

## **LIV\*Pro**

### **Each vegetarian capsule contains:**

Phosphatidyl Choline (PC) – derived from soya 250mg  
Milk Thistle Extract (80% Silymarin) 100mg  
Turmeric Extract (95% Curcumin) 90mg

“The liver, its marvels and miracles, is one of the best kept secrets of the healing professions. Our livers are the laboratories of almost everything in our living. It is the greatest of all living organs. No other organ plays such an enormous role in health and healing. Perfect livers prevent, cure, or are necessary agents of curing of all diseases. No chronic or degenerative type of disease can exist for any length of time, when livers function perfectly.”

~ *Your LIVER, Laboratory of Living*, Leo Roy, M.D., N.D. ~

### **Milk Thistle (*Silybum marianum*):**

Milk Thistle contains silymarin, a mixture of flavonolignans consisting chiefly of silibin, silidianin, and silichristine. The concentration of silymarin is highest in the fruit, but is also found in the seeds and leaves. Silymarin has been proven to be one of the most powerful natural substances that has the ability to protect and rebuild the liver. The bio-active Silymarin acts almost entirely on the liver and kidneys.

Recent double-blind studies with cirrhotic patients proved that the survival period was prolonged and the survival rate was significantly increased by silymarin. Other studies have shown liver protection from various drug and heavy-metal poisoning.

Milk thistle extracts (usually standardized to contain 70 to 80 percent silymarin) are currently widely used in European pharmaceutical preparations for hepatic disorders.

Milk thistle's ability to prevent liver destruction and enhance liver function is due largely to silymarin's inhibition of the factors that are responsible for liver damage, coupled with its ability to stimulate the growth of new liver cells to replace old damaged ones.

Silymarin increases the glutathione (GSH) content of the liver as well as the level of the important antioxidant enzyme superoxide dismutase (SOD) considerably. Glutathione is responsible for detoxifying a wide range of hormones, drugs, and chemicals. Increasing the level of glutathione content of the liver means the liver has an increased capacity for detoxification reactions.

One of the most impressive of silymarin's protective effects is against the severe poisoning of Amanita phalloides (the death cap mushroom) which contains the most powerful liver-damaging substances known. When silymarin was administered before amanita toxin poisoning, it was 100% effective in preventing toxicity. Even if given 10 minutes after the amanita toxin, it completely counteracted the toxic effects. If given within 24 hours, silymarin would still prevent death and greatly reduce the amount of liver damage.

Perhaps the most interesting effect of milk thistle components on the liver is their ability to stimulate protein synthesis. This stimulation results in an increase in the production of new liver cells to replace the damaged old ones. Interestingly enough, silymarin does not have a stimulatory effect on malignant liver tissue. Milk thistle also acts directly on the cell membrane of the liver by stabilizing and strengthening that structure.

Obviously, silymarin is useful as an aid to the liver. It can be used to support detoxification reactions or in the treatment of more severe liver disease. In numerous clinical studies, silymarin has been shown to have positive effects in treating several types of liver diseases, including cirrhosis, chronic hepatitis, fatty liver, subclinical cholestasis of pregnancy, and cholangitis and pericholangitis.

Can aid the following conditions:

- Chemical-induced liver damages
- Liver damage due to alcohol
- Liver damage due to diabetes viruses
- Degeneration of the liver due to chronic hepatitis
- Both acute & chronic liver disorder
- Cirrhosis
- Gallstones
- Psoriasis
- Stimulate production of bile

The implications of numerous research heavily favor the idea that regular ingestion of milk thistle extract will provide a substantial amount of protection to the sick or healthy liver during the course of normal living. By stabilizing cell membranes and encouraging the regeneration of cells, milk thistle should provide the liver and the body with the ability to triumph over the deleterious effects of daily encounters with all kinds of toxins in our environment.

#### Toxicity & Dosage

Silymarin is widely used in Europe, where a considerable body of evidence points to very low toxicity and feasible long term use. The standard dose of milk thistle is based on its silymarin content (200-400 mg daily). As milk thistle is not very soluble in alcohol, extract powder is more preferable for better absorption.

## **Phosphatidyl Choline (PC):**

Phosphatidyl Choline (PC) is a cell nutrient, and a major building block for the membrane systems in the survival and functioning of the cells. The cell is the most basic life form. Its overall efficiency depends on its membrane. The PC molecule is the single most important assembly unit for cell membranes and it is the primary protective shield for the cell. It builds a continuous membrane matrix, providing the precise fluidity, charge distribution and electronic character that enzymes and other membrane molecules need to carry out their functions. Supplies of PC are needed to support membrane expansion as the cells grow, for membrane renewal, and for the regeneration of the cell's membrane systems following damage. In addition to its membrane functions, PC also operates in the liver, lungs, gastrointestinal tract and kidneys as a surface-active wetting agent to coat the cell linings.

