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TE WĀNANGA ARONUI
O TĀMAKI MAKĀU RAU

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Te Ngako Oranga

REVERSING TYPE 2 DIABETES

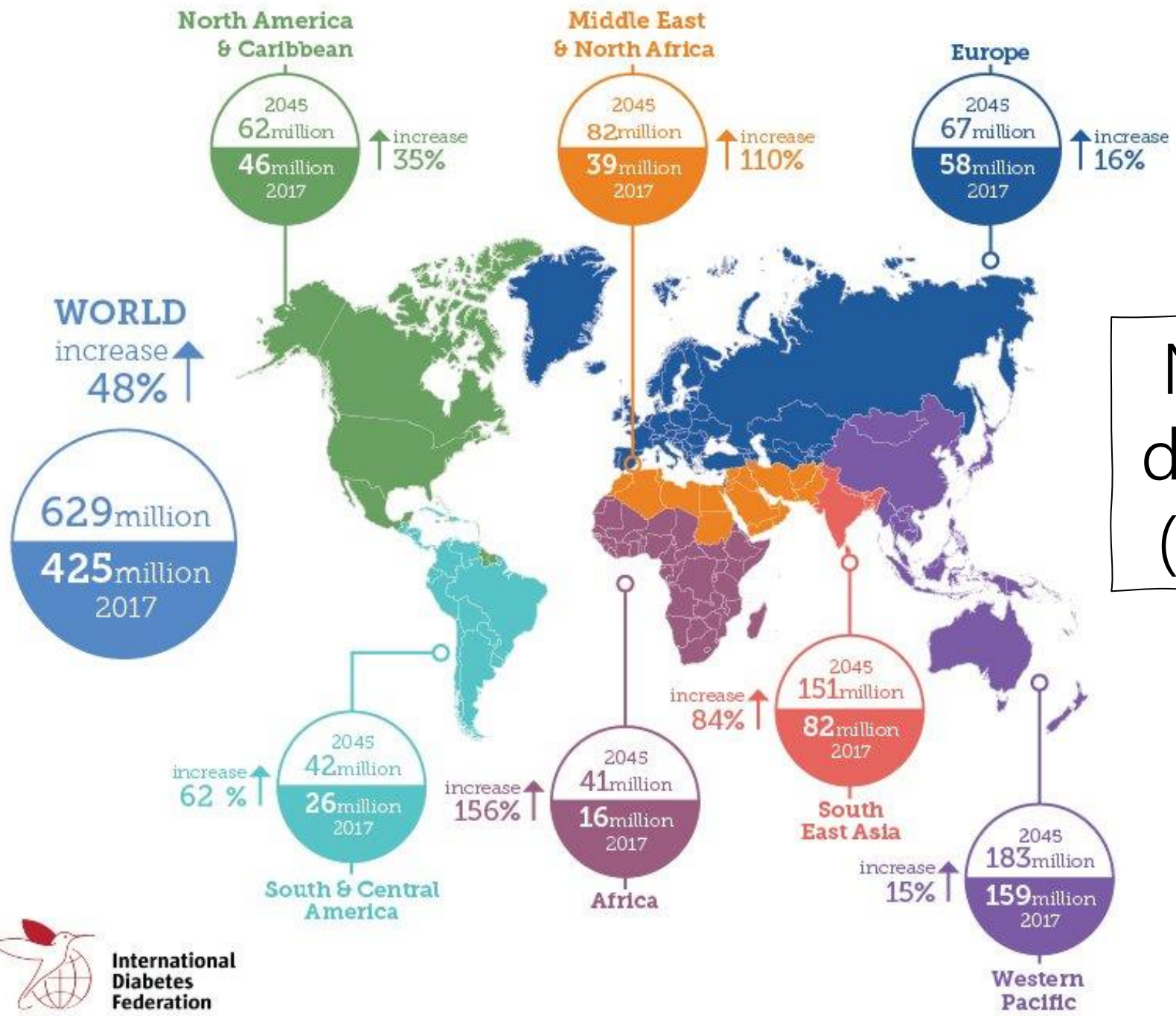
Reversing prediabetes & T2D in NZ in primary care

