NATIONAL MEDICINES SYMPOSIUM 2025

Food is Medicine – Medical Nutrition Therapy for Diabetes

Optimising diet with/without pharmacological therapy

Dr Robyn Barnes

Diabetes Coordinator PhD, APD, CDE

Senior Diabetes Dietitian

South Western Sydney Local Health District

Food as medicine

Intervention Type	Average HbA1c Reduction
Medical Nutrition Therapy (MNT)	0.3% – 2.0% (structured, low-carb)
Metformin (biguanide)	~1.1% (range 0.9–1.3%)
Sulfonylureas	~1.5% (range 1.0–2.0%)
Thiazolidinediones (TZDs)	~1.0% (range 1.2–2.3%)
DPP-4 inhibitors	~0.66%
SGLT2 inhibitors	~0.83%
GLP-1 receptor agonists	~1.24%

Note: Actual reductions may vary based on baseline HbA1c, duration, patient population

Liu, Y., Li, H., Zhao, Q. *et al. Nutr Metab (Lond)* **22**, 94 (2025).
Mottalib A et al Nutr J. 2018 Apr 7;17(1):42.

NATIONAL MEDICINES SYMPOSIUM 2025

The evidence for Medical Nutrition Therapy

Impact of Dietary Patterns on Glycaemic Control in Type 2 Diabetes

- **Low-Carbohydrate Diet**
  - ↓ HbA1c up to 0.5–1.0% (short-term)
  - Greater weight loss, effect may lessen over time
- **Mediterranean Diet**
  - ↓ HbA1c by ~0.3–0.5%
  - Improves insulin sensitivity, cardiovascular outcomes
- **Plant-Based / Vegetarian / Vegan**
  - ↓ HbA1c by ~0.3–0.5%
  - High fibre → improved postprandial glucose
- **DASH (Dietary Approaches to Stop Hypertension)**
  - ↓ HbA1c by ~0.2–0.4%
  - Strong cardiovascular benefits
- **Low-Glycaemic Index Diet**
  - ↓ HbA1c by ~0.3–0.5%
  - Reduced glucose variability

Evert, Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report. *Diabetes Care* 1 May 2019; 42 (5):

NATIONAL MEDICINES SYMPOSIUM 2025

Healthy carbohydrate?

NATIONAL MEDICINES SYMPOSIUM 2025

Carbohydrate controversy?

- Both the type and total amount of carbohydrate (CHO) consumed influences glycemia.
- Higher intakes of dietary fibre are associated with improvements in body weight, cholesterol concentrations, and blood pressure.[2]
- Benefits with higher fibre intakes have been observed in the general population, for those with type 1, type 2, and pre-diabetes, and those with hypertension or heart disease. [2]
- Eating plans should emphasize non-starchy vegetables, fruits, legumes, and whole grains, as well as dairy products with minimal added sugars. [2]
- There is less consistency of evidence for recommending an amount of overall CHO in the diet. [3]

1. Reynolds A, et al Carbohydrate quality and human health: a series of systematic reviews and meta-analyses. Lancet. 2019;393(10170):434-45.
2. The Diabetes Nutrition Study Group of the European Association for the Study of Diabetes (DNSG). Evidence-based European recommendations for the dietary management of diabetes. Diabetologia. 2023;66(6):965-85.
3. American Diabetes Association. 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2024. Diabetes Care. 2024;47(Supplement 1):S77-S110.

NATIONAL MEDICINES SYMPOSIUM 2025

Healthy low carbohydrate diet

- **Prioritize lean protein:** Incorporate lean meats, poultry, fish, eggs, and high-fat dairy like cheese, butter, and Greek yogurt.
- **Choose healthy fats:** Include avocados, nuts, seeds, and oils like olive and coconut oil.
- **Focus on non-starchy vegetables:** Enjoy leafy greens, broccoli, cauliflower, asparagus, and other vegetables low in carbs.
- **Limit added sugars:** Avoid sugary drinks, desserts, and processed foods.
- **Consider low-carb fruits:** Include berries, oranges, and apples in moderation.
- **Manage portion sizes:** Pay attention to calorie and macronutrient intake to ensure optimal results, especially if aiming for weight loss

