

Study suggests consuming whey protein before meals could help improve blood glucose control in diabetics

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New research published in *Diabetologia* (the journal of the European Association for the Study of Diabetes) suggests that consuming whey protein before a regular breakfast reduces the blood sugar spikes seen after meals and also improves the body's insulin response. Thus whey protein could be an additional tool to help control blood sugar in patients with diabetes. The research was conducted in Israel by Professor Daniela Jakubowicz and Dr Julio Wainstein (Wolfson Medical Center, Tel Aviv University), Professor Oren Froy (Hebrew University of Jerusalem), Professor Bo Ahrén (Lund University, Sweden) and colleagues.

Protein consumption is known to stimulate the production of glucagon-like peptide-1 (GLP-1), a gut hormone that in turn stimulates [insulin](#) production. Thus the researchers hypothesised that stimulating GLP-1 production by consuming [whey protein](#) before a meal would improve the body's [blood sugar](#) control following a meal.

The study included 15 people with well-controlled type 2 diabetes who were not taking any medications except for sulfonylureas or metformin (oral diabetes drugs). These participants consumed, on two separate days, 50 g whey in 250 ml water or placebo (250 ml water) followed by a standardised high-glycaemic-index breakfast in a hospital setting. The breakfast contained 3 slices of white bread and sugar-containing jelly, a meal designed to produce the maximum post-meal glucose spike. A blood sample was taken 30 minutes before the meal, and the whey

protein or placebo drink was served at that point. Further blood samples were taken when the meal was served (0 mins) and at 15, 30, 60, 90, 120, 150 and 180 mins.

Patients were randomised to either the whey protein or placebo arm of the study, but the crossover design of the trial meant that all participants did both the whey protein and placebo arms, with two weeks between visits. This design also means that the study was statistically well powered despite the small number of participants.

The results showed that over the whole 180 min post-meal period, glucose levels were reduced by 28% after whey protein pre-load compared with no whey protein. Insulin and C-peptide (a building block of insulin) responses were both significantly higher (by 105% and 43%, respectively) in the whey protein group. Notably, the early insulin response (meaning within the first 30 minutes following breakfast) was 96% higher after whey protein than with placebo. This is especially important since the loss of early insulin response is the most important deficiency in diabetic individuals and a major contributor to the post-meal rise in blood glucose. Additionally, both total GLP-1 (tGLP-1) and intact GLP-1 (iGLP-1) levels were significantly higher (by 141% and 298%, respectively) with whey protein pre-load.

The authors conclude: "In summary, consumption of whey protein shortly before a high-glycaemic-index breakfast increased the early and late post-meal insulin secretion, improved GLP-1 responses and reduced post-meal blood sugar levels in type 2 diabetic patients. Whey protein may therefore represent a novel approach for enhancing glucose-lowering strategies in type 2 diabetes." They add that such treatment would be cheap and easy to administer, with patients able to use any brand of whey protein concentrate which has no added sugar or other nutrients.

Based on the findings of this study, the authors are considering conducting a long-term clinical trial to discover if the beneficial effects of administering whey protein on blood sugar, insulin, and GLP-1 are long lasting.

Provided by Diabetologia

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