# Metabolic health, the engine for life.



- Feel well and more energy.
- Clearer mind and better mood.
- Improved physical health and body composition.

***Dr Campbell Murdoch***
*GP with a special interest in metabolic health*

Why metabolic health?

Core science of insulin resistance

Testing for insulin resistance

How to improve metabolic health

Next steps

*“I’m struggling in the morning with my back pain, I need a knee op, and I just don’t feel well.”*



*“I’m struggling in the morning with my back pain, I need a knee op, and I just don’t feel well.”*

- 52 years old
- Acid reflux (omeprazole)
- High blood pressure (ramipril)
- Prediabetes
- Depression (citalopram)
- Irritable bowel syndrome
- OA of left knee diagnosed 5 years ago
- Back pain (paracetamol and ibuprofen)
- Want to lose weight but back and knee are too painful
- Tired all the time

We have a global health crisis.



# **Poor metabolic health** is linked to many health conditions including:

- Prediabetes and type 2 diabetes
- Hypertension
- Fatty liver (MASLD)
- Obesity
- Heart disease
- Stroke
- Dementia
- Many musculoskeletal conditions
- Chronic kidney disease
- Skin conditions (e.g. psoriasis)
- Some cancers
- Sleep apnoea
- PMOS
- Menopausal symptoms
- Migraine
- Mental health disorders
- And many more…

**…diseases that shouldn’t exist.**

# Might I have a metabolic health problem?

- Tired all the time
- Energy dips through the day
- Fed up and low mood
- General aches and pains
- Struggling to lose weight
- Waist circumference more than half height
- Raised blood pressure
- Frequent infections
- Skin tags and acanthosis nigricans




Neeland IJ, Ross R, Després JP, et al. Visceral and ectopic fat, atherosclerosis, and cardiometabolic disease: a position statement. Lancet Diabetes Endocrinol. 2019;7(9):715-725

