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# Effects of a whey proteins supplementation on oxidative stress, body composition and glucose metabolism among overweight people affected by diabetes mellitus o impaired fasting glucose: a pilot study

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## Abstract

Obesity and diabetes mellitus type 2 (DM2) are characterized by chronic inflammation and oxidative stress [Donath et al 2013] and this leads to cardiovascular diseases [Hulsmans & Holvoet 2010]. Whey proteins (WP) have antioxidant [Chitapanarux et al 2009], anti-inflammatory [Sugawara et al 2012] and hypoglycemic activities [Mignone et al 2015], while data on weight, body composition [Frestedt et al 2008; Aldrich et al 2011] and blood pressure are conflicting [Kawase et al 2000; Lee et al 2007]. WP have unpleasant taste and smell [Patel 2015], but a new WP isolate (ProLYOtin®) seems to be more palatable. 40g/die of ProLYOtin® were supplemented to overweight people (n°=31) with impaired fasting glucose/DM2 for 12 weeks. Markers of antioxidant status (total antioxidant status, glutathione peroxidase, glutathione reductase, uric acid), oxidative damage (thiobarbituric acid reactive substances, advanced oxidation protein products, 8-hydroxydeoxyguanosine), inflammation (interleukin-6, high sensitive reactive protein C) and glicemic status (fasting glucose, insulin, glycated hemoglobin), anthropometric data (weight, height, waist circumference), body composition (body cell mass, fat mass), blood pressure, hand grip strenght and skin autofluorescence were measured before and at the end of supplementation. Isolate palatability was evaluated. An increase in glutathione peroxidase, a decrease in uric acid and no change in glutathione reductase, total antioxidant status, oxidative damage, inflammation and glucose markers were found. Significative improvements in anthropometric parameters and fat mass were detected. There wasn't any change in blood pressure, skin autofluorescence and physical performance. 2/3 of subjects judged the supplement positively. ProLYOtin® seems suitable for treatment of OS and overweight.