

Snacking and Glycaemia

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Chronic hyperglycaemia is the main risk factor for diabetic complications. However, glycaemic excursions (GE) which includes within-day glucose fluctuations (peaks to nadirs), may contribute independently to the development of diabetic complications irrespective of HbA1c.¹ Poorly chosen meals and snacks have the potential to contribute significantly to GE.

DO AUSTRALIANS EAT HEALTHY SNACKS?

Snacking was one of the top five consumer trends in 2019 and is expected to gain further momentum in the future.² An Australian focus group study found that participants aged over 60 years were not eating a proper breakfast or dinner but were 'snacking' throughout the day.³ In 2014 the most popular snacks in Australia in decreasing order were: potato chips, nuts, savoury biscuits, ice-cream, lollies, plain yoghurt, sweet biscuits, fruit yoghurt, chocolate bars, corn chips, muesli bars and natural snacks.⁴ Discretionary nutrient poor snack foods contribute over 30% of energy intake.⁵ These are disturbing snack statistics for the management of GE and given the increasing popularity of snacks it behooves the need for healthier snacks.

DOES SNACKING AFFECT HUNGER, WEIGHT AND GLYCAEMIA?

A review on snacking concludes that healthy snacking results in reduced appetite before the main meals and promotes a more balanced secretion of gastrointestinal

hormones (including insulin and ghrelin) which in turn can reduce appetite and meal size, GE, cholesterol and body weight.⁶

IS TIMING OF SNACKS AND MEALS IMPORTANT?

A cross-sectional Japanese study showed that a late dinner, late-night snacks and skipping breakfast correlated with higher HbA1c and BMI in 31722 subjects with type 2 diabetes mellitus (T2DM).⁷ Another study on T2DM showed that consuming biscuits well separated from lunch can suppress GE later in the day.⁸ Eating sweet snacks post-dinner worsened GE after both dinner and the following day's breakfast in young healthy women.⁹

DO LOW GI SNACKS REDUCE GE?

A systematic review concluded that a low GI diet (meals and snacks) is more effective in controlling glycated haemoglobin and fasting blood glucose but not GE compared with a higher-GI diet in patients with T2DM.¹⁰ Similarly, low GI moderate protein snacks have not been shown to lower GE but can promote weight loss and fat mass loss.¹¹

SHOULD SNACKS BE LOWER CARB HIGHER PROTEIN?

Low carb diets (less than 130g carbs from meals and snacks per day) can result in a greater reduction in HbA1c in the short term only (up to 6 months) and greater reduction in body weight for up to 12 months.¹²

Lower-carb, higher fibre snacks can reduce GE and insulin levels to a greater extent than high-carb low fibre snacks^{13,14} and higher protein snacks also help to reduce GE.¹⁵ Baker IDI recommends the following nutritional composition for a healthy snack: 600kJ/serve, <2g saturated fat/100g, <15g sugar/100g (or <20g/100g if fruit is listed in the first 3 ingredients), >5g fibre/100g, <120mg sodium/100g.¹⁶ Even though there is no official definition for a "low carb high protein" snack one would expect it to have <10g carbs and >4g protein per serve.

FUNCTIONAL SNACKS FOR PEOPLE WITH DIABETES

Functional foods are any foods or food ingredients that may provide health benefits beyond the traditional nutrients it contains.¹⁷

NUTS: Peanuts or tree nuts decrease insulin resistance and fasting insulin but not HbA1c or fasting glucose.¹⁸

PULSES: ½ -1 cup cooked whole pulses in main meals may reduce GE in T2DM.¹⁹ Whole pulse snacks and pulse flours added to snacks may also lower GE.²⁰

LUPIN FLOUR SNACK: Lupin is also a pulse but contains a protein gamma conglutinin not found in other legumes that can lower blood glucose.²¹ Lupin enriched commercial biscuits containing a total of only one tablespoon of lupin flour, reduced GE in hospitalised patients with T2DM.²²

RAISINS: Raisins (36g to 90g/day) can reduce GE, fasting glucose and insulin compared to processed sweet snacks.²³

YOGHURT: T2DM consuming 300g probiotic yoghurt daily for 2 months had lower HbA1c and inflammatory markers than subjects consuming regular yoghurt.²⁴

DIABETES-SPECIFIC FORMULAS: Glucerna reduces GE in T2DM when consumed for breakfast^{25,26} lunch or dinner,²⁷ improves insulin sensitivity²⁸ and increases satiety hormones.²⁹ Its nutritional profile also makes it suitable to be used as a healthy snack.

Glucerna® health shake makes a great snack option, with these added benefits:*

- ✓ Made specifically for those managing blood glucose levels eg. People with diabetes³⁰, including those with gestational diabetes
- ✓ Contains low GI carbohydrates to help minimise spikes in blood glucose levels^{31,32}
- ✓ Contains 28 essential vitamins and minerals, including: iron, chromium, zinc, selenium, folic acid and choline³⁰
- ✓ Contains prebiotic fibre to support healthy gut function³³
- ✓ Contains healthy fats such as omega-3s which help support a healthy heart³⁴
- ✓ Is a convenient, practical dietary solution to help balance the need for adequate nutrition and glycaemic control at a time when making good nutritional choices can be challenging.



Glucerna® is a Food for Special Medical Purposes. Use under medical supervision.

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