Caryn Zinn PhD. Dietitian

#WholeNZ

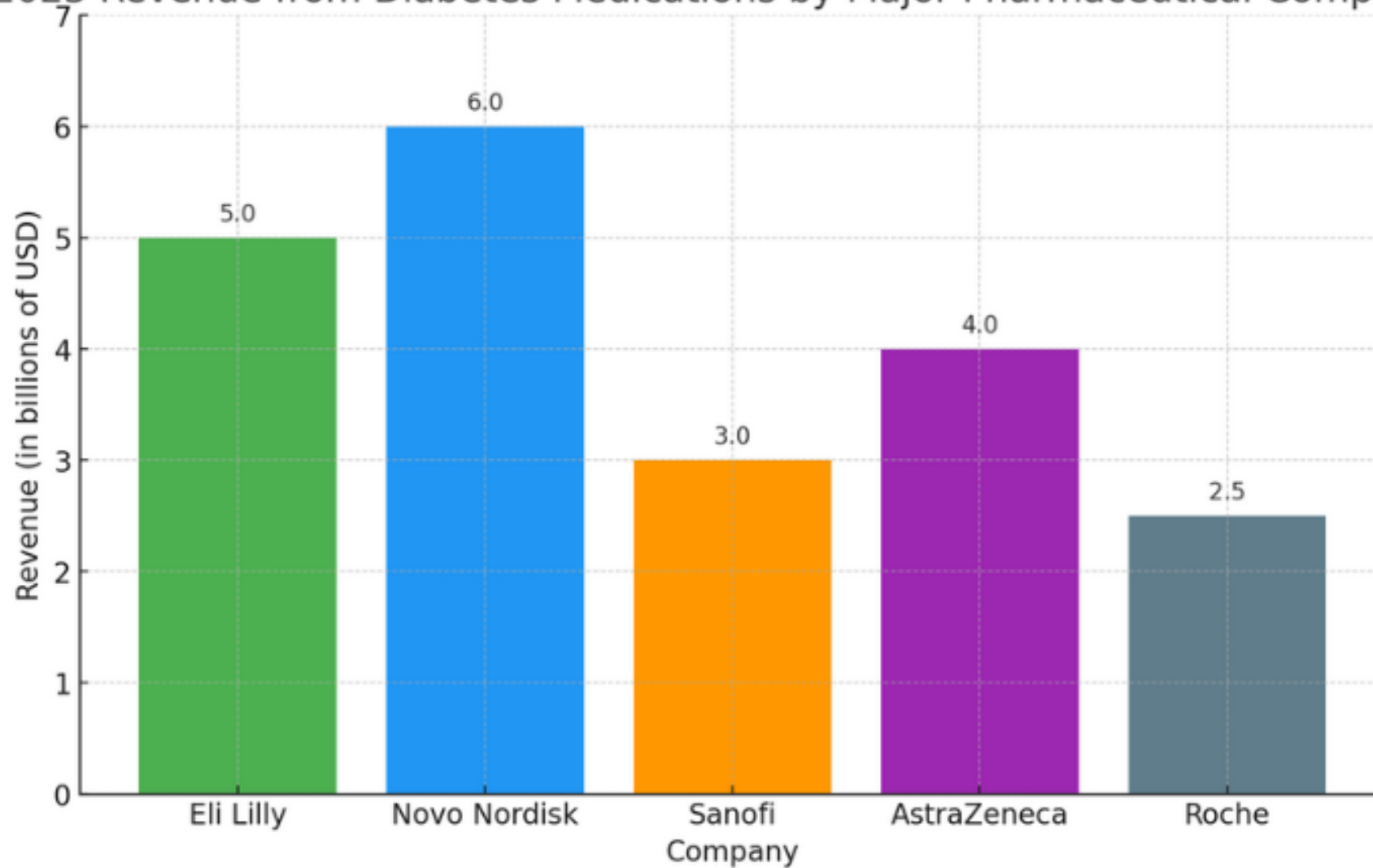
Reversing Type 2 Diabetes with #WholeFood





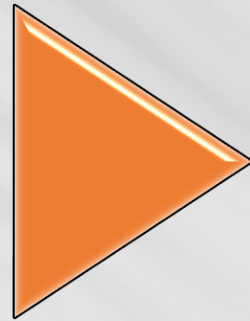
No of people with diabetes worldwide (in 2017 and 2045)

2023 Revenue from Diabetes Medications by Major Pharmaceutical Companies



**T2D is a chronic
progressive
disease**

The diagram consists of two circular nodes connected by a central arrow. The left node is orange and contains the text 'T2D is a chronic progressive disease'. The right node is grey and contains the text 'Prediabetes and T2D can be put into remission or reversed with diet and lifestyle'. The arrow is orange and points from the left node to the right node.



**Prediabetes and
T2D can be put
into remission
or reversed with
diet and
lifestyle**

Carbohydrate reduction is endorsed by ...

Diabetes UK (2017)

American Diabetes Assoc (2019)

European Assoc for the Study of Diabetes (2019)

Diabetes Canada (2020)

Diabetes Australia (2020)