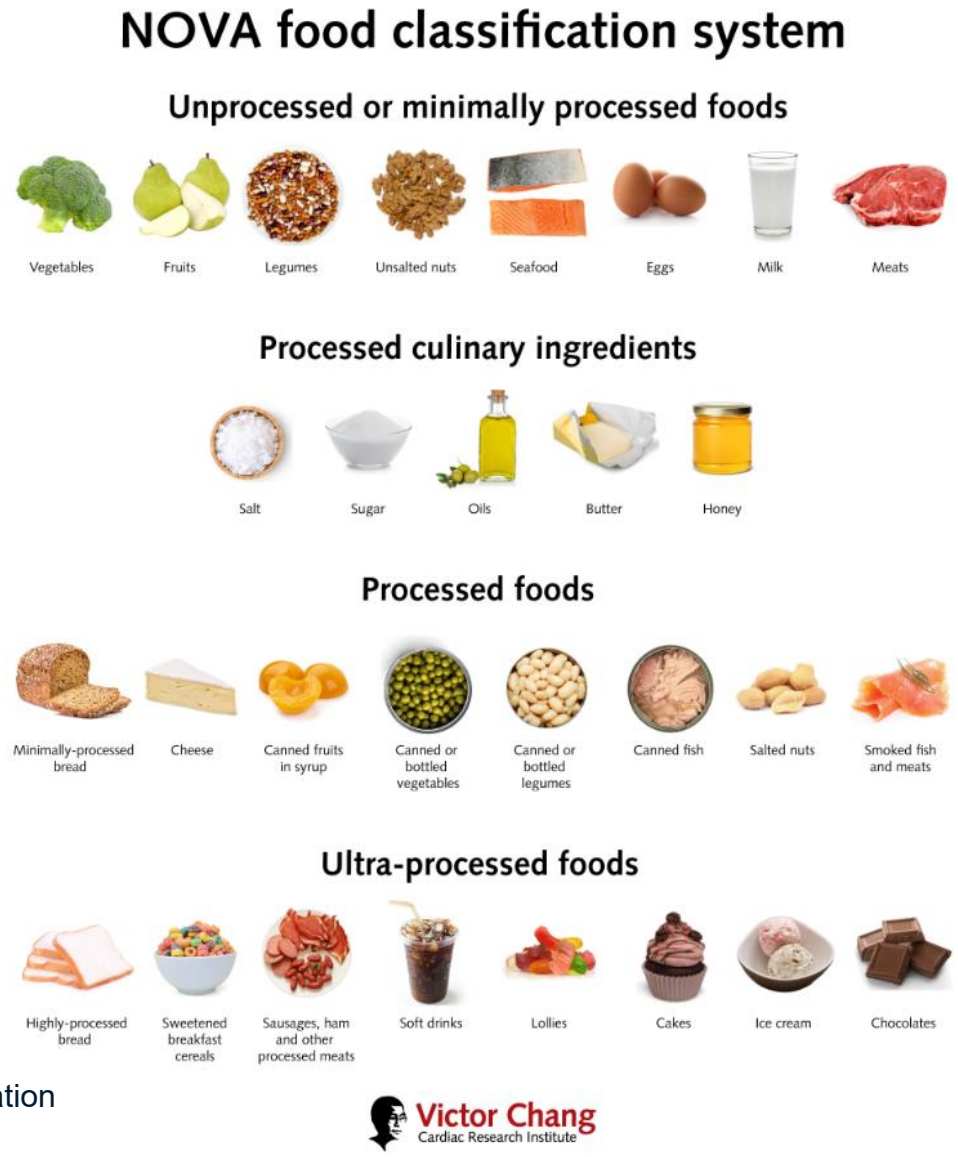
Australian Commission on **Safety and Quality** in Health Care

Mediterranean diet

- High in unsaturated fats
- High in a diverse range of fruits and vegetables
- High in legumes, nuts and wholegrains
- Lower in refined grains
- Lower in red meats, and processed meats
- Lower in ultra processed food

NATIONAL MEDICINES SYMPOSIUM 2025

Ultra processed foods



Monteiro, C.A., Cannon, G., Lawrence, M., Louzada, M.L.C., & Machado, P.P. (2019). Ultra-processed foods, diet quality and health using the NOVA classification system.

