**PHYTOSTEROLS IN THE AGING RAT BRAIN: INFLUENCE OF DIETARY RESTRICTION**

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**Introduction:** Phytosterols are lipid compounds structurally analogous to cholesterol, with the same basic functions in plants as cholesterol has in animals. Cholesterol has a crucial role in development and maintenance of neural plasticity and function. Disturbance in cholesterol metabolism, along with aging represent an important risk factor for AD. Phytosterols have the potential to reduce cholesterol absorption by 30% to 50%.

**Aims:** Considering the crucial role of cholesterol and its metabolism in the brain, the aim of this study was to define the effect of long term dietary restriction (DR) on the content of plant sterols in the aging brain.

**Methods:** The experiments were performed on 3-, 12-, and 24-month-old male Wistar rats fed *ad libitum* (AL) or exposed to long term DR (100% EOD) starting from 3 months of age. Levels of brassicasterol, campesterol, stigmasterol and sitosterol, the most abundant plant sterols, in rat cortex and hippocampus were determined using gas chromatography-mass spectrometry (GC-MS).

**Results:** These results showed that plant sterol levels were increased during aging in both cortex and hippocampus. DR had no influence on brassicasterol content in both cortex and hippocampus. Regarding cortex, DR maintained control levels of campesterol, stigmasterol and sitosterol during aging. In hippocampus, DR influenced campesterol and sitosterol levels in 24-month-old animals. DR affected stigmasterol content starting from 12 months of age.

**Conclusions:** Obtained results showed that DR counteracted age-induced accumulation of phytosterols in the brain, but potential beneficial role of DR in this case had to be further elucidated.