Collaboration:
Diabetes Australia (2024) &
Defeat Diabetes



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The research project



AUT A/Prof Caryn
Zinn; Dietitian.
Project lead



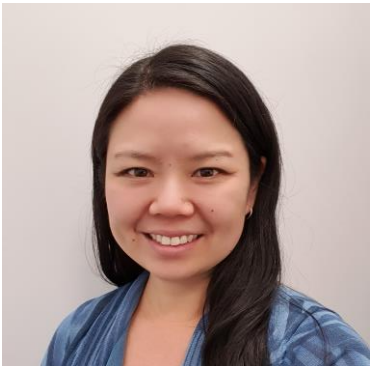
AUT Prof Grant
Schofield



AUT Dr Catherine
Crofts; Pharmacist



AUT Jacqui Pratt.
Research Manager



Dr Olivia Currie
RealHealthyMe



Dr Lizzie Loudon
St Martin's Medical



Dr Lily Fraser
Turuki Healthcare



Dr Glen Davies
Reversal NZ



Dr Marcus Hawkins
Botany Doctor



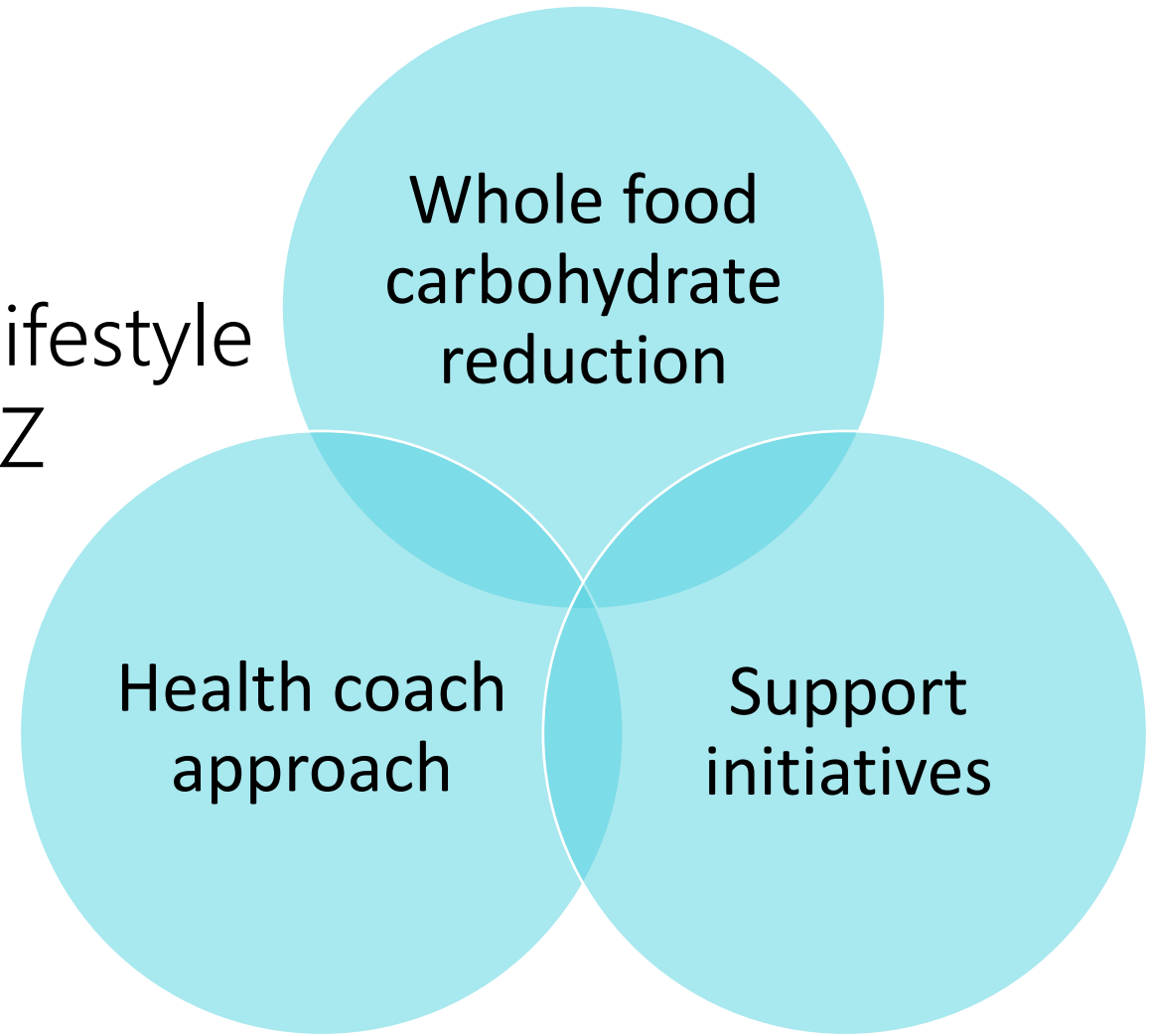
Dr David Unwin (UK)

AIM

To assess the effectiveness of a lifestyle model of care in primary care NZ

GOAL

Change healthcare delivery in NZ





Dr David Unwin (UK)

Original research

Open access

BMJ Nutrition,
Prevention & Health

What predicts drug-free type 2 diabetes remission? Insights from an 8-year general practice service evaluation of a lower carbohydrate diet with weight loss

David Unwin ^{1,2} Christine Delon ^{1,3} Jen Unwin,⁴ Simon Tobin,⁴ Roy Taylor⁵



- **93%*** of those with pre-diabetes achieved a normal HbA1c
 - **77%**** of those who have been diagnosed with T2D < 1 year and choose to try low carb achieved drug-free remission
 - **51% **** of those who have been diagnosed with T2D for an average duration 5.4 years achieved drug-free remission
-

Drug-free remission: Metabolic age is important

*Insights from a general practice service evaluation supporting a lower carbohydrate diet in patients with type 2 diabetes mellitus and prediabetes: Unwin, D., et al., BMJ Nutrition, Prevention & Health, 2020: p. bmjnph-2020-000072

**What predicts drug-free type 2 diabetes remission? Insights from an 8-year general practice service evaluation of a lower carbohydrate diet. Unwin D. Taylor R. et al. BMJ Nutrition

Dr Marcus Hawkins. Botany Doctor




Journal of Metabolic Health
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AOSIS

Page 1 of 11 Clinical Audits

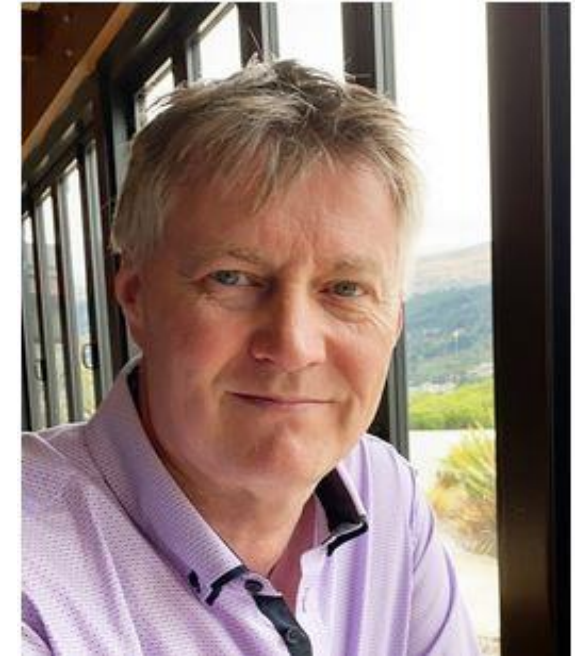
The application of carbohydrate-reduction in general practice: A medical audit



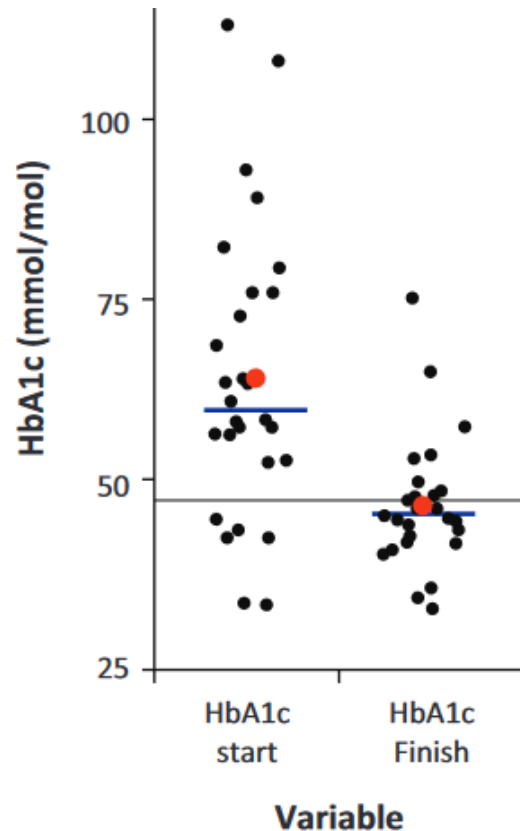
Authors:
Marcus A. Hawkins¹ 
Caryn Zinn² 
Christine Delon² 

Background: Carbohydrate-reduction has been used successfully in the management of conditions arising from insulin resistance.