Victor Chang Cardiac Research Institute

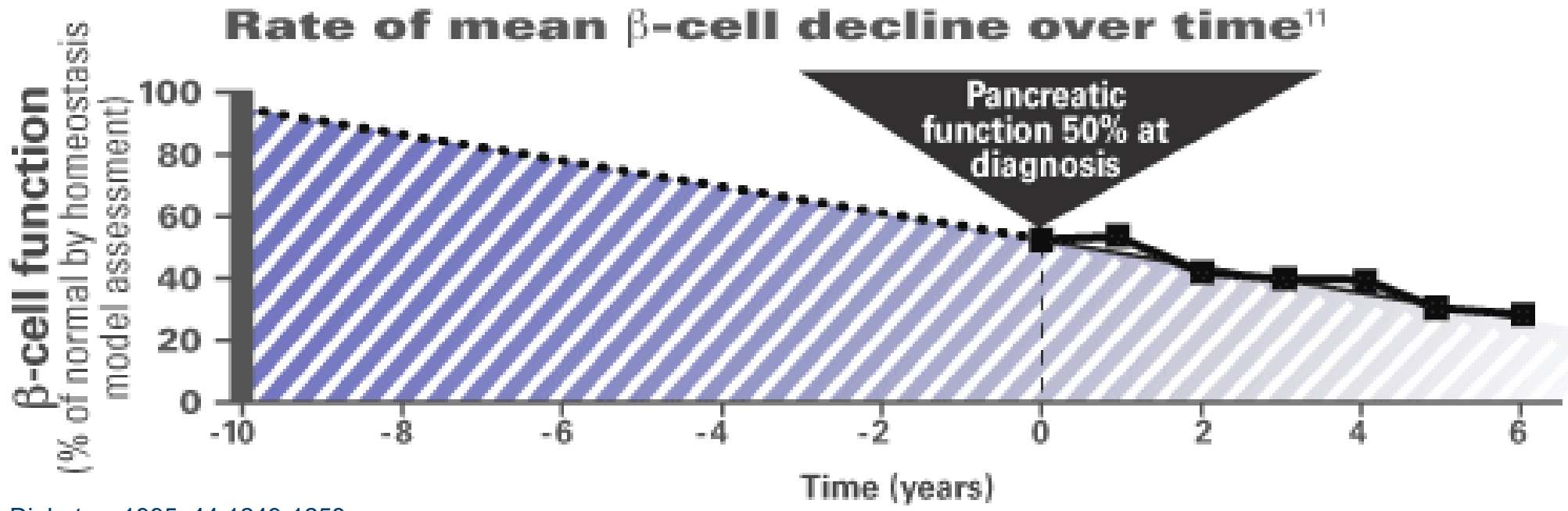
Australian Commission on **Safety and Quality** in Health Care

Concurrent reductions with lifestyle intervention in type 2 diabetes

Measure	Approximate Change
HbA1c (%)	↓ 0.6 – 1.8
Weight (kg)	↓ 4 – 10
Systolic BP (mmHg)	↓ 5 – 15
LDL-C (mg/dL)	↓ 10 – 35

Data from meta-analysis of lifestyle interventions in type 2 diabetes (European J Cardiovascular Medicine, 2022).

