

## **Food preferences in children with insulin-induced hypoglycaemia.**

**Key Words:** Diabetes, Hypoglycaemia, Glucose, Food Preferences, Insulin Tolerance Test

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### **Background:**

Hypoglycaemia is a threatening condition for people with diabetes who are undergoing insulin therapy, particularly if the individual is unaware of the symptoms. Treatment of a hypoglycaemic episode entails the consumption of specific foods that can quickly restore blood glucose levels to normal. However, evidence suggests that many adults who experience hypoglycaemia struggle to make the accurate food choices, thus prolonging and worsening the hypoglycaemic episode. Past experiences and acquired food preferences may be influencing appetite, and may be overriding the guidelines people receive when they initiate insulin therapy. This research can be expected to increase understanding of the role of glucoprivation in triggering increased appetite, and perhaps 'carbohydrate hunger', and in doing so inform dietary interventions for weight management in type 2 diabetes.

### **Aims & Objectives:**

To assess the food preferences of children when they develop hypoglycaemia after the intravenous administration of insulin.

To explore the potential role of age and food familiarity on changes in food preferences across varying blood glucose levels.

### **Method:**

The participants will be children of ages 5 to 18 years who attend the Bristol Royal Hospital for Children to undergo an Insulin Tolerance Test (ITT) as part of a growth hormone assessment for poor linear growth.

On the day of the ITT, participants will be asked to rate their hunger, indicate the food they would like to eat the most at that point in time, and will complete a food preference task using a tablet. This will form the baseline assessment (-30 minutes). A cannula will be inserted as per standard clinical assessment protocol. Participants will receive intravenous soluble insulin (0.1 to 0.15U/Kg), and blood samples for cortisol, GH and glucose analysis will be collected at -30, 0, 5, 10, 20, 30, 60, 90 and 120 minutes. Pulse rate and blood pressure will be examined with the blood samples. Symptoms and signs of hypoglycaemia will be recorded.

Assessment of hunger and food preferences will be conducted again at minutes 7, 20 and 90 post-injection. Parents/guardians will be asked to complete a food familiarity questionnaire, and

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participants will be asked to guess the objectives of the study and briefly describe their subjective experience. The participants' intake of the food and drink provided by the specialized clinical nurse during the ITT will be measured. The study will have ended.

**Outcome measures:**

The outcome measure will be changes in food preferences as the blood glucose levels are altered by the ITT.