Numerous controlled clinical trials prove that PC has unique benefits for those with liver damage. Whether the damage is due to alcoholism, toxic chemicals, pharmaceuticals, malnutrition or viruses, supplementation with PC significantly speeds liver regeneration and recovery time.

### **Benefits:**

- Maintains cell function. As a universal cell membrane nutrient, PC offers functional benefits to all the other organs, as well as the liver
- Improves liver metabolism
- Diminishes cell death, fibrosis, and fatty infiltration of the liver tissue
- Lessens lipid peroxidation from free radicals
- Slows down membrane damage, conserves membrane integrity
- Promotes regeneration of cells
- Protects against lasting liver damage
- Facilitates cell growth and repair
- Helps the liver recover from toxic attack
- Serves as effective means to replenish blood choline levels.
- Is highly bio-available, safe to take and compatible with pharmaceuticals and other nutrients
- Can be used to improve the bio-availability of other nutrients.

Do not mix up PC with Lecithin or Choline. PC is a specific phospholipid nutrient. Lecithin is a compound mixture of PC, other phospholipids, and other substances. It is true that taking a lecithin supplement will provide some PC, but research has proven that the benefits of PC result from much higher levels than are available in most commercial lecithins.

Cell membranes are built on a matrix of PC and cholesterol. PC is a unique cell membrane molecule that is also biologically a more effective source of Choline than Choline itself. It is the whole PC molecule that is the active substance for the liver, and not just the Choline part. Under no circumstances should PC be confused with Choline, choline chloride, or choline bitartrate, none of which has any proven benefit for the human liver.

Aging and cumulative toxic damage to the liver are associated with impaired cell membrane function. PC helps the liver flush away cholesterol and can rejuvenate function in other organs. Although cells produce PC, the process is complicated and takes energy from other cell functions. PC supplement helps increase the levels of PC needed for membrane health and to restore the liver's needed metabolic efficiency, while also supporting other organs.

To briefly summarize the many studies conducted with PC on thousands of human subjects, PC's confirmed clinical benefits include:

1. Successful improvement of specific indicators of liver damage
2. Faster functional and structural recovery of the liver tissues
3. Accelerated restoration of subject's overall being

The clinical studies completed with PC for liver function span a period of more than a quarter century, and prove that PC is indeed the single best validated nutrient for the liver. Whether its damage comes from alcoholism, from other toxic chemicals, from pharmaceuticals, or from viruses, dietary supplementation with PC significantly speeds recovery of the liver based on parenchymal repair, renewal, and regeneration. PC appears to be a potentially life-saving nutrient against all instances of toxic threat to the liver.

PC works for the liver as the major cell membrane building block. PC is essential for the structural integrity and the functional competence of ALL the body's cell membrane systems, and in no other tissue and organ are membranes more dense than in the parenchyma cells in the liver. The membrane is the major contact point for cell to cell communication.

The nutrient PC may not be the "magic bullet" for the liver, but it certainly offers potent structural and functional benefits to it. PC supports the entire spectrum of liver cell functions, and they resist damage by way of rapid membrane replacement.

Toxicity & dosage:

In all the studies carried out in the past twenty years, no toxicity of PC was reported. PC is a very safe food supplement to take for improvement of our general health, especially the liver. It is recommended 1400 mg of PC is to be taken in the initial 4 weeks which can be reduced to 800 mg for maintenance intake.

## **Turmeric (*Curcuma longa*):**

Turmeric is an herb and spice with origins in ancient southern Asia. It is the primary ingredient in many varieties of curry powders and sauces. It is the powerful anti-oxidation property of turmeric that keeps the curry for a long time without turning rancid. Turmeric is perhaps the most researched spice for medicinal applications.

Turmeric contains 0.3-5.4 % curcumin; an orange-yellow volatile oil. Studies shows that turmeric has a very powerful antioxidant effect. In one particular study, curcumin was shown to be a potent antioxidant in inhibiting lipid peroxidation in rat liver cells. Compared to other spices principles for their abilities to prevent lipid peroxidation, curcumin had the highest results. The same study also included comparison of curcumin to fat-soluble vitamin E. The results showed curcumin to be eight times more powerful than vitamin E in preventing lipid peroxidation. Studies showed that curcumin helped decrease levels of lipid peroxides and subsequent reduction in the processes of inflammation. Turmeric also contains a water-soluble peptide, turmerin, which is very rich in methionine, the sulfur-containing amino acid, and a known antioxidant. This explains why turmeric has such a strong antioxidant property.