Progressive nature of type 2 diabetes

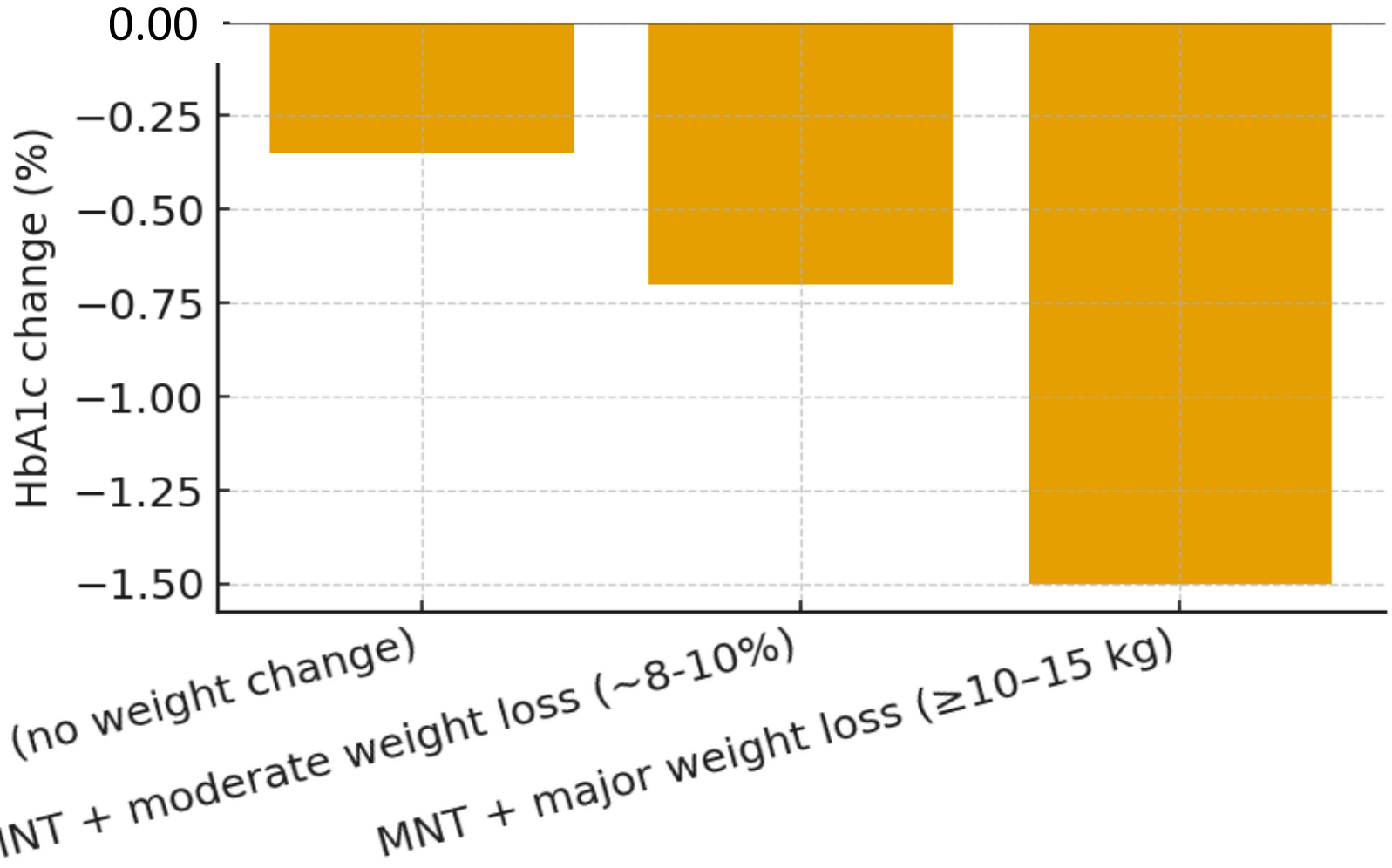


UKPDS, Diabetes, 1995, 44:1249-1258

Medical Nutrition Therapy should treat the underlying cause

NATIONAL MEDICINES SYMPOSIUM 2025

HbA1c improvement with different amounts of weight-loss



1. Evert AB, Dennison M, Gardner CD, et al. Nutrition Therapy for Adults with Diabetes or Prediabetes: A Consensus Report. Diabetes Care. 2019.
2. Look AHEAD Research Group. One-year changes in HbA1c with intensive lifestyle intervention vs diabetes support & education. Diabetes Care. 2010.
3. Lean MEJ, Leslie WS, Barnes AC, et al. Primary care-led weight management for remission of type 2 diabetes (DiRECT). Lancet. 2017.

Cochrane Library

Trusted evidence.
Informed decisions.
Better health.

Cochrane Database of Systematic Reviews

[Intervention Review]

Low-carbohydrate versus balanced-carbohydrate diets for reducing weight and cardiovascular risk

61 parallel-arm RCTs that randomised 6925 participants to either low-carbohydrate or balanced-carbohydrate weight reducing diets.

