EFFECTS OF SPECIFIC DHA CONTAINING DIETS ON EXPLORATIVE BEHAVIOR AND BRAIN METABOLISM IN 10-13 MONTHS OLD APP\textsubscript{swe}/PS1DE9 MALE ALZHEIMER MICE

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Introduction: It has been shown that vascular factors play an important role in the development of Alzheimer's Disease (AD). Vascular preventative however has been proven ineffective in AD trials, whereas beneficial effects of docosahexaenoic acid (DHA), have been found in patients with mild AD. DHA, an omega-3 long chain poly-unsaturated fatty acid, may therefore affect the course of AD, possibly via influencing cerebral circulation but also via other underlying mechanisms.

Aims: In this current study, we want to investigate the effects of specific DHA containing diets on explorative and anxiety-related behavior, and brain metabolism in 10-13 months old male APP\textsubscript{swe}/PS1dE9 and wild type mice.

Methods: From 2 months of age, the mice were fed a standard diet, a diet enriched with DHA and uridine monophosphate (UMP), or a multi-nutrient diet containing precursors and cofactors in brain membrane synthesis, such as DHA, phospholipids, UMP, choline, B-vitamins and antioxidants (Fortasyn). Explorative and anxiety-related behavior of the mice were studied in the open field, and hippocampal metabolite concentrations were investigated with proton magnetic resonance spectroscopy (\textsuperscript{1}H MRS) on a 11.7 Tesla magnetic resonance imaging Bruker scanner.

Results: Our results are currently being processed and will be presented. We expect to find increased anxiety-related behavior in our APP/PS1, and altered metabolite concentrations, such as decreased \textit{N}-acetyl aspartate (measure of neurodegeneration) and increased \textit{myo}-inositol levels (increased inflammation).

Conclusions: DHA may influence behavior, brain metabolism and neurodegeneration probably via cerebral circulation and neural membrane composition thereby affecting onset and progression of AD.