

## **Combined Treatment of Aged Rats with Donepezil and the Ginkgo Extract EGb 761® Enhances Learning and Memory Superiorly to Monotherapy**

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**Abstract :** Age-related cognitive decline can eventually lead to dementia, the most common mental illness in elderly people and an immense challenge for patients, their families and caregivers. Cholinesterase inhibitors constitute the most commonly used antedementia prescription medication. The standardized Ginkgo biloba leaf extract EGb 761® is approved for treating age-associated cognitive impairment and has been shown to improve the quality of life in patients suffering from mild dementia. A clinical trial with 96 Alzheimer's disease patients indicated that the combined treatment with donepezil and EGb 761® had fewer side effects than donepezil alone. In an animal model of cognitive aging, we compared the effect of combined treatment with EGb 761® or donepezil monotherapy and vehicle. We compared the effect of chronic treatment (15 days of pretreatment) with donepezil (1.5 mg/kg p. o.), EGb 761® (100 mg/kg p. o.), or the combination of the two drugs, or vehicle in 18 - 20 month old male OFA rats. Learning and memory performance were assessed by Morris water maze testing, motor behavior in an open field paradigm. In addition to chronic treatment, the substances were administered orally 30 minutes before testing. Compared to the first day and to the control group, only the combination group showed a significant reduction in latency to reach the hidden platform on the second day of testing. Moreover, from the second day of testing onwards, the donepezil, the EGb 761® and the combination group required less time to reach the hidden platform compared to the first day. The control group did not reach the same latency reduction until day three. There were no effects on motor behavior. These results suggest a superiority of the combined treatment of donepezil with EGb 761® compared to monotherapy.

**Keywords :** age-related cognitive decline, dementia, ginkgo biloba leaf extract EGb 761®, learning and memory, old rats

**Conference Title :** ICNE 2015 : International Conference on Neurology and Epidemiology

**Conference Location :** London, United Kingdom

**Conference Dates :** September 25-26, 2015