LE Magazine May 1995

UPDATE

New Book On Ginkgo

A NEW BOOK PUBLISHED IN EUROPE entitled *Cardiovascular Effects of Ginkgo Biloba Extract* provides further evidence that ginkgo biloba extract works via several different mechanisms to protect against cardiovascular disease.

The earliest publications about ginkgo dealt with its beneficial effects on cerebral and peripheral vascular conditions. Ginkgo is the most widely used plant extract in modern medicine. It is prescribed in Europe primarily to improve memory and other cognitive functions as well as for the treatment of peripheral vascular diseases.

GINKGO AND CARDIOVASCULAR DISEASE

Numerous published studies have shown that ginkgo acts on the entire cardiovascular system (i.e. on arteries, veins, capillaries and blood cells).

Here are highlights from the book *Cardiovascular Effects of Ginkgo Biloba Extract* about how ginkgo protects against cardiovascular disease:

1. Aging causes a general loss of blood vessel elasticity. This "hardening" effect can cause high blood pressure and increase the likelihood of an occlusion in a blood vessel.

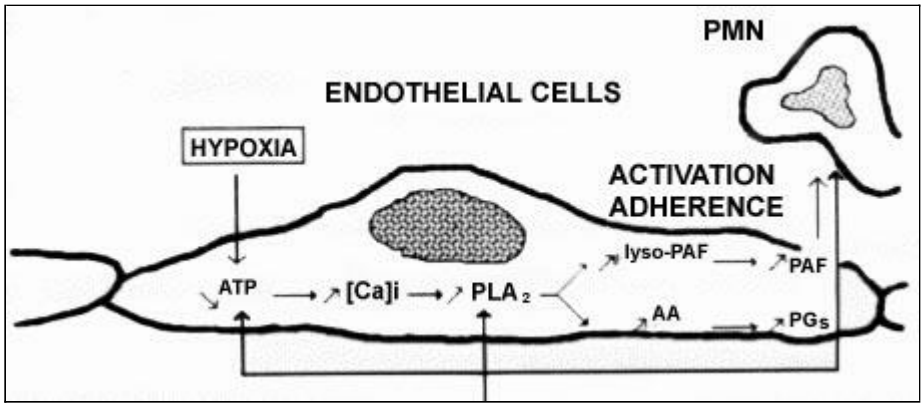
   Ginkgo provides a "relaxant" effect on blood vessels, thereby increasing their youthful elasticity. In one study, ginkgo produced an increase in coronary blood flow . This same study showed that superoxide dismutase (SOD) and catalase did not protect the heart against ventricular arrhythmias, but that ginkgo reduced the occurrence of such arrhythmias and eliminated the associated increase in free radical formation.

2. Aging causes red blood cells, white blood cells, and platelets to aggregate abnormally and lose their youthful flexibility. Ginkgo exerts a "membrane stabilizing" effect in red and white blood cells and suppresses platelet activating factor (PAF), all of which results in improved circulation by increasing the "velocity" that blood cells pass through capillary beds. A recent study showed that, within one day of ginkgo administration, platelet aggregation was reduced in patients suffering from atherosclerosis.

3. Aging causes changes in the arterial wall that leads to accelerated atherosclerosis.

   Ginkgo stimulates glucose uptake by cells in the arterial wall, resulting in the restoration of a youthful biochemical cascade, thereby breaking the pattern of arterial alteration leading to the formation of atherosclerosis (see Figure 3).

Figure 3



4. Schematic presentation of the effects of hypoxia on endothelial cells and their interactions with PMN, and the inhibitory action of EGb 761 [ginko biloba extract] on this cascade. ATP: adenosine triphosphate; [Ca]i: cytosolic calcium concentration; PLA_2: phospholipase A_2; AAarachidonic acid; PGs: prostaglandins; PAF: platelet-activating factor; PMN: polymorphonuclear neutrophil.
5. Aging causes thickening in the brain's arterial network that increases the risk of stroke and vascular senile dementia.

   Numerous studies show that ginkgo *prevents* this cerebrovascular pathology. Animal studies show that when blood flow to the brain is reduced, ginkgo protects against arterial spasm that can result in complete blockade of blood flow. Ginkgo also protects brain cells against the effects of partial and complete cessation of blood flow to the brain. The new studies on ginkgo and coronary artery blockade show that ginkgo provides the same benefits in the heart as have been documented in the brain.

6. Diabetes, cigarette smoke exposure, and failure to follow a lifelong atherosclerosis prevention program can result in circulation blockage throughout the body. At least 15 controlled studies have been conducted to assess the effects of ginkgo on arterial occlusive disease. Most of these studies produced beneficial effects.
7. Open-heart surgery often produces neurological deficits. Complications from open-heart surgery kills 2%-11% of patients undergoing this procedure.

   In a recent double-blind study, in which 320 mg of ginkgo per day was administered prior to open-heart surgery, there was significant protection against complications. The researchers attributed ginkgo's strong antioxidant function as the mechanism that protected patients against the free radical damage that's occurs during all surgical procedures.

8. Ever since ginkgo was introduced in Europe, it has been prescribed primarily for neurological disturbances involving impairment in cognitive function, memory loss, vertigo, tinnitus, and headache, as well as for peripheral arterial occlusive disease. At least 40 controlled trials have been conducted to assess the efficacy of ginkgo in treating "disturbances of the brain". Collectively, the results indicate that chronic administration of ginkgo produces beneficial effects. Here are the results of some of these studies:

A. A study that included patients with vascular insufficiency showed that ginkgo (120 mg a day) taken for 12 weeks significantly improved cognitive test scores.
B. Another study showed that ginkgo (150 mg a day) administered for 12 weeks decreased the symptoms of cerebral insufficiency by 72% compared to 8% in the placebo group.
C. A large multicenter trial to assess the efficacy of ginkgo (112-160 mg per day) on 303 outpatients with cerebrovascular insufficiency showed that improvement occurred in 8 of 12 symptoms and that the overall assessment of the patient's complaints was 83% better in the ginkgo treated group.
D. Other studies on ginkgo for the treatment of cerebrovascular disease have provided similar results.

CONCLUSIONS OF THE RESEARCHERS

The researchers concluded that the safety of ginkgo warrants its consideration as a treatment for a wide variety of conditions. They indicated that the future use of ginkgo would be in treating and preventing cardiovascular disorders, stroke, cerebral vasospasm, and surgically-induced atherosclerosis. The researchers also suggested that ginkgo therapy may prevent reocclusion of blood vessels caused by surgical trauma during cardiovascular surgery such as angioplasty and coronary bypass.

The researchers advocated that ginkgo therapy be initiated a few weeks *before* heart surgery for maximum benefit and that it should continue for two weeks to eight months after surgery.

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