# Skin tags



NHS.uk

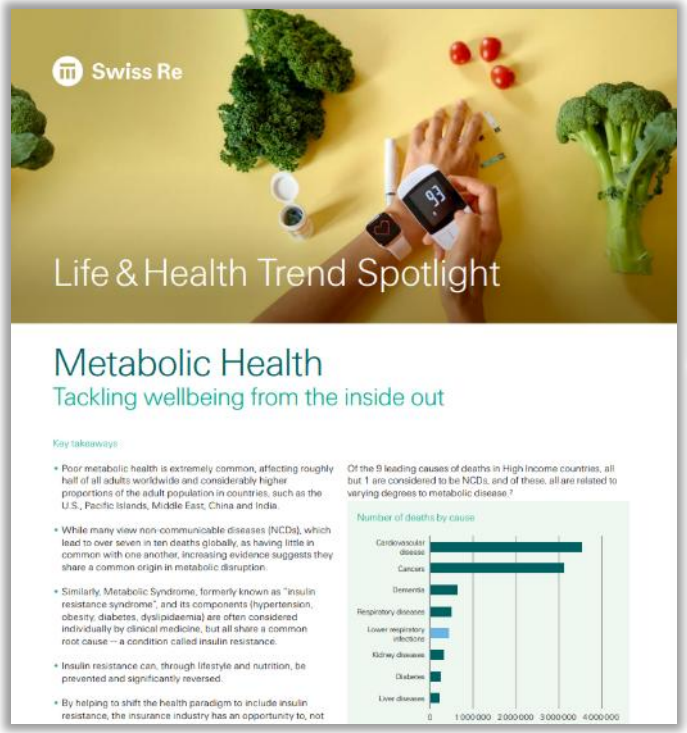
# Acanthosis nigricans



DermNet NZ











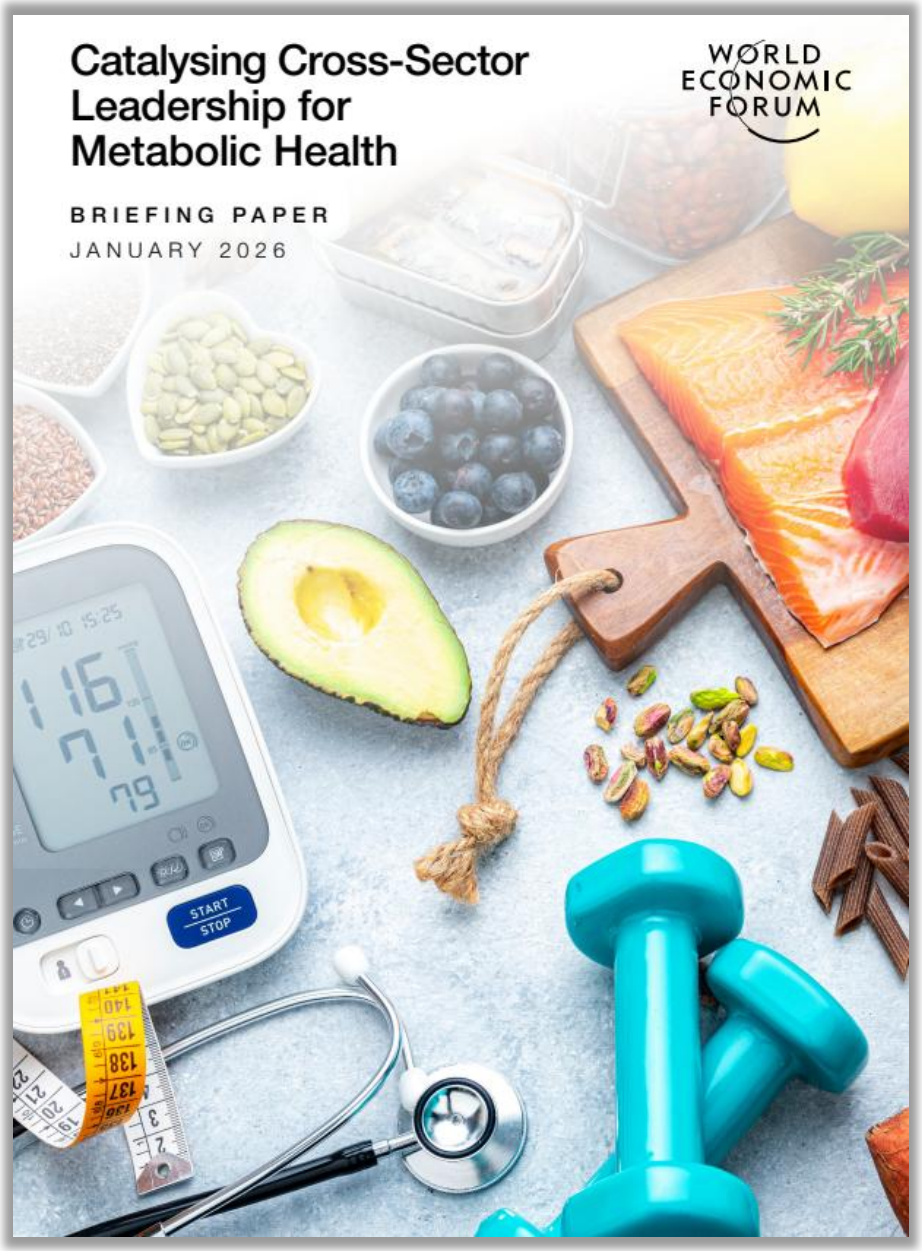

Reinsurance › Insights

Reducing cancer risk through better metabolic health

Tobias Schiergens  John Schoonbee  15 Jul 2024

Metabolic Psychiatry – A new paradigm in the management of Mental Health disorder?

Debbie Smith  John Schoonbee  09 Oct 2024



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# GP says 28-day plan helps to reverse health issues



A metabolic health peer support group meets every two weeks at Wincanton Health Centre in Somerset

Dr Murdoch has been working with the re-insurer Swiss Re, which is trying to reduce the number of people claiming for being out of work through ill health.



