

TIENS ω -3 Soft Capsules

I. Relevant fundamental knowledge

Cutthroat competition, long time strain both physical and psychological, abuse of cigarette and alcohol and more industrialized lifestyle concerted contribute to many diseases including vascular diseases in the brain and the heart, cancer, diabetes mellitus and dementia, and vascular diseases are number one killer to human health.

In China, people that die of coronary disease, cerebral stroke, cerebral thrombosis, and cerebral hemorrhage are as high as 2.5 million, accounting for 50% plus of total death rate.

(Relevant story) In April 2002, Int'l Symposium on Essential Fatty Acid & Nutrition of Human Being was held in Shanghai. Many international organizations attended the symposium including WHO, FAO, IUNS, ISSFAL, and about 200 dietitians from US, Japan and Germany were present.

On the symposium the dietitians discussed nutritional problems reaching consensus that essential fatty acid is able to resist and treat many chronic diseases due to malnutrition. Organizer of the symposium chose China as venue of the symposium indicating that diseases due to malnutrition, including overweight, hyperlipemia, hypertension, diabetes mellitus, is plaguing China on its way to a better off society, and has been attracting attention from experts and the authorities.

After conducting multiple experiments researches have found that cardiovascular and cerebrovascular diseases are due to a deficiency of linolenic acid, which is the most important nutrient for human being.

Dietitians unanimously agree that it is vital to one's health to consume foods or products that are rich in linolenic acid because it counteracts the unhealthy effects of the over use of saturated fatty acid such as hypertension, hyperlipemia, and hypercholesterolemia. In addition, linolenic acid helps to delay brain decaying and aging. Therefore, linolenic acid has been called the Green Nutrient of the 21st Century.

(Relevant story) Pengshan County of Sichuan Province, which is said home to the Chinese god of longevity, Pengzu, has many centenarians. People there live very long depending on an herb named purple common perilla, which acts as both medication and food. Purple common

perilla is rich for α -linolenic acid higher than any other plants.

Chinese Academy of Military Medicine compared thousands of wild herbs for their ingredients revealing that purple common perilla grows in Pengshan had the highest α -linolenic acid while other plants have little.

Modern scientific methods have confirmed that α -linolenic acid is capable of inhibiting agglomeration of platelet, halting thrombosis, delaying arteriosclerosis, nourishing brain and eye, protecting liver and preventing constipation, modulating blood fat, reducing cholesterol and preventing cancer.

II. Main ingredients and efficacies of the product

1. Main ingredients of the product:

Purple common perilla oil

Common purple perilla (also known as Chisu and Xiangsu) is an herb that belongs to the labiate family. In China people have grown common purple perilla for thousands of years. Common purple perilla is one of 60 items that are approved for consumption as both food and medication by the Chinese Health Ministry. The oil extracted from seeds of common purple perilla is a light yellow in color and has a grassy scent. Common purple perilla is the plant that contains the highest linolenic acid in the world.

(Relevant story) The ancient Chinese pharmacopoeia *Shennong Bencao* acclaims purple common perilla oil as the top choice for elongating life. Purple common perilla oil is able to modulate blood fat, reduce blood pressure, delay aging, enhance memory, counteract cancer, protect liver and keep beauty. Japan uses purple common perilla oil as a nutritional supplement adding it into children's food for reducing inflammation and asthma. The United States in May 1990 listed purple common perilla in *Five Anti-Cancer Candidates for Development*.

α -linolenic acid is an essential fatty acid that can help human body develop and stay healthy. It takes part in *in vivo* synthesis and transformation of phospholipid, forming bioactive DHA and EPA, which are important constituents of human cells.

α -linolenic acid is called essential fatty acid because human body is unable to produce it and it must be absorbed from outside world.

Essential fatty acid meets requirements as below:

Play important role in life activities, causing certain symptoms due to deficiency;

Can not be produced or synthesized by human body itself;

Must be absorbed from food to meet the need.

In China, although its people, with living standard keeping improved, take more and more fat, the proportion of unsaturated fatty acid correspondingly keeps decreased, causing many, so-called, industrialization-diseases including brain atrophy, stroke, hyperlipemia, hypertension, and overweight.

α -linolenic acid is effective for enhancing intelligence, protecting vision, decreasing blood fat and cholesterol and delaying aging, resisting hypersensitivity and inhibiting occurrence and metastasis of cancer. Unfortunately, human body lacks enzyme system that can synthesize α -linolenic acid, forcing human body to obtain α -linolenic acid from food, and deficiency of α -linolenic acid in food can cause degradation of brain and vision, senile dementia, hyperlipemia, hypertension, and cancer.

Research data indicates that more than 95 per cent of general population is suffering from severe deficiency of α -linolenic acid. As iodine supplemented to salt, α -linolenic acid should be specially added into diet to make some remedies.

(Relevant story) People try to obtain unsaturated fatty acid by eating animal or seed oils. However, frying, steaming and boiling can oxidate α -linolenic acid that is minute in food. In addition, animal and seed oil are a mixture of a wide variety of fatty acids, over much intake may increase content of saturated fatty acid, inducing vascular diseases.

Therefore, the best way to supplement α -linolenic acid is to take health-preservation products that are made by high-technology procedures.

