

An Herbal Education Series

by

Dr. Larry J. Milam H.M.D.

Golden Ginkgo Biloba

©1997

The World's Oldest Living Tree?

The history of this wonderful herb is a living symbol of "Life Extension" and "Cognitive Enhancement". Ginkgo biloba is literally a living fossil that has survived virtually unchanged through the various ice ages of prehistory. Some scientists estimate that it is 200 million years old, the oldest living tree species on the earth.¹

Ginkgo has been transplanted all over the world and continues to thrive even under adverse conditions, demonstrating its apparent immunity to pollution, insects and disease. Ginkgo even survived the atomic bombing of Hiroshima, where it still grows today next to the epicenter of the explosion. Individual trees may live to as many as 2000 years or more.

Ginkgo has been a mainstay of traditional Chinese medicine for more than 5000 years. Perhaps the ancient Taoist Monks had some vision of the future of Ginkgo as a brain and memory tonic when they planted it ceremonially in places of honor in their monasteries. They felt that this two lobed, fan-shaped leaf (biloba) represented the two phases of Yin and Yang in Taoist Philosophy. Ginkgo was planted to portray wisdom, centeredness and a meditative state.

A Natural Phytochemical Wonder

More than one thousand scientific papers have been published worldwide to document the clinical effects of Ginkgo biloba extract and to explain its varied mechanisms of action. The scientific community now believes that the clinical benefits of this ancient herb result from a group of bioflavonoids called Ginkgo

flavonglycosides and from a group of lactone terpenes called *Ginkgolides* which include *Ginkgolide A*, *Ginkgolide B*, *Ginkgolide C* and *Bilobalide*.

It takes anywhere from 50 to 75 pounds of leaves to make one pound of the concentrated Ginkgo biloba extract (GBX). As a measure of potency, researchers have established a common standard content of 24% ginkgosides and 6% terpenes.²

This **standardization process** during manufacturing is critical to the effectiveness of the end product. By using a standardized product, one is assured that they are receiving this "*Natural Cocktail*" of phytochemical constituents, not just some ground up leaves that may, in fact, contain little, if any, of these efficacious agents.

Ginkgo Secrets

Ginkgo has been used preponderantly in Chinese Medicine for over 5,000 years to treat age-related circulation disorders, memory loss, cancer, asthma and other pulmonary diseases, impaired hearing and sexual dysfunctions, just to name a few. However, its enormous popularity did not come about until it was rediscovered by Western medicine some 40 years ago. Since that time, Ginkgo has become one of the most frequently prescribed medicines in Germany and France. Its popularity in the United States is nothing short of phenomenal, fueled by its demonstrable clinical benefits, rather than by the "hype" that has popularized so many herbs.

Ginkgo Biloba's

Notable Benefits:

Brain Function: In order for the brain to function properly, it needs to be bathed in a constant supply of oxygen and nutrient rich blood. Any malfunction that interrupts the blood flow can have a profound effect on mental function. If allowed to occur chronically over many years due to atherosclerosis, the result is often the familiar loss of cognitive function and dementia, including memory lapses, loss of concentration, decreased intellectual ability, impaired vision, anxiety, loss of equilibrium and dizziness. Impaired blood flow can also be an underlying factor of headaches, depression, confusion and, in the most severe cases, stroke.

The special bioflavonoids in Ginkgo have a stronger biological activity than most other bioflavonoids and seem to have a specific affinity for the capillary beds of the brain.³ Their function includes:

Dilation of blood vessels resulting in improved flow of blood to and from tissues all over the body, especially the brain.⁴

Increasing the oxygen content of the blood. It has been shown that oxygen-rich blood enhances the memory.⁵

Improved cellular transmission. All neural functions of the brain are achieved by neural transmitters. These are the chemicals that allow one neural unit to communicate with another. The better the neural transmission, the more effectively memory and other brain functions work. Ginkgo biloba both increases the amount of neural transmission and increases the number of receptor sites for neural transmission.⁶ Again, this dramatically improves brain function.

