

## **SCIENTIFIC AND CLINICAL STUDIES FOR CURCUMIN :**

**Curcumin is a yellow pigment and the major compound in turmeric. It is commonly used as a curry spice and as a food-coloring agent. Its health benefits include antioxidant, anti-inflammatory and anti-cancer effects.**

**Reduce Joint Pain:**contains pain reducing agents that can block pain responses in nerve fibres. It helps to rebuild cartilage in order to stop the painful deterioration and swelling of the joints. It is designed to relieve pain fast, return mobility and then continue to repair the damage that has caused the pain.

**Reduce Joint Inflammation:**Curcumin reduces inflammation through increasing blood flow to improve the exchange of nutrients, reduce muscle spasms and promote healing.

### **Antioxidant:**

Curcumin is a strong antioxidant which reduced oxidative damage to the cells and consequently helps to protect cell DNA from harm.

### **Anticancer:**

one of the major curcumin benefits is its inhibitive effect on cancer cells. By destroying the blood vessels that feed cancer tumors it prevents or slows their growth. In clinical studies, curcumin extract has been shown to increase the efficacy of many anticancer drugs.

### **Respiratory system protection:**

Curcumin was reported to have antiallergic properties! It hampers the inflammatory process occurring in chronic conditions, such as: chronic obstructive pulmonary diseases, acute lung injury, acute respiratory distress syndrome, and allergic asthma.

### **Enhance curcumin benefits with black pepper!**

The medicinal properties of curcumin cannot be fully exploited because of poor bioavailability due to its rapid metabolism in the liver and intestinal wall. When curcumin is consumed alone - its serum levels are either undetectable or very low. However, when combined with piperine (a component of black pepper) its serum level rises dramatically and its bioavailability increased by twenty-fold. Therefore, it is highly recommended to combine curcumin with black pepper in order to dramatically enhance its effectiveness.

Numerous medical studies indicate that turmeric has significant anti-inflammatory action, primarily due to its active constituent, curcumin. Curcumin also has potent antioxidant action and histamine-lowering effects, both of which may contribute to its anti-inflammatory activity.

## **Curcumin**

Curcumin reduces cholesterol by interfering with intestinal cholesterol uptake, increasing the conversion of cholesterol into bile acids, and increasing the excretion of bile acids. (*International Journal of Vitamin Nutritional Research* 61:364-9 1991)

Curcumin prevents abnormal blood clot formation by interfering with the formation of thromboxanes, the promoters of platelet aggregation. Curcumin increases levels of prostacyclin, the body's natural inhibitor of abnormal platelet aggregation. (*ArzneimForsch*36:715-7 1986)

When 500 mg. a day of curcumin was given to ten volunteers, there was a 29% increase in beneficial HDL cholesterol after only 7 days. Total cholesterol was reduced by 11.6% and lipid peroxidation was by 33%. (*Indian Journal of Physiology* 36(4):273-275 1992)

## **Other Benefits of Curcumin**

Curcumin neutralizes dietary carcinogens and has been shown to inhibit cancer at the initiation, promotion, and progression stages of development.

Curcumin is a potent antioxidant and has been shown to be an inhibitor of HIV replication via several different mechanisms.

Unlike FDA-approved drugs, curcumin may protect against liver damage caused by viral hepatitis.

The anti-inflammatory properties of the curcuminoids have been demonstrated in a number of *in vitro* and in some animal studies. These substances are widely used in India and Indonesia for various inflammatory conditions. *In vitro*, curcumin inhibits the production of such pro-inflammatory cytokines as tumor necrosis factor-alpha (TNF-alpha), interleukin-1 beta (IL-1 beta) and interleukin-8, among other anti-inflammatory actions. *Cancer Res.* 1999; 59:597-601

Turmeric is an herb used externally for the treatment of injuries of the muscles and joints. Turmeric is used in the Chinese and Indian systems of medicine for its well-documented anti-inflammatory properties. It has been used for centuries in Ayurvedic medicine as a treatment for inflammatory disorders including arthritis. The studies described here were undertaken to determine the *in vivo* efficacy of well-characterized curcuminoid-containing turmeric extracts in the prevention or treatment of arthritis using streptococcal cell wall (SCW)-induced arthritis, a well-described animal model of rheumatoid arthritis. An essential oil-depleted turmeric fraction containing 41% of the three major curcuminoids was efficacious in preventing joint inflammation. A commercial sample containing 94% of the three major curcuminoids was more potent in preventing arthritis than the essential oil-depleted turmeric fraction when compared by total curcuminoid dose per body weight. *J Nat Prod.* 2006 Mar; 69(3):351-5.

Few large-scale human trials have been completed, hundreds of experiments conducted by researchers around the globe have demonstrated curcumin's ability to halt or prevent certain types of cancer, stop inflammation, improve cardiovascular health, prevent cataracts, kill or inhibit the toxic effects of certain microbes including fungi and dangerous parasites, and protect, at least in the laboratory, against the damaging effects of heterocyclic amines (potentially carcinogenic compounds found in some cooked foods). As one investigative team declared: "[Curcumin] has been proven to exhibit remarkable anticarcinogenic, anti-inflammatory, and antioxidant properties.

Administration of curcumin is a promising approach in the treatment of kidney disease. *British journal of pharmacology*, 2000, Vol 129, Iss 2, pp 231-234

According to University of Chicago scientists, curcumin inhibits a cancer-provoking bacteria (*H. pylori*) associated with gastric and colon cancer (Magad GB, *Anticancer Res.* 2002 Nov-Dec; 22(6C):4179-81).

Curcumin inhibits angiogenesis, i.e. formation of new blood vessels, which tumors use to nourish themselves as they spread (*Mol Med* 1998 Jun; 4(6):376-83). As an anti-inflammatory, turmeric triggers heat-shock stress response (*Wiki Online Encyclopedia for heat-shock*).

Turmeric compares with soy, licorice, red clover, and thyme in binding to progesterone and estrogen receptors in breast cancer cells (*Proc Soc Exp Biol Med* 1998 Mar; 217(3):369-78).