Aim: In this audit, the authors report on metabolic outcomes from 72 patients in primary care



- **64%** of T2D (n=18) reversed (removed diabetes meds); 11% (n=3) in remission
- **4/5** patients reversed prediabetes
- **2** patients stopped insulin; **10** reduced or stopped other diabetes medications
- Patients lost **11 (\pm 8.4) kg**



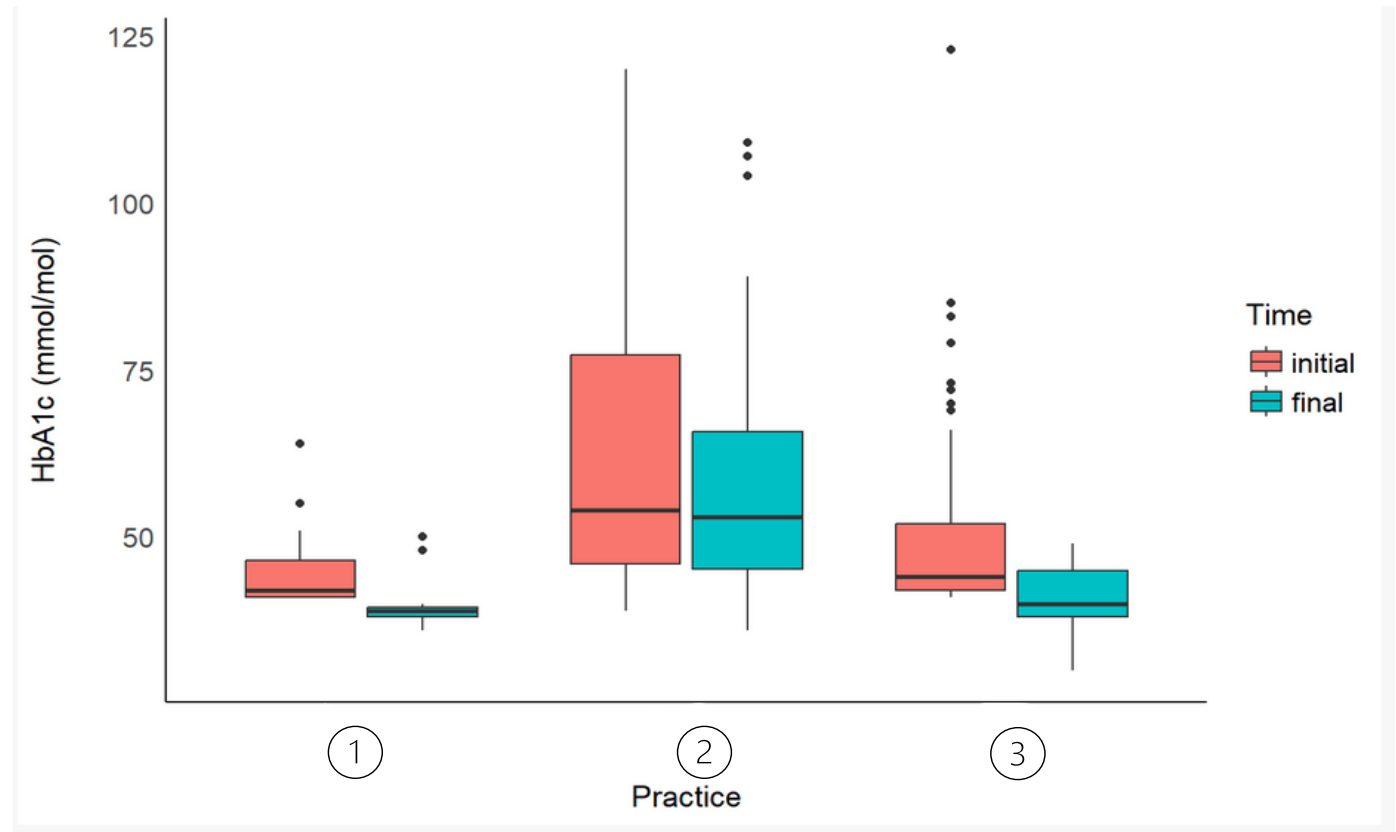
Real world data

Significant improvements in CV risk factors, weight, BP, Liver function, HaA1c, Cholesterol / HDL ratio

