Efamol have continuously invested in research since the establishment of the brand over 40 years ago. Lately investment has focussed on Efamol Active Memory, which has been demonstrated:

Active Memory Reduces Frailty in Older Adults
The way a person walks (gait performance) provides key information on the risk of cognitive decline in ageing. Therefore assessing gait performance may provide a crucial window of opportunity to intervene prior to symptom onset. Efamol funded a study in 2014 which supplemented a group of women aged an average of 67 years old. They tested omega 3 status and other biochemical markers before and after taking Active Memory and demonstrated improvements in gait speed (single task), verbal memory and processing speed in older women vs placebo after a 24 week period[1].

A further trial is currently being written up which is designed to determine whether Efamol Active Memory provides benefits in a range of physical and cognitive tasks equal to those that can be obtained by exercise. Results will be reported soon. The test measures: gait (single and dual task), five times sit to stand and a battery of cognitive tests; quality of life questionnaire; blood fatty acid levels, serum homocysteine, dietary intake and physical activity levels and took place over 24 weeks.

LOW DHA has been associated with COGNITIVE DECLINE:
It has long been understood that lower levels of the omega 3 fatty acid DHA are associated with a person being more likely to record cognitive decline. This was demonstrated in one study on 246 healthy older people aged 63-74 whose DHA blood levels were measured along with their cognitive abilities. They were followed for 4 years where it was established that those with higher blood EPA and DHA had a 40% lower risk of cognitive decline[2].

A larger study from 2016 which studied 720 people aged 68-92 years old classified their omega 3 status into three categories low (>5.7), medium (5.7-6.8) and high (>6.8). A robust association was found between low omega 3 levels and levels of cognitive impairment in an elderly population[3].

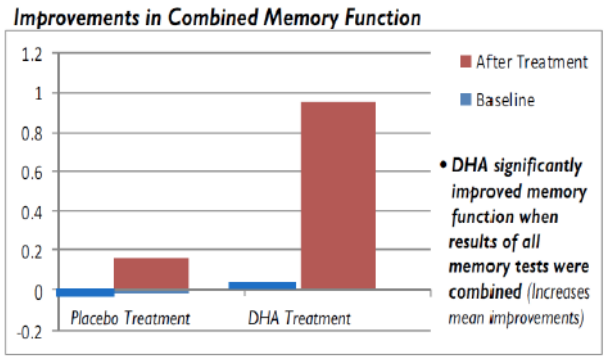
In 2016 further work in this area confirmed the significance of omega 3 status and the functionality of the brain measured as cognition, memory and mood. This time 111 patients with mild cognitive impairment had low omega-3 index plus a genetic feature that made the conversion of dietary essential fatty acids (EFAs) longer chain fatty acids like DHA and EPA less effective[4].

HIGH DHA/OMEGA-3 INTAKE PROTECTS AGAINST COGNITIVE DECLINE:
In 899 initially healthy older volunteers with a median average age of 76 were included in this study. Their blood plasma levels of fatty acids were tested and they were followed up for an average of 8.9 years. It was found that those eating two or more fish servings/week were 39% less likely to develop dementia. Those with the highest blood DHA had a 47 % lower risk of developing dementia, even after controlling for BMI, diabetes, high blood pressure and smoking. Although oily fish contains many fatty acids, it was only the DHA that was responsible for preventing dementia[5].

In 815 subjects followed over 7 years there was 60% less risk of developing Alzheimer's Disease in people who ate fish once a week compared to those who rarely ate fish[6]. There was no link between low EPA intake and the Alzheimer's Disease development, but low DHA intake was directly linked to Alzheimer's Disease development.

ASSOCIATION WITH USE OF A FISH OIL SUPPLEMENT WITH PRESERVATION OF BRAIN VOLUME AND COGNITIVE FUNCTION
A study published in 2015 showed how 229 people with normal, healthy cognitive function, 397 patients with mild cognitive impairment and 193 with Alzheimer's Disease were all studied with neuropsychological tests and brain magnetic resonance imaging every 6 months for 4 years. The conclusion from the study was that fish oil supplement use was associated with significantly better cognitive scores among those with normal cognition, however this association was not found for those with impaired cognition or diagnosed Alzheimer's Disease.[7]

A study in 2013 found that the active DHA-rich oil in Active Memory significantly improved memory function including short term and working memory, immediate verbal memory and delayed recall memory. The study was conducted on 36 subjects with an average age of 65 years old reporting mild cognitive impairment. Those in the group taking the supplement took 1.3 g DHA + 0.45 g EPA daily for 12 months[8].



Combination therapies relevant to Efamol Active Memory:

NUTRITIONAL INFORMATION:

Per Daily Intake (Two capsules)		%NRV*
High Strength Fish Oil	1000mg	**
of which: Omega 3	700mg	**
of which: DHA (Docosahexaenoic Acid)	500mg	**
EPA (Eicosapentaenoic Acid)	115mg	**
Ginkgo biloba standardised leaf extract	120mg	**
providing 24% Ginkgoflavone glycosides	29mg	**
6% Ginkgolides and Bilobalides	7.2mg	**
Phosphatidylserine	30mg	**
Vitamin E	10mg α-TE	83
Folic Acid	500µg	250
Vitamin B12	10µg	400

*Nutrient Reference Value formerly known as Recommended Daily Allowance. **No NRV Established. α-TE = alpha tocopherol equivalents.

