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**Relationship between the rate of intestinal glucose absorption and glycemic index in rats**
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**Background** – The incretin hormones such as GIP and GLP-1 are released from endocrine cells in the intestinal mucosa after ingestion of carbohydrates and enhance postprandial insulin release from the pancreatic beta cells. The released insulin stimulates glucose uptake in skeletal muscles and adipocytes, and the enhancement of the glucose disappearance rate from blood (glucose clearance: GC) is promoted by the facilitative subcellular redistribution of the glucose transporter isoform (GLUT4) from an intracellular compartment to the plasma membrane. The ability to stimulate incretin hormone secretion differs among the various types of carbohydrates.

**Objective** – To clarify the relationship between the insulin release (AUC of plasma insulin concentration: AUC\(_{\text{INS}}\)) and GC after intravenous and oral administration of glucose, and to examine whether the relationship can be used to predict the intestinal glucose absorption rate after intakes of various types of carbohydrates such as sucrose.

**Design** – The glucose was intravenously infused into male Wistar rats. The oral glucose tolerance test (OGTT) was also performed using Trelan-G. Sucrose was administered orally. The alterations of plasma glucose and insulin concentrations were measured, and the simple kinetic model was used to determine their GC.

**Outcomes and Conclusions** – The values of AUC\(_{\text{INS}}\) and GC after oral administration of glucose were greater than those after intravenous infusion of the same amount of glucose. There was a strong positive correlation between AUC\(_{\text{INS}}\) and GC after either intravenous or oral administration of glucose. It was clarified that the intestinal glucose absorption rate after intake of sucrose could be predicted from the relationship between AUC\(_{\text{INS}}\) and GC.

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**Available oxalate content of nuts**
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**Background** – Nuts are often referred to as high oxalate containing foods but reliable data on the oxalate content of many commonly eaten nuts are hard to find.

**Objectives** - This study was conducted to determine the oxalate contents in common nuts either grown or imported into New Zealand. Samples of imported nuts were purchased from supermarkets in Christchurch while home-grown nuts were obtained directly from the growers. Gastric soluble and intestinal soluble oxalates were extracted from the nuts using an *in vitro* assay. The extracted oxalates were then determined by HPLC chromatography.

**Outcomes** – The gastric soluble oxalate contents of the nuts represent the total oxalate in the samples, however, the more interesting fraction is the intestinal soluble oxalate. This is the fraction that will be absorbed in the small intestine. Peanuts, Spanish peanuts, peanut butter, ginkgo and pecan nuts all contained relatively low levels of intestinal soluble oxalate ranging from 129 to 173 mg intestinal soluble oxalate/100 g fresh weight (FW). Almonds, Brazil, cashew and candle nuts contained higher levels of intestinal soluble oxalate ranging from 216 to 305 mg/100 g FW. Pine nuts contained the highest levels of intestinal soluble oxalate (581 mg/100 g FW) while in contrast, chestnuts and pistachio nuts were low (72 and 77 mg/100 g FW). Over all the nuts studied the mean soluble oxalate contents was 78% of the total oxalate content (range 41 to 100%).

**Conclusion** – The results obtained in this study confirm that the soluble oxalate contents of nuts range widely and people who have a tendency to form kidney stones would be wise to moderate their consumption of certain nuts.