

Preliminary Findings on the Effects of High Intakes of Fructose and Galactose With or Without Fructooligosaccharides on Inflammatory Markers and Blood Lipid in Rats

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Objectives: A high intake of sugars is associated with adverse metabolic effects in animal models and humans. However, little is known about the potential of simultaneously ingested dietary fibers to attenuate the negative effects of sugars. The current study thus aimed to investigate the effects of high intakes of fructose or galactose with or without fructooligosaccharides (FOS) on inflammation and blood lipids in rats.

Methods: Sprague-Dawley rats (6/group) were fed a control diet (5% fat, 35% starch) or isocaloric Western-type diets as follows: positive control (20% fat, 35% starch), fructose (20% fat, 10% starch, 25%

fructose), galactose (20% fat, 10% starch, 25% galactose), FOS control (20% fat, 30% starch, 10% FOS), fructose + FOS (20% fat, 5% starch, 25% fructose, 10% FOS), and galactose + FOS (20% fat, 5% starch, 25% galactose, 10% FOS). After 8 weeks, rats were sacrificed after an overnight fast and blood and tissue samples collected and stored at -80°C until analyses.

Results: No differences in body weight gain, fasting blood glucose, markers of systemic (CRP, $\text{TNF}\alpha$, LPS) or hepatic inflammation ($\text{TNF}\alpha$), or blood lipids were observed between groups. The presence of FOS in the diets significantly reduced feed intake compared to the respective starch control group, but not compared to the isocaloric diets containing only the sugars.

Conclusions: These preliminary results suggest that fructose and galactose, even at high doses in the diet for 8 weeks, do not affect systemic inflammation or blood lipids in rats. Hence, no attenuating effect of the simultaneous intake of FOS could be observed.

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