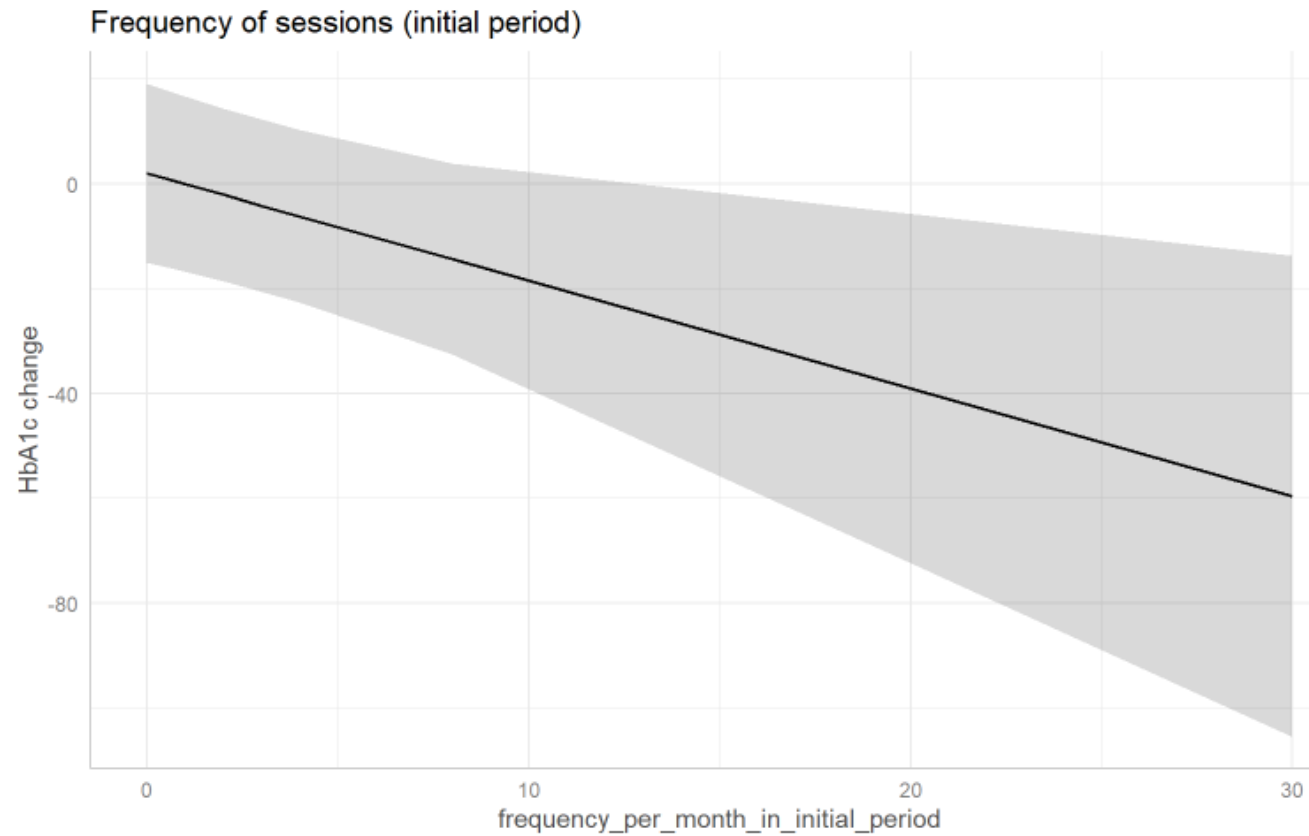
Phase 1

NZ clinical audit outcomes

Data from three medical clinics: Auckland (2), Taupō (1, 3): 195 patients.



HbA1C (mmol/mol)	Taupō 1 (n=19)	Auckland (n=46)	Taupō 2 (n=130)
Initial (mean + SD)	45 ± 6	62 ± 21	49 ± 12
Final (mean + SD)	40 ± 4	59 ± 20	41 ± 4
Change (mean + SD)	-5 ± 4	-3 ± 20	-8 ± 11

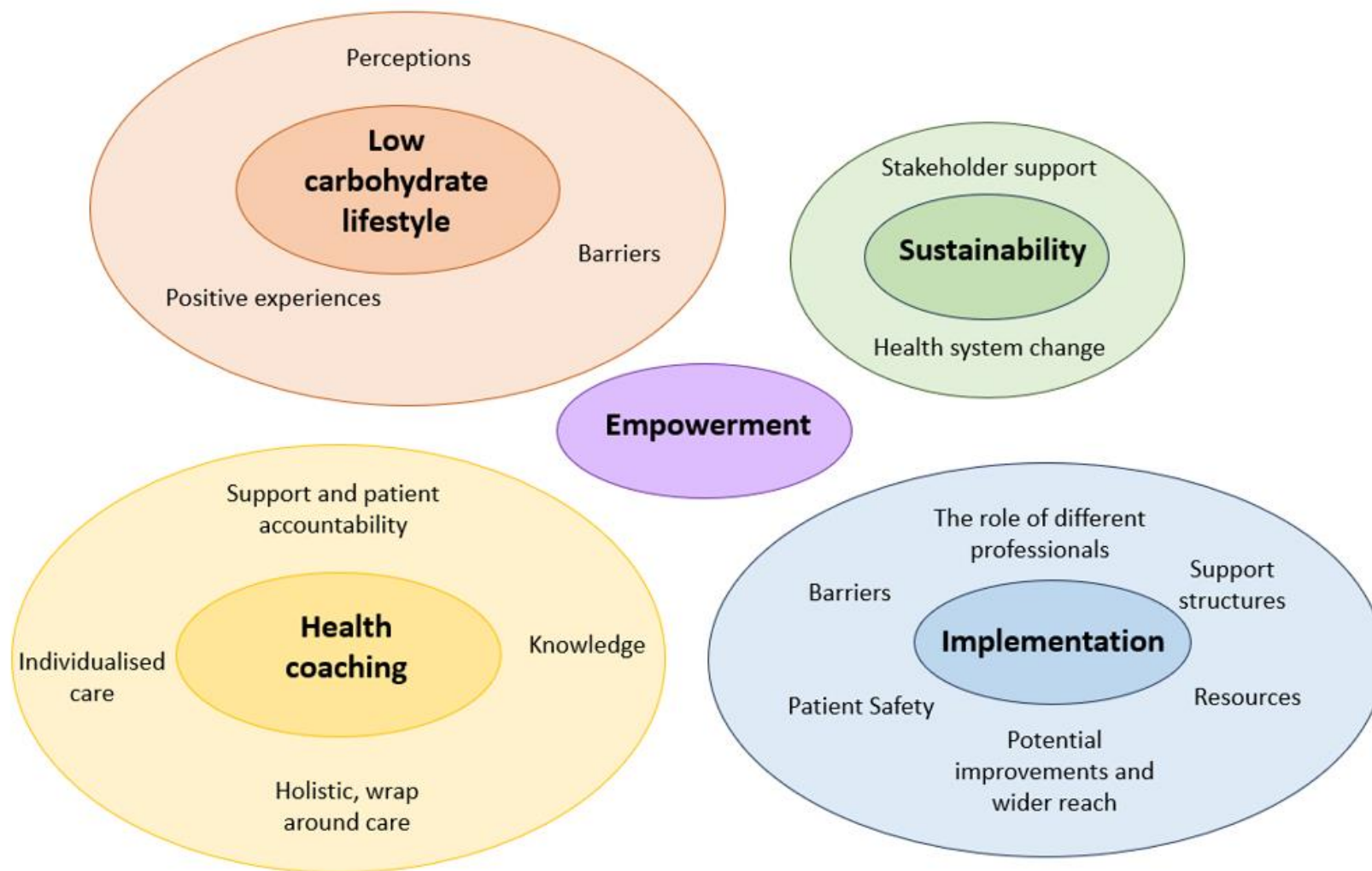


Do we see
better
outcomes
with greater
frequency of
Health
Coach
contact?

