

P40 – Probiotics modify body weight together with anxiety states via pro-inflammatory factors in HFD-treated Syrian golden hamster

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Background: Emerging studies are beginning to suggest that emotional states together with healthful measures constitute pertinent features of our lifestyle in which bad eating habits but more importantly what our gut has to host are causing great concern. It is well known that humans have established mutual relationships with a wide array of colonized microbes (collectively called gut microbiota) consisting of bacteria, fungi, eukaryotic parasites and viruses. The gut microbiota has exhibited a notable ability of communicating with the brain via a two-way system that includes the vagus nerve, immune sites, and a number of neurotransmitters. Interestingly, stressful along with obesity, cognitive, and brain developmental states are strongly influenced by microbiota homeostatic conditions.

Objective: It was our aim to investigate behavioral and obesity effects evoked by treatment with probiotics via neuroinflammatory factors and namely IL-1 β , NLRP3, Caspase-1 and NF-kB levels in the Syrian golden hamster.

Methods: Following treatment with a high-fat diet (HFD), hamsters in the presence or absence of a multi-species probiotic formulation were exposed to an unpredictable chronic mild stress (UCMS) test for 4 weeks.

Results: Independently of the diet, probiotics treatment markedly reduced stress-like behaviors in the different mazes. Moreover, probiotics decreased hypothalamic expression levels of the pro-neuroinflammatory factors like IL-1 β , NLRP3, Caspase-1 and NF-kB, whereas HFD increased them. Contextually, they decreased plasmatic levels of IL-1 β , NLRP3 and caspase-1 but not NF-kB.

Conclusion: Our findings clearly support probiotics as a potentially valuable treatment strategy in obesity and anxiety, thereby proposing them for clinical treatments in patients with metabolic and mood disorders.

References

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