

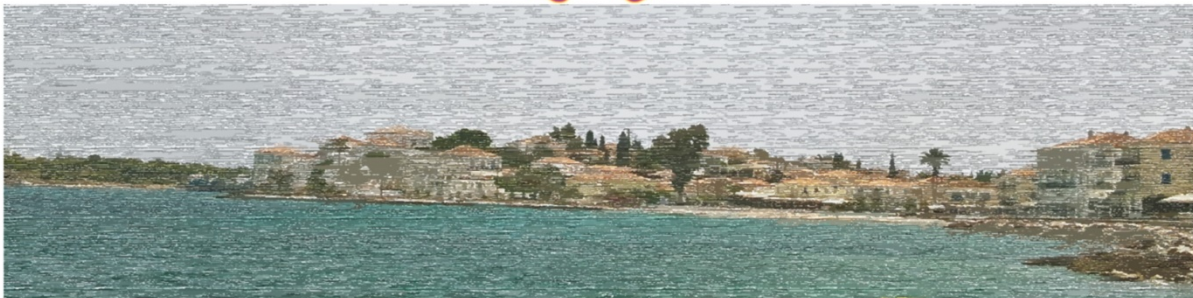
# Book of Abstracts



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# The effect of the duration of dietary restriction on insulin signaling pathway in the hippocampus of male Wistar rats

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It has been shown that insulin has an important role in many processes in the brain, like upholding the nutritional homeostasis in the hypothalamus and synaptic plasticity in the hippocampus. Insulin exerts its effects by acting through the insulin signaling pathway. During aging, chronic activation of this pathway can occur, leading to insulin resistance, which is in the basis of many neurodegenerative diseases. Numerous environmental factors, such as dietary restriction (DR), can postpone and / or slow down many of the age-related processes. It is assumed that DR exerts its effect on insulin resistance through the insulin signaling pathway.

In this experiment we studied the effect of 40% DR (60% of ad libitum daily intake) on the expression of insulin, as well as on the amount of total (IR $\beta$ ) and active (pIR $\beta$ ) form of insulin receptor in the hippocampus of male Wistar rats. We examined the effect of three different types of DR: DR1, which started at 6 months of age and lasted up to 18 and 24 months, DR2, which lasted 6 months (12-18 months and 18-24 months of age), and DR3, which lasted 3 months (15-18 months and 21-24 months of age).

Our results showed that long-term DR1 led to a decrease in activity of insulin signaling pathway in the hippocampus of both 18- and 24-month-old male Wistar rats, which can further play a role in the prevention of neurodegenerative diseases.

\* The authors marked with an asterisk equally contributed to the work.