Another major biological property of turmeric is its anti-inflammatory activity, which is comparable in strength to steroidal drugs and nonsteroidal drugs such as indomethacin and phenylbutazone. Curcumin inhibit enzymes which participate in the synthesis of inflammatory substances in the body that are derived from arachidonic acid. When the anti-inflammatory properties of curcumin were tested in a double-blind clinical trial patients with rheumatoid arthritis, curcumin produced significant improvement in all patients.

Curcumin was tested as an anticarcinogens in preventing the development of cancer, and as antimutagens in preventing damage to genetic material. It has been shown to inhibit carcinogenesis and mutagenesis in laboratory animals. Curcumin was also tested in patients with oral cancer and the result was very encouraging. When curcumin was given to a group of chronic smokers, it significantly reduced the urinary excretion of tobacco mutagens, as well as enhancing enzymatic efficacy in detoxifying cigarette smoke mutagens and carcinogens.

In other *in vitro* studies, curcumin has also been shown to exhibit antimicrobial properties. Extract from turmeric containing curcumin were found to inhibit the growth of numerous strains of bacteria, fungi, and the intestinal parasite *Entamoeba histolytica*. In laboratory tests, curcumin also exhibited antibacterial characteristics by inhibiting production of aflatoxins, the toxin produced by the mold *Aspergillus parasiticus*, which may grow and contaminate poorly preserved foods. Aflatoxins are potent biological agents, causing injury to the liver which may result in liver cancer.

Curcumin has exhibited hepatoprotection similar to that of glycyrrhizin and silymarin against carbon tetrachloride- and galactosamine-induced liver injury. This protection is largely a result of its potent antioxidant activity. This is also a clear indication that turmeric's antioxidant protection focuses mainly in the liver. The antioxidant and hepatoprotective effects alone would support turmeric's historical use in liver disorders; however, turmeric and curcumin also exert antiinflammatory and choleric effects. The increases in liver enzymes SGOT and SGPT, commonly seen in experimental models of inflammation have been prevented by curcumin. Curcumin is an active choleric, increasing bile acid output by over 100%. In addition to increasing biliary excretion of bile salts, cholesterol, and bilirubin, curcumin

also increases the solubility of bile. This suggests a benefit in the prevention and treatment of cholelithiasis.

#### Benefits:

- Antioxidant effects
- Anti-cancer effects
- Anti-inflammatory effects
- Cardiovascular effects
- Hepatic effects
- Gastrointestinal effects
- Antimicrobial effects

Turmeric has a synergistic action with milk thistle. An interesting study showed that if turmeric and milk thistle work together, they could increase the volume of bile production by 369% compared to 25-49% by using milk thistle alone. These results indicate that the interactions among the principles of cholagogues are not simply additive, nor even multiplicative. The synergistic use of turmeric and milk thistle together brings a much greater result than using the herbs separately.

#### Toxicity & dosage:

No toxicity has been observed at recommended dosages. In exceedingly high amounts, it has been observed to inflame the mucous linings of the stomach. The recommended dosage for curcumin as an anti-inflammatory is 400-600 mg three times a day. Providing curcumin in a lipid base such as PC, fish oil, or essential fatty acids may also increase absorption. This combination is probably best absorbed when taken with meals.

A combined use of Milk Thistle, Phosphatidyl Choline and Turmeric provides a strong support for the restoring and maintaining the health of our livers.

Milk Thistle: Promoting the function of the liver, stimulating protein synthesis in liver cells.

PC: Providing the building block of the liver cell membranes, facilitating the absorption of other nutrients.

Turmeric: Protecting the liver cells from free radicals.

When our livers are functioning with optimal performance, toxins in our bodies can be broken down more efficiently, digestion can be more complete, nutrients can be better absorbed and utilized, homeostatic networks can be better maintained, blood can be better filtered ——— we will have health.

### **References:**

Parris M. Kidd, Ph.D., 1996, *Phosphatidylcholine (PC) Versatile Membrane Nutrients, Its Benefits for the Liver*

Richard Firshein, D.O., 1998, *The Nutraceutical Revolution*

Leo Roy, M.D., N.D., 1999, *Your LIVER, Laboratory of Living*

Muhammed Majeed, Ph.D., Vladimir Badmaev, M.D., Ph.D., Frank Murray, 1996, *Turmeric and the Healing Curminoids*

Michael A. Weiner, Ph.D., Janet A. Weiner, 1994, *Herbs That Heal*

Michael T. Murray., N.D., 1995, *The Healing Power of Herbs*

Daniel B. Mowrey, Ph.D., 1993, *Herbal Tonic Therapies*

Christopher Hobbs, 1992, *Milk Thistle, The Liver Herb*