In most trials (45/61) the energy prescription or approach used to restrict energy intake was similar in both groups.

Main findings

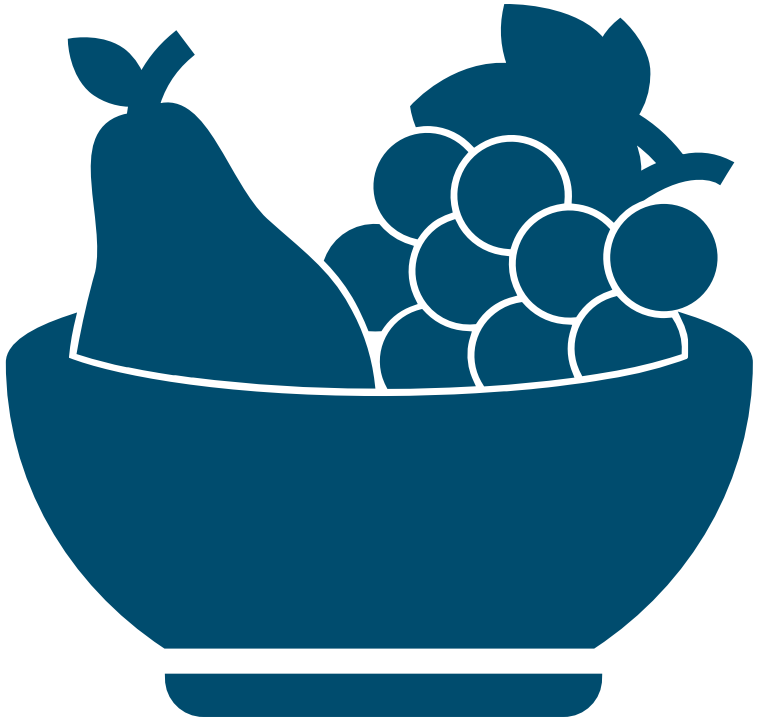
Low carbohydrate weight reducing diets probably result in little or no difference in weight loss over the short term (3-8.5 months) and long term (up to 2 years) compared to a balanced carbohydrate weight reducing diet in people with or without diabetes.

Australian Commission on **Safety and Quality** in Health Care

Citation: Naude CE, Brand A, Schoonees A, Nguyen KA, Chaplin M, Volmink J.Low-carbohydrate versus balanced-carbohydrate diets for reducing weight and cardiovascular risk. *Cochrane Database of Systematic Reviews* 2022, Issue 1. Art. No.: CD013334. DOI: 10.1002/14651858.CD013334.pub2.

NATIONAL MEDICINES SYMPOSIUM 2025

Weight management and type 2 diabetes



- Focusing on **reducing energy intake overall**, rather than through a specific macronutrient, frees up weight loss advice so that it can be **tailored** to the individual's personal, cultural, and social norms.
- Address **portion size**, the **energy density**, and factors that promote satiety such as fibre intakes.
- The dietary plan needs to be individualized, preferably with a **dietitian** familiar with diabetes management.
- The most important variable in selecting a weight loss plan is the **ability of the individual to follow it over the long term.**
- **Regular monitoring** and review will help promote and maintain weight loss.
- **Physical activity** recommendations alongside dietary changes should be moderate, gradually increasing the duration and frequency to at least 30 minutes a day of activities such as walking.

ES

Australian Commission on **Safety and Quality** in Health Care

SYSTEMATIC REVIEW

Intermittent fasting interventions for treatment of overweight and obesity in adults: a systematic review and meta-analysis