2. Functions of α -linolenic acid:

1) Preventing cardiovascular and cerebrovascular diseases:

α -linolenic acid can change fluidity of membrane of platelet, modulate reaction of platelet to stimulation and adjust number of receptors on surface of platelet, which can halt thrombosis

and reduce odds of myocardial infarction and thrombosis in brain.

2) Reducing blood fat:

Metabolites of α -linolenic acid can moderately modulate metabolism of blood fat, promote transformation of LDL to HDL, reduce content of LDL and increase content of HDL, lowering fat in blood and halting arteriosclerosis.

3) Prevent critical hypertension from deterioration

Blood pressure that is between 145/90mmHg—160/95mmHg is called critical hypertension. It is an early stage of hypertension. Long time use of antihypertensives can incur many adverse effects. Metabolites of α -linolenic acid are able to dilate blood vessel, enhance elasticity of blood vessel, and in turn lowering blood pressure.

4) Inhibiting occurrence and metastasis of cancer:

Normal cells can turn abnormal due to imbalance of physical functions, and tumor cells can produce large amount of diallyl prostaglandin, which can baffle human immune system, helping cancer cells proliferate and spread. Metabolites of α -linolenic acid can directly reduce number of cancer cells, reduce agglomeration ability of platelet, inhibit production of diallyl prostaglandin, recover and improve human immunity, and effectively inhibit formation and metastasis of cancer.

5) Delaying aging:

Number of free radicals becomes increased with aging, while GSH-Px and SOD decreased in number and weakened in bioactivity. As a result, metabolites of free radical, MDA is more than before, damaging cells and baffling functions of organs and tissues. Posterior to taking α -linolenic acid, GSH-Px and SOD become activated and MDA is reduced. Therefore, α -linolenic is useful in delaying aging.

6) Enhance memory and improve vision:

A healthy brain needs fatty acid, especially α -linolenic acid. Fatty acid provides energy to brain, which is a machine to perform very delicate works. α -linolenic acid can promote synthesis of nucleic acid and protein in brain of mice. Mice fed by purple common perilla oil had less wrongdoings when jumping on and off stages, had higher correct rate in orientation test, and had shorter time for reaching destination. Meanwhile, the mice had a more powerful ability in reflecting light by retina and had a higher correctness rate in identifying brightness

degree.

3. Efficacy of the product:

- 1) Inhibiting diseases due to thrombosis, preventing myocardial and cerebral infarction;
- 2) Lowering fat in blood and reducing formation of endogenous cholesterol;
- 3) Halting development of critical hypertension, softening blood vessel and improving blood viscosity;
- 4) Preventing hemorrhagic stroke due to hypertension;
- 5) Perfecting cerebral neurons and enhancing intelligence;
- 6) Nourishing retina cells and protecting vision.

*** Processing techniques**

TIENS ω -3 Soft Capsules applies supercritical CO₂ extraction to condense essential oil of purple common perilla, free from any chemical agents and pollutants. It is a wholly natural product that can be safely taken and is very helpful in preserving health.

Supercritical CO₂ extraction is a timesaving while high-output method. The final product is transparent affluent for α -linolenic acid. Therefore, this method is the best technique for extracting oil from purple common perilla.

*** Special feature of the product:**

1) Bioactive:

The oil is an extract from natural herb containing essence of unsaturated α -linolenic acid. Therefore, it is highly active and can be fully absorbed. Posterior to entrance into body, it can be smoothly transformed and metabolized via a series of enzymes, forming DHA and EPA, taking part in metabolism of human being and promoting health.

2) Wholly natural without any deleterious components:

The oil is extracted from natural herb purple common perilla by applying advanced technique supercritical CO₂ extraction, owing to which nutrients in purple common perilla are preserved and deleterious additives, such as cholesterol that is very common in fish oil, are avoided.

3) Production of DHA and EPA in time of need:

Over much intake of DHA and EPA—usually rich in fish oil— may lead to hemorrhage, while in case of overdose of α -linolenic acid, the acid can be prevented from ensuing effects once DHA and EPA in human body are satiated. The acid only provides some energy to human body and is discharged via liver.

4) Safe and free from side effects:

A large amount of data reveal that α -linolenic acid enjoys all advantages of fish oil, meanwhile, it is safer than fish oil because it does not contain cholesterol and safe for diet. α -linolenic acid is herbal fat extracted from herb, very friendly to human tissues and superior to fish oil. It is a super fat being able to modulate fat and benefit intelligence, and is called “herbal gold for brain”.

III. Target customers and edible method

1. Target customers:

1) Population suffering hyperlipemia

2) Baby, child and adolescent

DHA, a metabolite of α -linolenic acid, is very important for development of brain cells, maintaining normal function of retina and ability to learning. Deficiency of DHA disables formation of brain cells and brain cells may die and nerve network may be damaged. Babyhood is critical for development of nervous system and α -linolenic acid in this period plays a vital role in development of intelligence and formation of brain.

3) Pregnant and breastfeeding women

α -linolenic acid and its metabolite DHA are essential nutrients for baby in womb. Deficiency of them may retard brain, eye and heart of fetus and increase risk for premature birth and over low body weight at birth. Women should store enough essential fatty acid in body before pregnancy for fetus need. Breastfeeding women should take sufficient essential fatty acid in order to provide enough essential fatty acid to their babies.

2. Edible method: two times daily, 3 capsules each time.