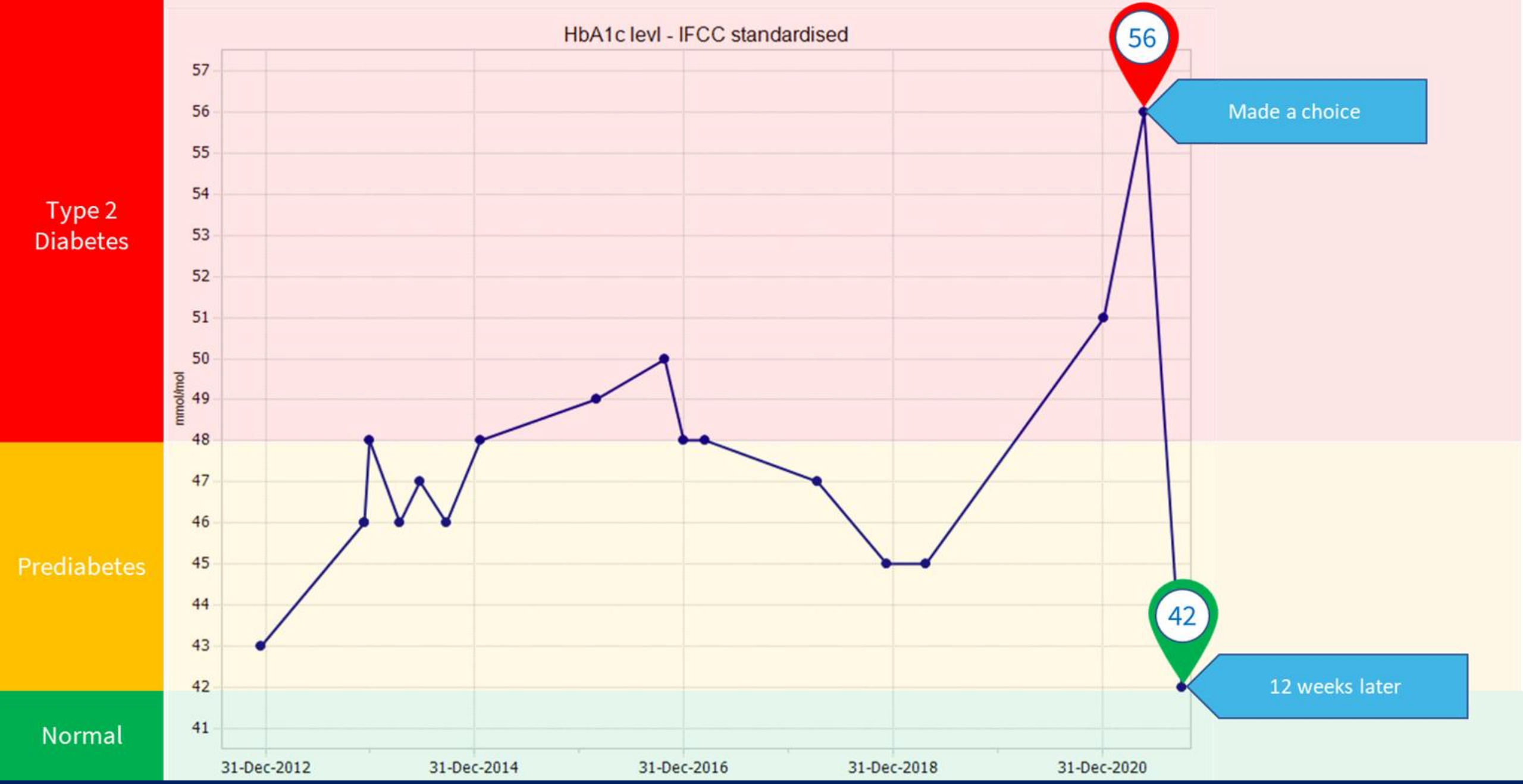
Before and after images of patient Basil Duddridge show his weight loss after completing the 28-day course

Basil Duddridge, 67, from Wincanton, has lost two stone (12.7kg) since starting the course in August 2024, when he was pre-diabetic.

