

## Origin of Ginkgo

Ginkgo (*Ginkgo biloba*) is one of the oldest living tree species now on earth as is regarded as "a living fossil".<sup>1</sup> Ginkgo has a broad spectrum of resistance or tolerance against bacterial and viral infections<sup>1</sup> and could live for more than 1,000 years.<sup>2</sup> Today, Ginkgo widely spreads in South & East America, southern part of France, China and Korea.

## Traditional Use

Ginkgo preparations have been used for medicinal purposes for more than hundreds of years.<sup>2</sup> Traditional Chinese physicians use ginkgo leaves to treat respiratory diseases. In Europe, modern researches have justified the use of ginkgo leaves as herbal supplement on improving health being such as cerebrovascular health.<sup>1</sup>

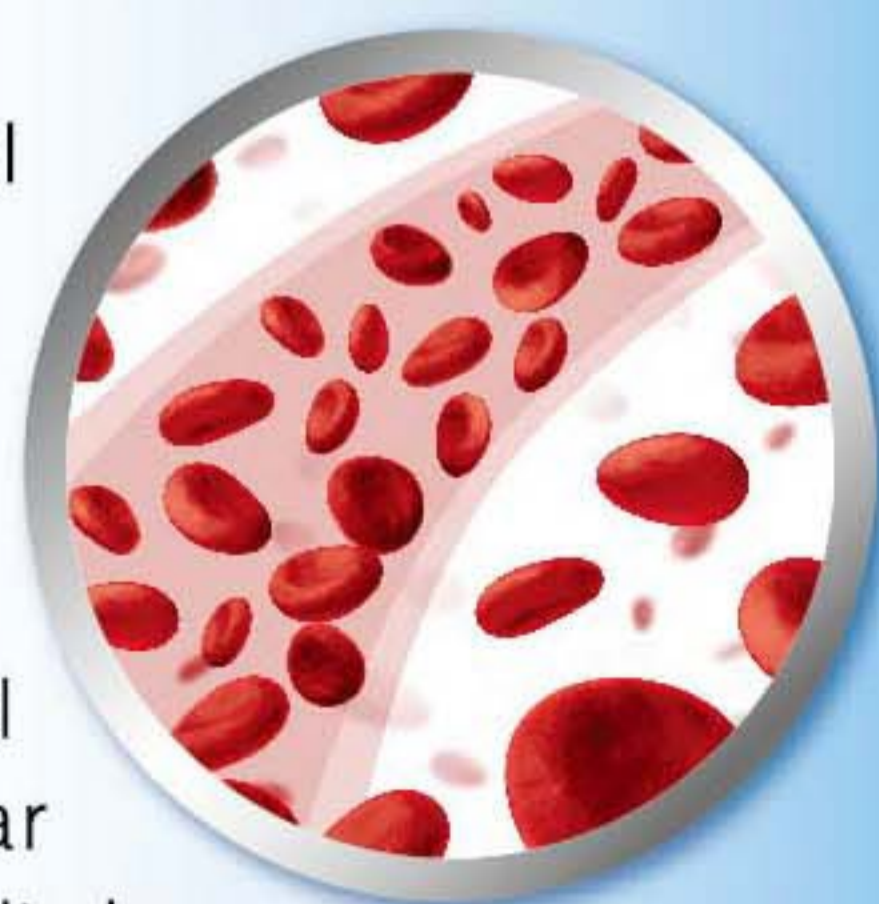
## The Main Functions of Ginkgo Biloba Extract (GBE)

### • Strong Antioxidant

The potent antioxidant properties of ginkgo leaves are mainly from the polyphenolic compound flavonoids.<sup>3</sup> Researches have shown that flavonoids could protect nerves, cardiac muscles, blood vessels and retina, and scavenge free radicals.<sup>3-4</sup> The particularity of GBE as an antioxidant is that unlike vitamins E and C, the flavonoids are able to act at the mitochondrial level, protecting the cellular power generator which is also the major source of free radicals in the body.<sup>2,4</sup> Abnormalities in mitochondrial function are suggested to be associated with the pathological changes seen in Alzheimer's Disease.<sup>5</sup>

### • Improve blood flow

Maintaining adequate cerebral blood flow is essential for normal brain functions, such as cognitive functions, learning ability and memory. As we age, there is a significant reduction in the cerebral blood flow.<sup>6</sup> Cerebrovascular insufficiency is a condition results in decreased blood flow into the brain. Common symptoms include headaches, dizziness, vertigo and tinnitus (ringing in the ears).



Clinical trials have demonstrated that taking GBE consistently for three months could reduce blood viscosity.<sup>7</sup> Terpenes from ginkgo leaves, such as ginkgolides selectively inhibit the platelet-activating factor and thus reducing chances of blood clot formation.<sup>8</sup> It also causes dilation of blood vessels and improves both arterial and venous blood flow to increase blood supply.<sup>9</sup> Hence, GBE could relief symptoms that are caused by insufficient blood flow to the brain.

