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Poly Phenols Could be an Important Weapon against Obesity and Metabolic Syndrome

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Obesity and Metabolic Syndrome (MS) increase the risk for atherosclerotic cardiovascular disease and type 2 Diabetes Mellitus. Fructose consumption has been associated with MS development and a substantial increase in both consumption of this sugar and MS incidence has been observed during the last 30 years. Dietary polyphenols have been largely studied due to their human health benefits. Several polyphenols are known to interfere with the intestinal absorption of glucose, but little is known concerning the effect of these phytochemicals on fructose intestinal absorption.

On our first work, we have concluded that quercetin, apigenin, and chrysin were found to be effective inhibitors of ¹⁴C-fructose uptake by Caco-2 cells and they appear to interfere with GLUT2-mediated ¹⁴C-fructose uptake. Moreover, they are stunning inhibitors of GLUT2 and GLUT5 gene expression. This suggests that these compounds might decrease the intestinal absorption of fructose, with beneficial effects on type 2 diabetes, obesity and MS. Furthermore, other study conducted by our group showed that dietary polyphenol chrysin abolished the increase in glucose intestinal uptake (Caco-2 cells) induced by oxidative stress environment (TBH). Finally, in the latest work made by our group with an animal model of MS we verified that chrysin was able to revert some of the MS/Obesity characteristics induced by fructose, namely hypertension, hepatic fibrosis, hyperinsulinemia, and the increase in angiotensin II and TAG serum levels.

More works are needed about these themes; however, we could conclude that dietary polyphenols might be an important role to prevent or treat Obesity and MS.

References:

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