STUDIES THAT DEMONSTRATE THE EFFICACY OF GINKGO BILOBA ON COGNITIVE PERFORMANCE AND COGNITIVE DECLINE:

A 2015 review of research papers on the use of gingko biloba included more recent ginkgo trials than previous negative review papers. The positive results showed "stabilizing or slowing decline in cognition of subjects with cognitive impairment and dementia" using 240mg of ginkgo biloba extract a day. The authors highlighted the inclusion of the recent randomized controlled trials focusing on dementia, AD, and MCI subgroups with neuropsychiatric symptoms and suggest that this may partly explain the conflicting results of these recent meta-analyses and previous pooled findings."[9]

Another meta-analysis in 2015, Tan et al. found that 240mg per day of specific gingko extract is able to stabilize or slow decline in cognition, function, behaviour, and global change at 22-26 weeks. These results were effective in subjects with cognitive impairment and dementia, especially for patients with neuropsychiatric symptoms."[10]

A further meta-analysis in 2016 found: "Ginkgo biloba is potentially beneficial for the improvement of cognitive function, activities of daily living, and global clinical assessment in patients with mild cognitive impairment or Alzheimer's disease", but called for more research.[11]

In studies with healthy subjects and mild cognitive impairment positive results have been found. In recent studies, Ginkgo Biloba Special Extract improved several cognitive domains including sustained attention, visual and verbal memory in subjects with very mild cognitive impairment.

Examples of studies include:

In 2011, 300 subjects, aged 45-65 with very mild cognitive impairment took 240mg / day and were measured using standardised tests for concentration, memory and perceived physical health. The Ginkgo Biloba extract was more effective than placebo in all three measures.[12]

Another study in demonstrated that 240mg a day of ginkgo biloba extract is effective for the improvement of quantity and quality of recall in 188 healthy, middle aged subjects. This function is known to be sensitive to normal aging, i.e., in healthy middle-aged subjects no positive results were found in less taxing tests.[13]

One hundred and twenty subjects aged 60-85 with mild cognitive impairment were administered 57.6mg/ day of gingko biloba extract for 6 months in 2012. The ginkgo biloba leaf tablet showed good efficacy in promoting episodic memory function in subjects with mild cognitive impairment.[14]

Use of ginkgo biloba over a 20-year period in a study on 3612 healthy aging adults (65+ at the start of the study) shows significantly lower cognitive decline measured using a mini mental state examination, verbal fluency and visual memory tests vs placebo and vs another nootropic drug. The dosage was varied.[15]

POSITIVE RESULTS FOR THE USE OF GINGKO BILOBA WITH PHOPHATIDYLSERINE IN MEMORY AND MOOD:

A short term study tested the efficacy of Ginkgo, Ginkgo with phosphatidyserine and Ginkgo with phosphatidylcholine on 28 healthy young adults. It was found that taking 120mg of Gingko biloba extract on its own or with phosphatidylserine improved memory and significantly increased memory speed at 1, 2.5, 4 and 6 hours after treatment. Both improved calmness while PS enhanced cognitive improvements that were achieved with a low dose Gingko supplement alone[16].

POSITIVE RESULTS FOR THE USE OF DHA WITH PHOPHATIDYLSERINE IN MEMORY:

A study published in 2013 demonstrated that 131 people with memory complaints taking 100mg a day of Phosphatidylserine with Omega 3 fatty acid DHA for 15 weeks had significantly improved significantly improved sustained attention and memory recognition[17].

COGNITIVE PERFORMANCE, HOMOCYSTEINE AND VITAMIN B STATUS

The association of low folate and Vitamin B12 status and high homocysteine levels in the body is well documented and the European Food Standards Agency have a specific claim that confirms that Folate (folic acid) and B12 both contribute to the metabolism of homocysteine", this can be explained as the processing or breakdown of homocysteine. Homocysteine is an amino acid made from cysteine in the body.

Examples of relevant studies include:

A study of 274 dementia free subjects aged 65-79 years demonstrated that high levels of homocysteine, low folate and B12 status correlated with lower cognitive performance over a 7 year study in a Finnish study group[18].

Moderately elevated levels of homocysteine in the plasma is a strong modifiable risk factor for vascular dementia and Alzheimer's disease. Elevated homocysteine is associated with cognitive decline, white matter damage, brain atrophy, neurofibrillary tangles, and dementia[19].

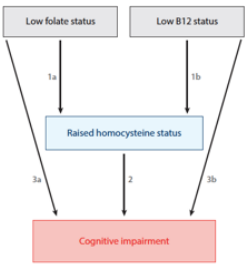


Figure 1
Different pathways relating B vitamins to cognitive impairment. The distinct pathways to cognitive impairment are identified by different numbers.

There is also a relationship between levels of the antioxidant, Vitamin E (alpha tocopherol) in the blood and mild cognitive impairment. Healthy subjects were found to have lower amounts of Vitamin E in their plasma than those with mild cognitive impairment in a study of 138 patients previously complaining of mild cognitive impairment versus a control group.

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