemia (reduced blood flow)[47]
- reduced development and regression of Alzeimer's disease progression in animal models[46]
- reduced gliomas (brain tumors)[29]
- antidepressant effects[16]

LIVER PROTECTION from alcohol and aflatoxin (peanut fungus)[54, 55]

TOXIC METAL CHELATOR[53]
- Effective chelator of copper and iron

ANTIOXIDANT[27]

BILE SUPPORT
- enhances bile flow and solubility[39]

Lowers histamine and imroves allergies[5,6]
"Curcumin and tetrahydrocurcumin (THC) caused a marked decrease in histamine release. These results suggest that the hydroxy groups of curcumin play a significant role in exerting both the anti-oxidative and anti-allergic activities, and that most of the compounds develop the anti-allergic activities through mechanisms related to anti-oxidative activities, but some through mechanisms unrelated to anti-oxidation activity."[5] "These results indicate that curcumin may have a potential effect on controlling allergic diseases through inhibiting the production of cytokines affecting eosinophil function and IgE synthesis."[6]

Curcumin may be helpful for autoimmune conditions. Curcumin downregulates mediators characteristic of rheumatoid arthritis[15], reduces disease activity in Crohn's[9] and was shown to reduce disease activity in a model of multiple sclerosis in animals.[28] "*These findings highlight the fact that curcumin inhibits experimental encephalomyelitis by blocking IL-12 signaling in T cells and* ***suggest its use in the treatment of MS and other Th1 cell-mediated inflammatory diseases.***"[28]

Also, by boosting NK cell activity increase,[2] curcumin may enhance the body's ability to fight infections.

There are many studies on curcumin and cancer. For patients undergoing chemotherapy, curcumin does not need to be avoided as it has been shown to enhance chemotherapy effectiveness.[48] Curcumin is the highlight of human clinical trials being performed at the M.D. Anderson Cancer Institute in Houston, Texas.

"In addition to antioxidation, curcumin could also induce apoptosis by targeting mitochondria, affecting p53-related signaling and blocking NF-kappaB activation. To further dissect its anticarcinogenic mechanisms, a number of curcumin targets were identified. These included the aryl hydrocarbon receptor, cytochrome P450, glutathione S-transferase, serine/threonine kinases, transcription factors, cyclooxygenase, ornithine decarboxylase, nitric oxide synthase, matrix metalloproteinases and tyrosine kinases. This review will summarize our current knowledge on how these important proteins are affected by curcumin, and hopefully, may provide a whole picture illustrating how the chemopreventive and antitumorigenic effect of curcumin is achieved."[40]

Curcumin and vitamin D3 can act in synergy
"agents discussed include those that have differentiation-inducing activity of their own that is increased by combination with vitamin D(3) or analogs, such as retinoids or plant-derived compounds and antioxidants, such as curcumin."[30]

Many spices protect us from bacteria and parasites in our food while boosting our bodies' antioxidant abilities. Research shows curcumin to have anti-microbial activities. Curcumin was shown to reduce transcription of Epstein Barr[21] and HIV virus.[22,23] Curcumin seems to inhibit growth of Staphylococcus aureus, Staphylococcus albus, and Bacillus typhosus [1] It is also effective against nematocidial parasite and certain protozoa.[1]

GI Protection
Curcumin may benefit ulcer, proctitis (inflammation of the rectum common in ulcerative colitis and Crohn's disease) and reduce leaky gut syndrome.

"We conclude that antiulcer activity of curcumin is primarily attributed to matrix metalloproteinases -9 inhibition, one of the major path-ways of ulcer healing."[4] *"A pure curcumin preparation was administered in an open label study to five patients with ulcerative proctitis and five with Crohn's disease. All proctitis patients improved, with reductions in concomitant medications in four, and four of five Crohn's disease patients had lowered CDAI scores and sedimentation rates."*[9]

Cardiovascular Protection
Curcumin may lower total cholesterol, fibrinogen and platelet aggregation, while increasing HDL and decreasing lipid peroxidation.[26, 34, 18, 37]

"ten healthy human volunteers, receiving 500 mg of curcumin per day for 7 days. A significant decrease in the level of serum lipid peroxides (33%), increase in HDL Cholesterol (29%), and a decrease in total serum cholesterol (11.63%) were noted."[26] "*Our reviewed data show that, in human healthy subjects, the daily intake of 200 mg of the above extract results in a decrease in total blood lipid peroxides as well as in HDL and LDL-lipid peroxidation. This anti-atherogenic effect was accompanied by a curcuma antioxidant-induced normalization of the plasma levels of fibrinogen and of the apo B/apo A ratio, that may also decrease the cardiovascular risk.*"[34]

Brain Protection
Curcumin pretreatment reduced brain damage following ischemia/stroke[47] and from heavy alcohol intake.[50] Curcumin reduced development and severity of Alzeimer's disease in animal models by reducing plaque aggregation and plaque induced oxidative stress and was even capable of dissociating existing plaque.[17] It's chelating ability for iron and copper ions is also believed to play a beneficial role in reducing progression of the disease.[53]

"Initially, we reported the impact of non-steroidal anti-inflammatory drugs (NSAIDs), notably ibuprofen, which reduced amyloid accumulation, but suppressed few inflammatory markers and without reducing oxidative damage. Safety concerns with chronic NSAIDs led to a screen of alternative NSAIDs and identification of the phenolic anti-inflammatory/anti-oxidant compound curcumin, the yellow pigment in turmeric that we found targeted multiple AD pathogenic cascades. The dietary omega-3 fatty acid, docosahexaenoic acid (DHA), also limited amyloid, oxidative damage and synaptic and cognitive deficits in a transgenic mouse model. Both DHA and curcumin have favorable safety profiles, epidemiology and efficacy, and may exert general anti-aging benefits (anti-cancer and cardioprotective.)"[46]

Liver Protection
Curcumin pretreatment was shown to reduce the liver damage induced by alcohol[54] **and aflatoxin**[55] (the fungal toxin often found along with peanuts/peanut butter).

Dosage: There is no upper level of toxicity established for turmeric or curcumin. A range of 200-1200mg/day was used for various applications with significant benefits. The effective dose may depend on the severity of inflammation. One factor that affects inflammation and proliferation is the AA/EPA ratio in cell membranes. The higher the AA/EPA ratio the higher the demand for the inhibition of COX and LOX enzymes, so a higher dose of curcumin may be necessary.

Interactions: Patients on blood thinning therapy[10], with gall stones (stimulates bile flow), ulcers, GI inflammatory conditions (although beneficial in most cases) should be monitored closely. Not recommended during pregnancy. Inhibits various P450 enzymes.[43] Inhibits growth of lactobacillus[1] so supplementation with probiotics is recommended.

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