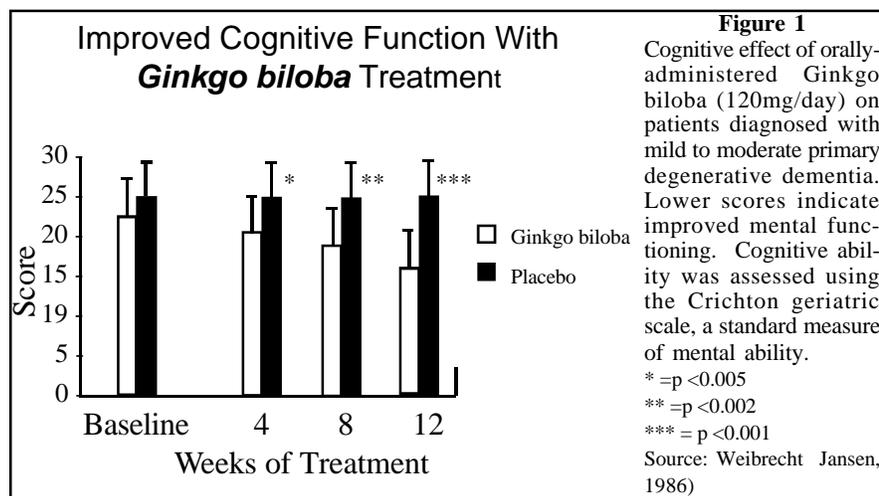
By using a standardized product, one is assured that they are receiving this "*Natural Cocktail*" of phytochemical constituents, not just some ground up leaves that may, in fact, contain little, if any, of these efficacious agents.

Dr. Larry J. Milam H.M.D.

Improved cognitive function.⁷ In a random, double blind, placebo controlled German study conducted in the mid 1980s, 40 people (aged 60-80 years) diagnosed with slight to moderate dementia received either Ginkgo biloba extract or a placebo for three months. By week four, the group taking Ginkgo biloba extract was performing significantly better than the placebo control on standard clinical geriatric tests. They also showed marked improvement in their mental capacity, alertness, sociability and mood and continued to improve as the study progressed. The placebo group did not change at all over the 12 weeks of the study (see Figure 1).

Treatment with Ginkgo biloba extract has been shown to result in improved cerebral metabolism and a reduced risk of hypoxic damage to the brain

lism and a reduced risk of hypoxic damage to the brain.¹⁰ In a 12 week study, 24 patients hospitalized with a form of dementia due to occluded cerebral arteries were treated with Ginkgo biloba extract (120 mg/day) or a placebo. The patients treated with Ginkgo biloba extract were found to improve significantly on all measurements, including EEG finding, reaction time and concentration. Using the venous micro-embolic index (VMI), a measurement of platelet aggregation, the researchers found that platelet aggregation declined progressively in the treated patients from a high of 3.6 at baseline to 1.3 at week 12. There was no change in the VMI of the placebo group (see Figure 2).



Inhibiting Platelet Activating Factor (PAF) A common trend in heart disease, strokes and peripheral vascular disease (e.g., intermittent claudication or painful walking), is the formation of blood clots (thrombosis) within the circulatory system. Underlying these clots is an excess of platelet activating factors (PAFs), which induce platelet aggregation, neutrophil degranulation and oxygen free radical production.

As a result, excess PAFs are at least partly responsible for thrombosis, bronchoconstriction (as occurs in asthma), shock reaction (cardiogenic and anaphylactic) and organ transplant rejection. PAFs can be stimulated by chronic stress, a diet high in processed hydrogenated fats and exposure to allergens. Numerous studies have confirmed that Ginkgo biloba extract is an extremely effective agent for inhibiting PAFs.⁸

Blocking Asthma Attacks. Inhibiting PAFs with Ginkgo biloba extract may help some patients with asthma. Some studies have shown that PAFs play an important role in causing airway inflammation. Chinese physicians have known about the beneficial effects of Ginkgo biloba for asthma patients for thousands of years. In a preliminary trial conducted in Belgium, six out of ten children with severe asthma were found to improve "dramatically" within the first three to four days of taking Ginkgo biloba extract. Three other children improved "very substantially", but still occasionally required other therapy.⁹

Improved cerebral metabolism

Treatments with Ginkgo biloba extract have been shown to result in improved cerebral metabo-

Fighting Free Radicals Bioflavonoids have long been considered great antioxidants, specifically for protecting the microcirculation in small blood vessels. Ginkgo is an extraordinary free radical scavenger that is particularly effective against the superoxide anion ($-O_2$), a dangerous free radical that has been directly or indirectly implicated in cell damage.¹¹

Numerous studies have demonstrated that Ginkgo biloba extract is very effective in blocking lipid peroxidation, thus protecting cell membranes which are primarily composed of lipids.¹² This is extremely important in brain cells which contain a higher content of lipids than any other cells in the body.

Beyond brain cell protection, other clinical studies suggest a wide range of clinical benefits beyond its life enhancing antioxidants such as:

Radiation induced chromosomal damage protection. Because of its powerful effect, Ginkgo biloba extract was given to Chernobyl recovery workers. After two months, it was determined that it completely protected them from further chromosomal damage.¹³

Special Note:

While studies show Ginkgo biloba extract may be effective in preventing some asthma attacks, it is probably not effective for treating an acute attack. As with any medical condition, one should consult with a health care professional for immediate relief.

How much Ginkgo biloba is beneficial?