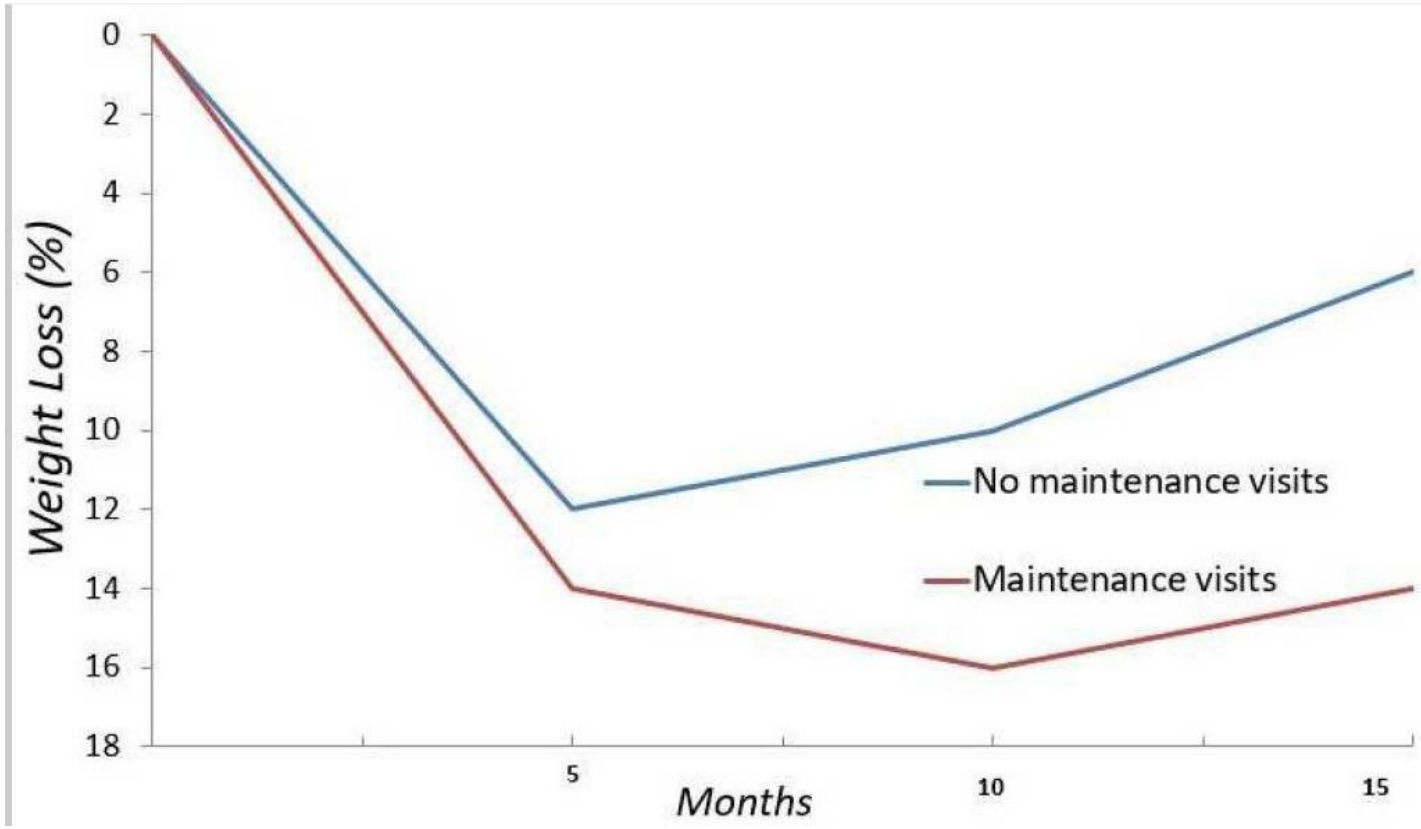
Leanne Harris[1] · Sharon Hamilton[2,3] · Liane B. Azevedo[2,3] · Joan Olajide[2,3] · Caroline De Brún[2,3] · Gillian Waller[2,3] · Vicki Whittaker[2,3] · Tracey Sharp[4] · Mike Lean[1] · Catherine Hankey[1,*] · Louisa Ells[1,3,*]

[1]College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, United Kingdom, [2]Health and Social Care Institute, Teesside University, Middlesbrough, United Kingdom, [3]Teesside Centre for Evidence Informed Practice: a Joanna Briggs Institute Centre of Excellence, United Kingdom, and [4]Independent Public Health Consultant, United Kingdom

- **Intermittent fasting** involves changing the “usual” daily energy intake to a much lower calorie intake.
- Intermittent energy restriction was comparable to continuous energy restriction for short term weight loss in overweight and obese adults
- **Time restricted eating** limits the window of eating from 6 to 10 hours. General safe and shown to have clinical benefits.
- Careful monitoring of blood glucose is required, and medication adjustment may be necessary.
- Overall, the **simplicity** of intermittent fasting and time-restricted eating may make these useful strategies for people with diabetes who are looking for practical eating management tools.

