Pre-exercise whey protein ingestion to mitigate exercise-induced hypoglycemia in adults with type 1 diabetes.

**Aim:** In people with type 1 diabetes (T1D), exercise significantly increases hypoglycaemia risk. This study aimedto investigate if pre-exercise ingestion of whey protein can minimise exercise-induced hypoglycaemia in adults with T1D.

**Method:** Twelve adults (mean ± SD age: 49.8±16.6 years, HbA1C: 6.8±0.8%, weight: 78.6 ± 14.6 kg) with T1D using Medtronic 780G underwent four 60min moderate intensity exercise (MIE) sessions at 50% VO2max. Two sessions included a standard meal 4h pre-exercise (low insulin-on-board) and two included a standard meal 2h pre-exercise (high insulin-on-board) and each was preceded in random order by either water (control) or WPI (0.5g/kg of body weight) 30min pre-exercise. All sessions were completed in the afternoon (12:00-17:00) and a temporary target was set 2h pre-exercise. CGM data was collected from 60min pre-exercise until 2h post-exercise.

**Results:** Protein ingestion mitigated the drop in glucose during exercise compared to control for both the low insulin-on-board condition (-1.85 ± 0.78 vs -4.13 ± 2.12 mmol/l, mean ± SD) and the high insulin-on-board condition (+1.05 ± 2.39 vs -1.80 ± 2.68 mmol/l, mean ± SD) and reduced the number of hypoglycaemic events during exercise for both the low insulin-on-board condition (0/12 [0%] vs 2/12 [18%], n[%]) and high insulin-on-board condition (5/6 [83%] vs 0/6 [0%], n[%]).

**Conclusion:** Whey protein (0.5g/kg) ingested 30min pre-exercise mitigates the drop in glucose during 60min of MIE, which may have significant utility as a hypoglycaemia-prevention tool for people with T1D wishing to exercise.



