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**FILE: ■Ginkgo (*Ginkgo biloba*)
■Diabetes
■Retinopathy**

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**RE: Pilot Clinical Study Finds Ginkgo Leaf Extract of Possible Use in Improving
Diabetes-induced Retinopathy**

Huang S, Jeng, C, Kao S, Yu J, Liu D-Z. Improved haemorrhological properties by *Ginkgo biloba* extract (Egb 761) in type 2 diabetes mellitus complicated with retinopathy. *Clin Nutr* 2004;23:615–621.

Diabetics are at an increased risk for vascular diseases, including diabetic retinopathy. This eye disease is caused by injury to blood vessels that deliver nutrients to cells in the eye. It is characterized by aneurysms and hemorrhages in the retina, the innermost layer of tissue inside the eye. Almost all people who have had type 1 diabetes for 20 years and nearly 80% of those with type 2 diabetes have signs of retinopathy.¹ The current pilot study evaluated the use of 240 mg ginkgo (*Ginkgo biloba*) leaf (extract EGb 761; Dr. Wilmar Schwabe GmbH, Karlsruhe, Germany) on 25 type 2 diabetics with retinopathy.

Blood parameters, including fibrinogen (a clotting factor), and plasma viscosity were checked before and after three months of treatment. Also tested were red blood cell (RBC) flexibility, an indicator of their ability to enter and deliver oxygen to the small blood vessels of the eye; RBC malondialdehyde (MDA), a product of lipid peroxidation and a measurement of RBC oxidative stress; and retinal capillary blood flow velocity. Before versus after treatment comparisons revealed significant decreases in mean fibrinogen concentration (-42.7 ± 23.6 mg/L, $P < 0.001$), MDA ($-0.92 \pm 0.16 \times 10^{10}$ nmol/cell, $P < 0.05$), and plasma viscosity (-0.08 ± 0.03 , $P < 0.05$).

Retinal capillary blood flow significantly increased by 0.44 ± 0.24 mm/s after treatment ($P < 0.05$). The greater the oxidative stress, the lower the RBC deformability. No adverse events were reported.

Decreased blood flow and RBC properties may significantly contribute to development and progression of retinopathy in diabetics. Ginkgo extract EGb 761 may play an important role in improving the health of the eye by increasing blood flow to the retina and by decreasing

oxidative stress. Additional research is needed to assess the efficacy of ginkgo in preventing the onset or progression of retinopathy.

—*John Neustadt, ND4*

References

1. Frank RN. *Diabetic Retinopathy. N Engl J Med. January 1, 2004 2004;350(1):48-58.*

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