Harris L et al JBI Database System Rev Implement Rep. 2018 Feb;16(2):507-547.

Impact of long-term support on weight loss maintenance



Hall and Kahan. Med Clin North Am. 2018 Jan;102(1):183–197

Australian Guide to Healthy Eating

Enjoy a wide variety of nutritious foods from these five food groups every day.

Grain foods
4-9 serves

Vegetables
5 to 7.5 serves

Lean meat, legumes
2 to 3 ½ serves

Fruit: 2 serves

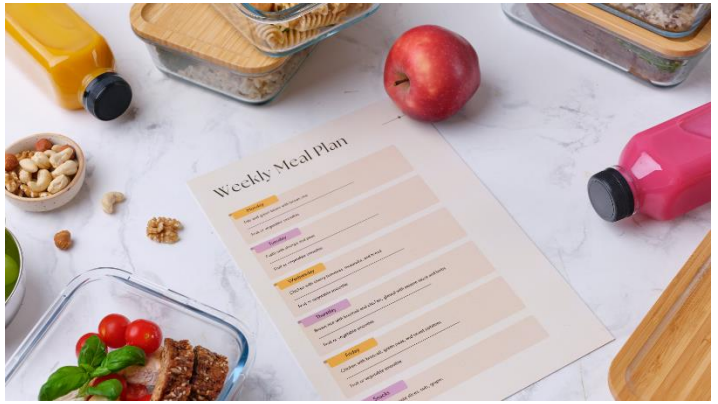
Dairy 2 ½ to
4 serves

NATIONAL MEDICINES SYMPOSIUM 2025

Tailoring dietary advice to

- Cultural background
- Personal food preferences
- Budget – protein is expensive, and so is packaged foods
- Ensure consistent dietary messaging throughout your team
- The patient's current diabetes therapies.
- Refer to dietitian

NATIONAL MEDICINES SYMPOSIUM 2025



Healthy eating on a budget

- Plan meals, and make (and follow) a list – reduces waste and impulse buying
- Avoiding shopping hungry
- Utilise seasonal produce
- Utilise fresh and canned options
- Choose cheaper cuts of meat and add more vegetables
- Freeze leftovers to reduce waste
- Minimise processed foods

Nearly 40% of our grocery budget goes toward chips, chocolate, soft drinks, and biscuits.

SMART changes

- **Specific**

Eg. Eat less takeaway meals

- **Measurable**

Reduce take-away from 4 to 2 times per week

- **Achievable** Can I do it?
- **Relevant** Will it help?
- **Timeframe**

eg. Achieve within 1 month

NATIONAL MEDICINES SYMPOSIUM 2025

Conclusions

Nutrition therapy is a **cornerstone of diabetes management**

Multiple dietary patterns (Mediterranean, Low-Carb, Plant-Based, DASH, Low-GI) can improve HbA1c (~0.3–2.0%)

Emphasize **whole foods, high fibre, healthy fats**, and limit refined carbohydrates

Individualization of eating patterns is essential – no one-size-fits-all approach

Nutrition interventions also support **weight management** and **cardiovascular risk reduction**

NATIONAL MEDICINES SYMPOSIUM 2025

Useful resources

- Baker Heart and Diabetes Institute https://www.baker.edu.au/health-hub/fact-sheets
- Diabetes Victoria https://www.diabetesvic.org.au/living-with-diabetes-landing/diabetes-and-nutrition/
- Diabetes Australia https://www.diabetesaustralia.com.au/living-with-diabetes/healthy-eating/
- Australian Guide to Healthy Eating https://www.eatforhealth.gov.au/guidelines/australian-guide-healthy-eating
- Dietitians Australia https://member.dietitiansaustralia.org.au/Portal/Portal/Search-Directories/Find-a-Dietitian.aspx
- NDSS facts sheets and videos https://www.ndss.com.au/managing-diabetes

Thank you

NATIONAL
MEDICINES
SYMPOSIUM
2025