YES

Focus group / interviews outcomes...

Key themes. Paper under review



Patient

"She says, 'So tell me your story.' And I thought, oh my gosh, that's really cool.... it's a holistic approach... they asked about your trauma and your stress. And it was just really cool how she explained it. I don't think anyone's ever been listened to in their entire life until they speak to a health coach."

QUOTES

Patient

"the biggest thing that's helped me is learning about carbs. And the simple fact that they turn to sugar in the body."

Health Coach

"I think, being a Māori health provider that is delivering to the Māori and Pacific Island community... I feel more connected to the community itself..... I think that's really important, that the work we're representative or reflective of is our community that we serve. "

Patient

"I've been doing it for a year and a half, and slowly my diabetes has come from 110 [HbA1c] to 36."

Doctor

"It's changed my practice, I've gone from being a typical ineffective doctor, prescribing medications for the symptoms to now a moderately effective doctor, dealing with the cause of the problem."



Phase 2

Sign up

Implement

Audit

WHAT DOES THIS MEAN FOR THE CLINIC?

SIGN UP: Contact us. wholenz@aut.ac.nz

IMPLEMENT:

- Doctors: BAU i. refer to HC, OR ii. Hawkins approach
- Nurses, HC, dietitian: BAU, education / support
- Clinic personnel: Book in patients
- Supportive initiatives: Clinic initiated
- Documentation (BAU): Metabolic markers / meds / visit details (patient notes)
- We can help: Training, support forums, resources

AUDIT:

- Provide **deidentified** dataset to AUT for analysis, publication
- Evaluate: Focus groups (patients) / interviews (health professionals)

Phase 3

Implement across NZ





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REVERSING TYPE 2 DIABETES

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Reversing Type 2 Diabetes with #WholeFood

The practice of
carbohydrate
reduction

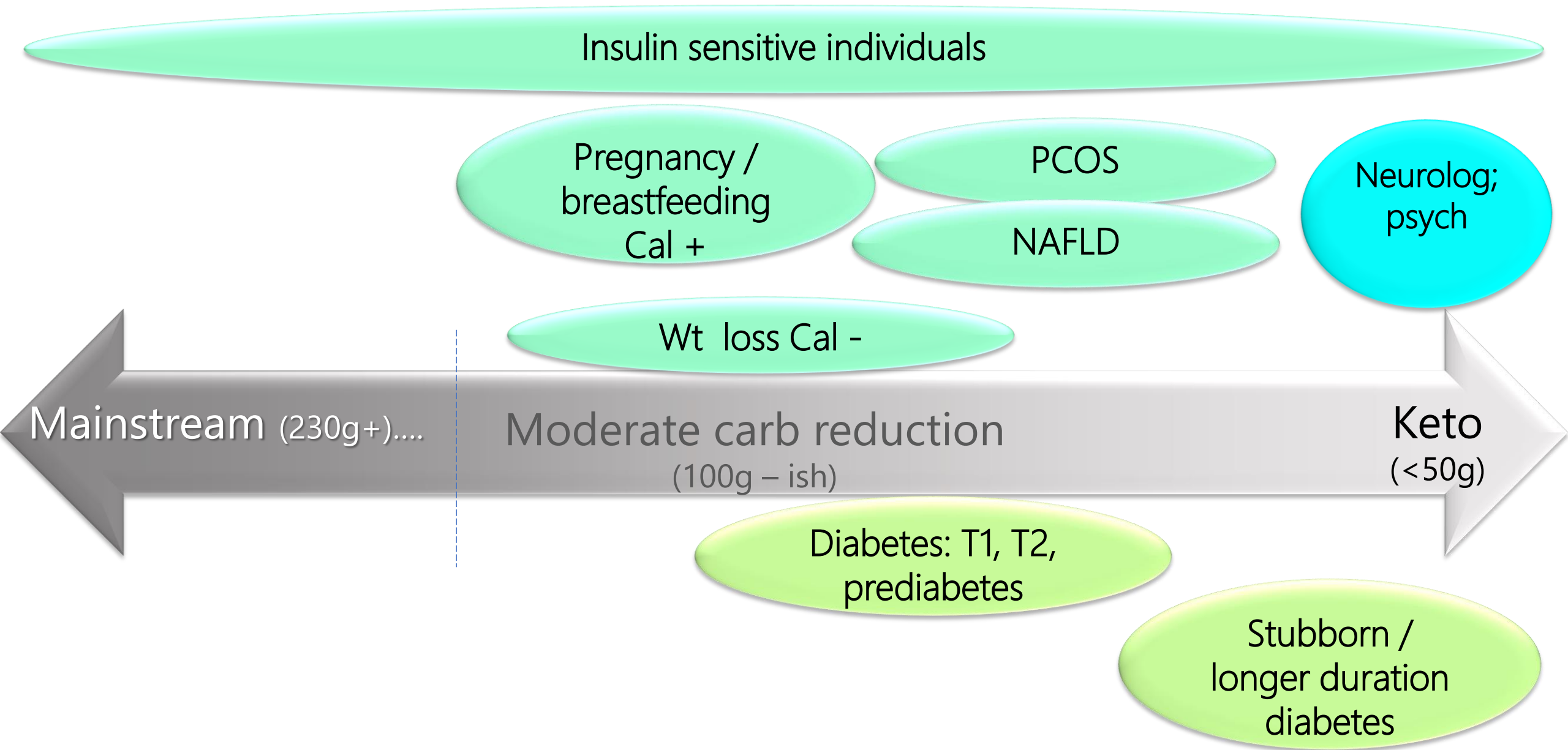


Definitions

- NZ / Australia
 - CHO: 45-65%
- Moderate carb diet
 - 26-45%
- Low carb diet
 - <130g / day or 26% of TE
- Keto diet (VLCKD)
 - 20-50g / day or <10% 2000Cal TE