### • Neuroprotective Effects

Alzheimer's Disease is a disorder caused by unwanted protein depositions and neurodegeneration in brain which leads to cognitive impairment. Strong antioxidant property of GBE could help protect the neurons from oxidative damage.<sup>3-5</sup> Studies have also demonstrated GBE could enhance memory in healthy middle-aged subjects.<sup>10-11</sup>

## The Main Functions of Lecithin

### • Basic Component of Cell membrane

Lecithin exists in every cell. Without it, cell membranes will become rigid and loss their functions.<sup>12</sup> The main source of commercial lecithin is from soybean.

### • Maintain Neural and Brain Functions

Lecithin contains choline which is an essential constituent of the neurotransmitter acetylcholine.<sup>13</sup> Therefore, adequate choline or lecithin intake is important for memory and other neural and brain functions.<sup>13-14</sup>



### • Protect Liver and Brain cells

Phospholipids in lecithin aid transportation of fats and cholesterol in the body.<sup>13</sup> Lack of lecithin in diet would lead to accumulation of fats in liver and body fluid and cause cell damages.

### Recommended daily dose:

Adults take 1 softgel capsule 2-3 times daily or as directed by physicians.

### Precautions:

Since Ginkgo leaves and its extract (GBE) has the abilities to prevent blood clot formation and dilation of blood vessels, which could enhance the effects of certain drugs such as blood thinning agents and anti-hypertensive agents. Hence, please consult your physician first if currently taking any cardiovascular drugs.

## References:

1. Singh B, Kaur P, Gopichand, Singh RD, Ahuja PS. Biology and chemistry of Ginkgo biloba. *Fitoterapia*. 2008;79(6):401-18.
2. Cybulska-Heinrich AK, Mozaffarieh M, Flammer J. Ginkgo biloba: An adjuvant therapy for progressive normal and high tension glaucoma. *Mol Vis*. 2012;18:390-402.
3. Ahlemeyer B, Kriegelstein J. Neuroprotective effects of Ginkgo biloba extract. *Cell Mol Life Sci*. 2003;60(9):1779-92.
4. Shen J, Lee W, Gu Y, Tong Y, Fung PC, Tong L. Ginkgo biloba extract (EGb761) inhibits mitochondria-dependent caspase pathway and prevents apoptosis in hypoxia-reoxygenated cardiomyocytes. *Chin Med*. 2011;6:8.
5. Castellani R, Hirai K, Aliev G, Drew KL, Nunomura A et al. Role of mitochondrial dysfunction in Alzheimer's disease. *J Neurosci Res*. 2002;70(3):357-60.
6. Chen JJ, Rosas HD, Salat DH. Age-associated reductions in cerebral blood flow are independent from regional atrophy. *Neuroimage*. 2011;55(2):468-78.
7. Huang SY, Jeng C, Kao SC, Yu JJ, Liu DZ. Improved haemorrhological properties by Ginkgo biloba extract (Egb 761) in type 2 diabetes mellitus complicated with retinopathy. *Clin Nutr*. 2004;23(4):615-21.
8. Naderi GA, Asgary S, Jafarian A, Askari N, Behagh A, Aghdam RH. Fibrinolytic effects of Ginkgo biloba extract. *Exp Clin Cardiol*. 2005;10(2):85-7.
9. Wu Y, Li S, Cui W, Zu X, Du J, Wang F. Ginkgo biloba extract improves coronary blood flow in healthy elderly adults: role of endothelium-dependent vasodilation. *Phytomedicine*. 2008;15(3):164-9.
10. Wesnes KA, Ward T, McGinty A, Petrini O. The memory enhancing effects of a Ginkgo biloba/Panax ginseng combination in healthy middle-aged volunteers. *Psychopharmacology (Berl)*. 2000;152(4):353-61.
11. Kaschel R. Specific memory effects of Ginkgo biloba extract EGb 761 in middle-aged healthy volunteers. *Phytomedicine*. 2011;18(14):1202-7.
12. Caballero F, Fernández A, Matías N, Martínez L, Fucho R et al. Specific contribution of methionine and choline in nutritional nonalcoholic steatohepatitis: impact on mitochondrial S-adenosyl-L-methionine and glutathione. *J Biol Chem*. 2010;285(24):18528-36.
13. Corbin KD, Zeisel SH. Choline metabolism provides novel insights into nonalcoholic fatty liver disease and its progression. *Curr Opin Gastroenterol*. 2012;28(2):159-65.
14. Ueda Y, Wang MF, Irei AV, Sarukura N, Sakai T, Hsu TF. Effect of dietary lipids on longevity and memory in the SAMP8 mice. *J Nutr Sci Vitaminol (Tokyo)*. 2011;57(1):36-41.

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