Reduced Cerebral Blood Clotting Following Treatment with Ginkgo biloba Extract

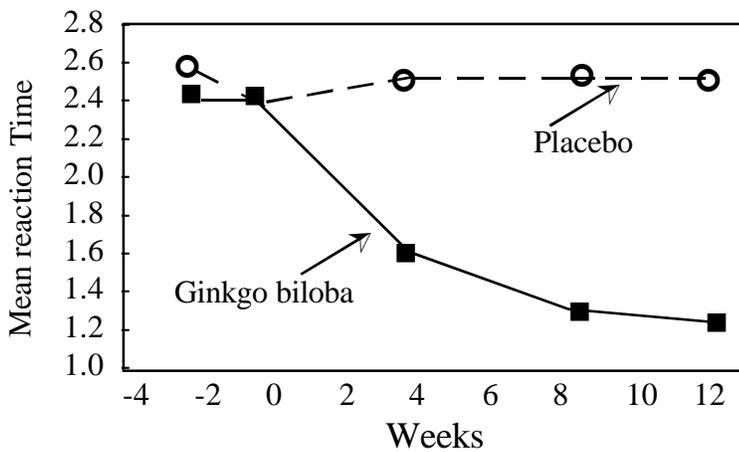


Figure 2. Decline in platelet aggregation in patients diagnosed with cerebro-organic syndrome, a form of dementia caused by atherosclerosis in cerebral arteries. (Source: Hofferberth, 1991)

Ischemia induced spinal cord injury protection. Ischemia-induced lipid peroxidation is one of the main factors that produces tissue damage in spinal cord injury. When Ginkgo biloba extract was given to rats subjected to experimental spinal cord injury, they were protected from the paraplegic effects of the injury to a significant degree.¹⁴

Heart muscle ischemia and reperfusion injury protection. Heart muscle is extremely sensitive to the lack of oxygen (ischemia) caused by heart attacks and blood vessel restrictions or clots. However, just as damaging is the sudden rush of restoration oxygen which can carry with it a rush of free-radicals, as occurs following coronary bypass surgery. Ginkgo biloba extract, because of its antioxidant activity, has shown its ability to protect heart tissue when exposed to these insults^{15 16 17}

Protection against Retinal Damage. Damaged, leaking or injured delicate retinal cells is a common cause of blindness in people with diabetes and other macular problems. Numerous studies have shown that Ginkgo biloba extract reduces the sus-

ceptibility of these cells to injury.¹⁸

Other Uses of Ginkgo biloba

Although Ginkgo biloba is known as one of the most important herbs for the brain, its action and benefits are not exclusively for the brain.

- The ginkgosides it contains work as an herbal antioxidant throughout the entire body.
- The microcirculation of all capillary beds throughout the body will be enhanced.
- Ginkgo can help all organs that have a rich blood supply including the heart, liver, kidneys, lungs and spleen.
- Ginkgo has been clinically shown to provide appropriate benefit for such conditions as ringing in the ear (tinnitus), headaches, vertigo (dizziness), hearing loss, depression, allergies, atherosclerosis, cardiac arrhythmia, diabetic peripheral vascular disease, eczema, glaucoma, impotency, retinitis and neuralgia, as well as the initial stages of Alzheimer's disease.¹⁹

Various studies have been conducted using dosages from 30 mg to 600 mg per day. However, in many studies, there is no reference to the levels of the primary actives such as ginkgosides and terpenes. Obviously, a Standardized Formula would be more effective at lower dosages.

For best results use only Ginkgo biloba that has been standardized to contain a content of 24% ginkgosides and 6% terpenes. Non-standardized products may not be effective.

As a dietary supplement to enhance brain function and prevent circulatory disorders, begin with a minimum of 60 mg. each day, increasing your daily consumption to 120 mg. For chronic long term conditions, 360 mg per day (6-60mg capsules per day) is the dosage recommended by most herbalists. It is recommended that you take the least amount at which you can see measurable results. Long term studies indicate that there are no toxicity concerns, even at levels of 600 mg. or more.

Greater benefits may be obtained when the product is enhanced with other natural herbs such as Aloe Vera Extract.

Conclusion

Ginkgo biloba has been around since the age of dinosaurs. It has survived mass extinctions, ice ages, atomic explosions and environmental pollutants without damage. Visionary healers have tapped the resources of this amazing herb since the beginning of recorded history.

Now with the aid of advanced diagnostic equipment and devices, we are able to unlock some of the mysteries of its phytochemical composition and release its secrets to the masses. It may well be the world's oldest "smart drug".

To ensure that you obtain the greatest possible benefit, check the label and select only standardized formulas from reputable companies willing to produce a certificate of analysis.