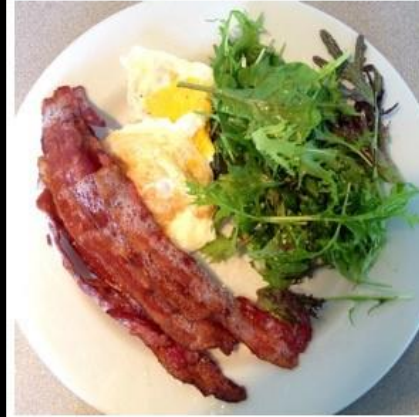
Where on the sugar spectrum?



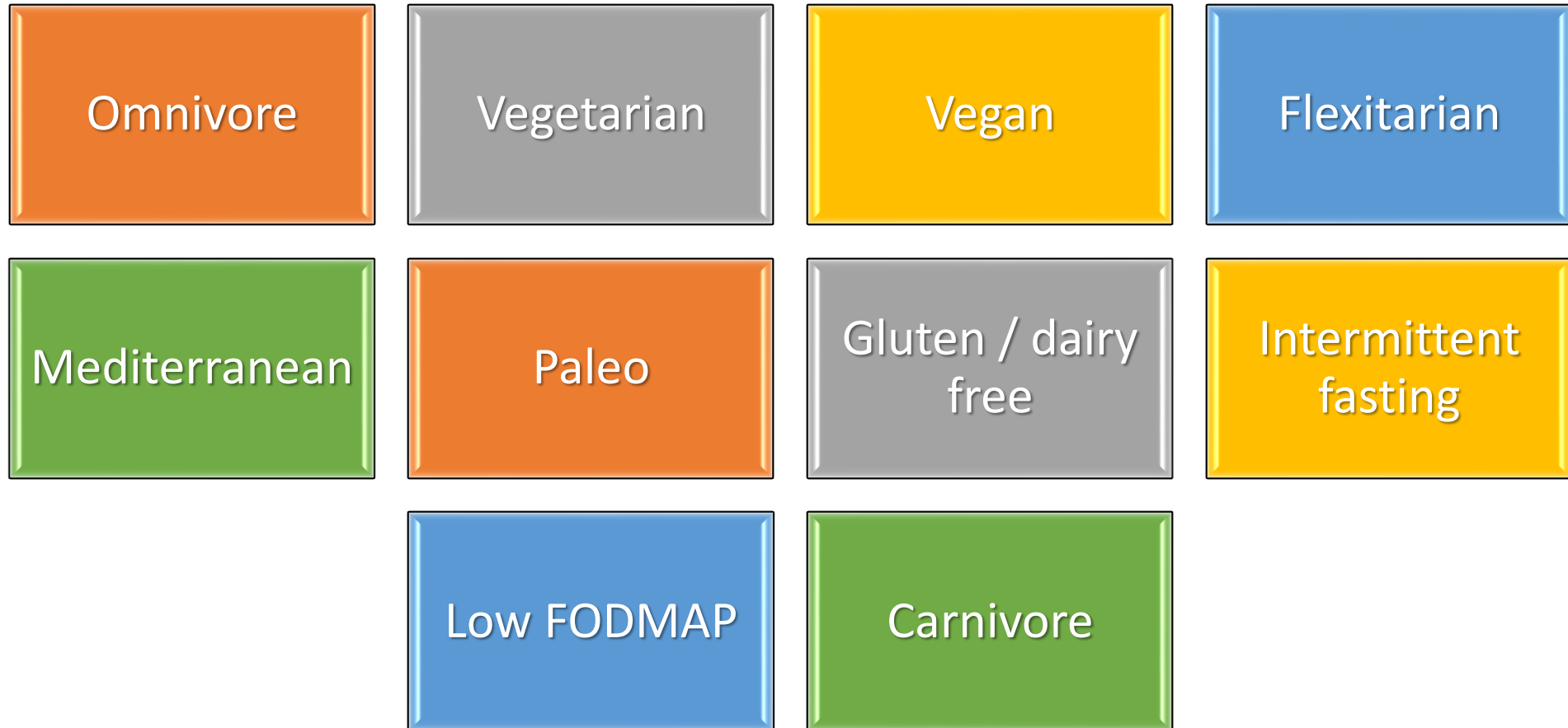


Well-formulated carbohydrate reduction

9 client dinner meals



Carbohydrate-reduction can be a template for...



Nutrient concerns?

Open Access

Research

BMJ Open Assessing the nutrient intake of a low-carbohydrate, high-fat (LCHF) diet: a hypothetical case study design

Caryn Zinn,¹ Amy Rush,² Rebecca Johnson²

Meal plan 1 (females). E: 2203Cal; CHO 65g; Pr 129g (22%); Fat 153g (63%)

Breakfast: $\frac{3}{4}$ cup frozen mixed berries, 150g plain, unsweetened, full-fat yoghurt, 2 T each sunflower and pumpkin seeds, 3 macadamia nuts, 2 Brazil nuts, 6 almonds
Coffee made with 200ml full fat milk

Lunch: Tuna salad: 95g tin tuna, canned in brine (drained), 1 cup baby spinach leaves, 60g English cucumber, 5 cherry tomatoes, 30g cheddar cheese, 2T linseeds, 1 tsp basil pesto, 3 tsp olive oil

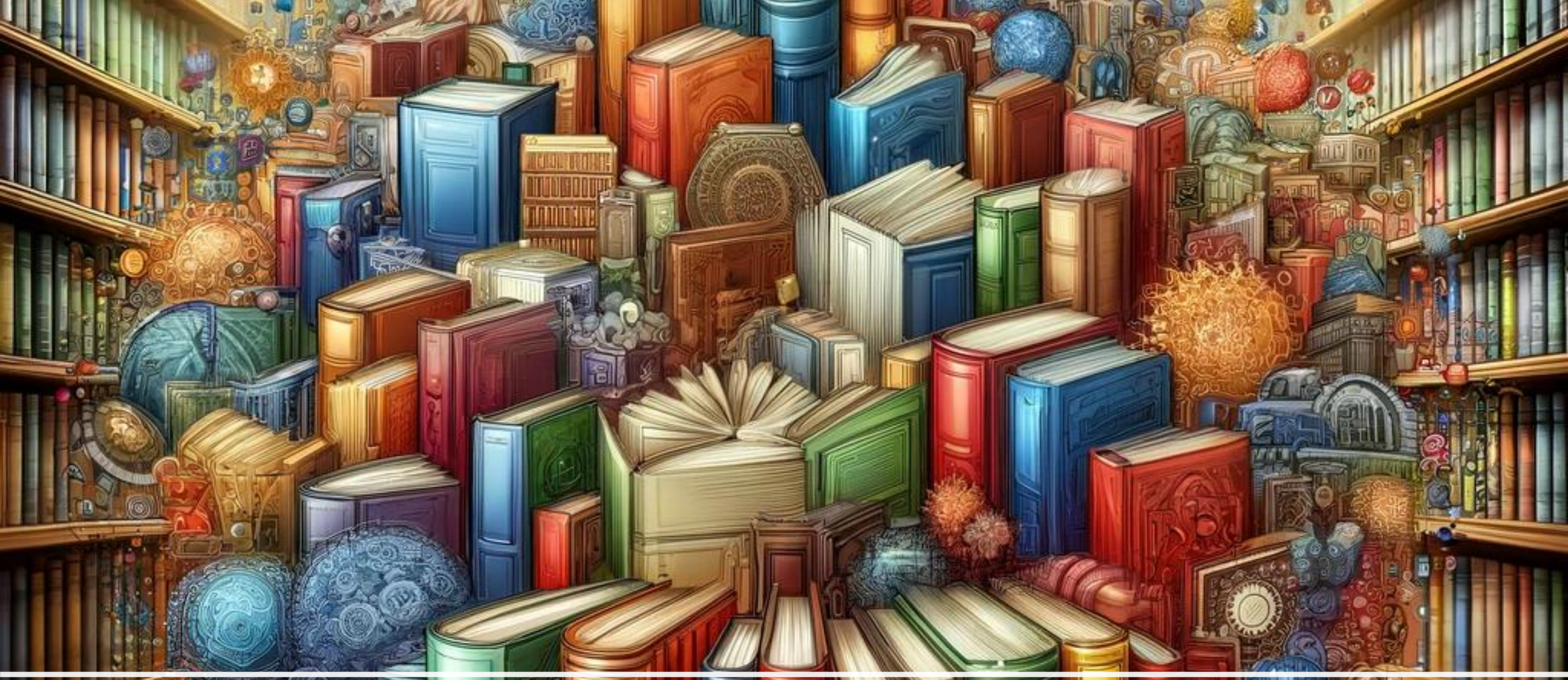
Dinner: 150g Sirloin steak, grilled, roasted vegetables: 8 florets cauliflower, 1 medium sized beetroot, 1 medium courgette, 1 medium carrot, coated in 2T olive oil
10 medium strawberries, 3T pistachio nuts

Cost of living crisis

1. Buy seasonal / use the whole vegetable
2. Bulk purchase protein
3. Cook at Home
4. Use low-cost protein
5. Plan and batch cook
6. Minimise / eliminate snacking
7. Shop at markets or grow your own veg / herbs
8. Buy supermarket brands
9. Minimise specialty items "keto bars"
10. Frozen vegetables
11. Buy discount / clearance items
12. Reduce food waste

Savings from foods you're not buying

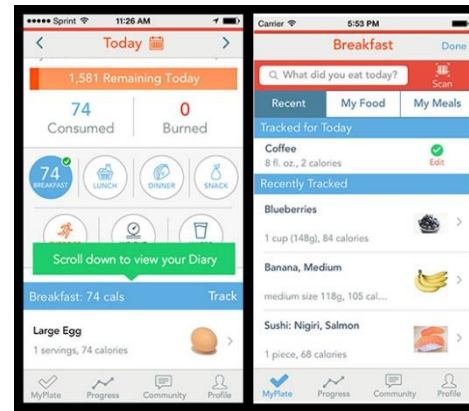
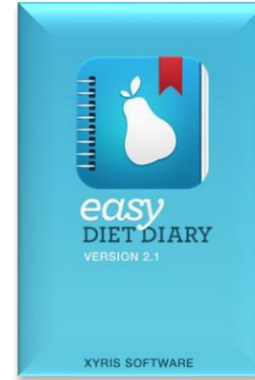
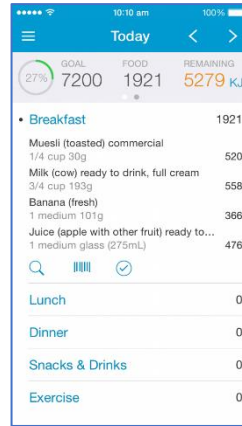
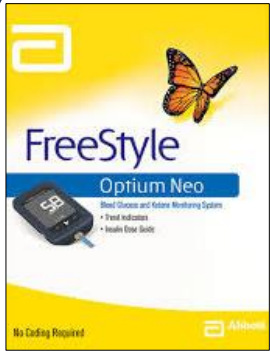




RESOURCES



Tracking





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Questions