¹ Ginkgo Biloba: The World's Oldest Anti-Aging Secret, Life Enhancement News, Dec. 1996. p.1

² Willard, Terry, Ginkgo Biloba: Good for the

References

- Brain, and More, Vitamin Retailer, Nov. 1995. p. 58.
- ³ Ibid. p. 59.
- ⁴ Ginkgo Biloba: The World's Oldest Anti-Aging Secret, Life Enhancement News, Dec. 1996. p.2.
- ⁵ Le Ponein-Lafitte, M., et al; Ischemie cerebral apres ligature non simultane de arteres carotide chez 1 rat: effect de l'extract of ginkgo biloba on rabbit isolated aorta, *Gen Phamac.*, 13,225,1982.
- ⁶ Willard, Terry, Ginkgo Biloba: Good for the Brain, and More, Vitamin Retailer, Nov. 1995. p. 59.
- ⁷ Ginkgo Biloba: The World's Oldest Anti-Aging Secret, Life Enhancement News, Dec. 1996. p.4-5.
- ⁸ Ibid. p. 485
- ⁹ Ibid. p. 5-6.
- ¹⁰ Ibid. p. 5.
- ¹¹ Princemail, J., Dupuis M., Nasr C.,et al. Superoxide anion scavenging effect and superoxide dismutase activity of Ginkgo biloba extract. *Experientia*. 1989;45:708-712.
- ¹² Ibid. p. 6.
- ¹³ Emerit I, Oganesian N., Sarkisian T, et al. Clastogenic factors in the plasma of Chernobyl accident recovery workers: anticlastogenic effect of Ginkgo biloba extract. *Radiat Res*. 1995;144: 198-205.
- ¹⁴ Koc RK., Akdemir H, Kurtsoy A, et al. Lipid peroxidation in experimental spinal cord injury. Comparison of treatment with Ginkgo biloba, TRH, and methylprednisone. *Res Exp Med*. 1995;195:117-123.
- ¹⁵ Shen JG, Zhou DY. Efficiency of Ginkgo biloba extract (EGB 761) in antioxidant protection against myocardial ischemia and reperfusion injury. *Biochem Mol Biol Int*. 1995;35:125-134.
- ¹⁶ Tosaaki A, Engelman DT, Pali T, Engleman RM, Droy-Lefaix MT. Ginkgo biloba extract (EGb 761) improves postischemic function in isolated preconditional working rat hearts. *Coron Artery Dis*. 1994;35:125-134.
- ¹⁷ Haramaki N, Aggarwal S, Kawabata T, Droy-Lefaix MT, Packer L. Effects of natural antioxidant Ginkgo biloba extract (EGb 761) on myocardial ischemia-reperfusion injury. *Free Radic Biol Med*. 1994;16:789-794.
- ¹⁸ Ginkgo Biloba: The World's Oldest Anti-Aging Secret, Life Enhancement News, Dec. 1996. p.7.
- ¹⁹ Willard, Terry, Ginkgo Biloba: Good for the Brain, and More, Vitamin Retailer, Nov. 1995. p. 59.

The ideas, procedures and suggestions in this article are intended to supplement, not replace, the medical advice of trained professionals. In addition, all matters regarding your health require medical supervision. Consult your physician about any condition that may require diagnosis or medical attention.

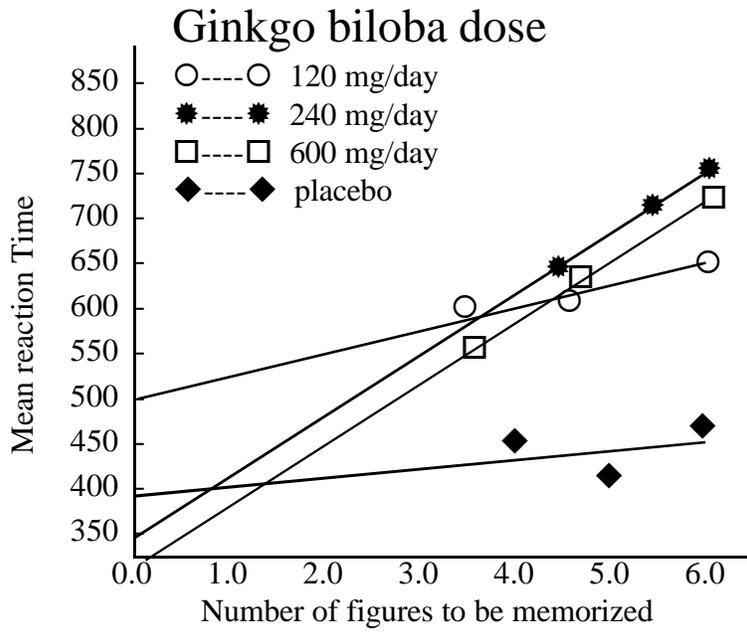


Figure 2. Improvement in short-term memory in healthy, young women treated with Ginkgo biloba extract. Improvement was significant ($p < 0.0001$) for the 600 mg dose. (Source: Hindmarch, 1986)