Six months after starting the programme, he was delighted to be told insulin levels in his blood were normal.

He was shown a graph that showed how much his metabolic health had improved.

Mr Duddridge said: "I can't believe it, it is amazing. Before I see the results, numbers don't mean a lot to me but seeing the graph I can't believe it really."


Type 2 Diabetes
Prediabetes
Normal
HbA1c levl - IFCC standardised
mmol/mol
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
31-Dec-2012
31-Dec-2014
31-Dec-2016
31-Dec-2018
31-Dec-2020
56
Made a choice
42
12 weeks later

Teams message from the practice health coach on 9 September

**“Amazing results! Since mid May this year she has lost 27kg…. feeling better! She says it’s a lifestyle change, not a diet!”**

Why metabolic health?

**Core science of insulin resistance**

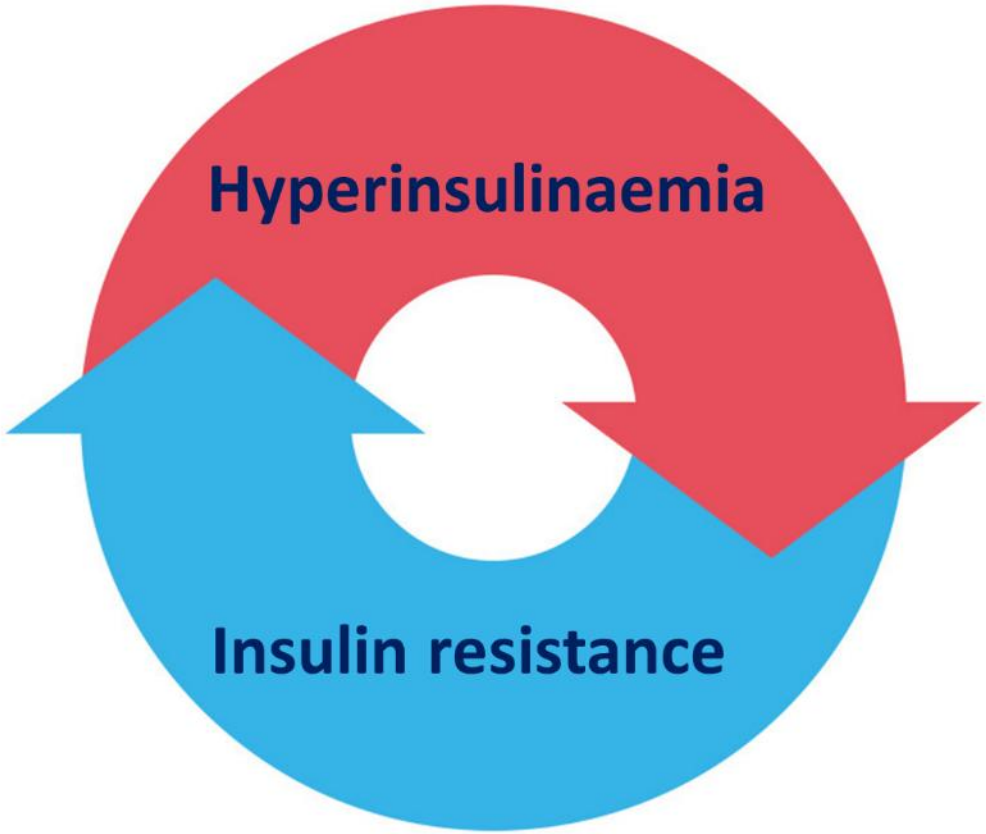
Testing for insulin resistance

How to improve metabolic health

Next steps



# The warzone of poor metabolic health





# We are human.

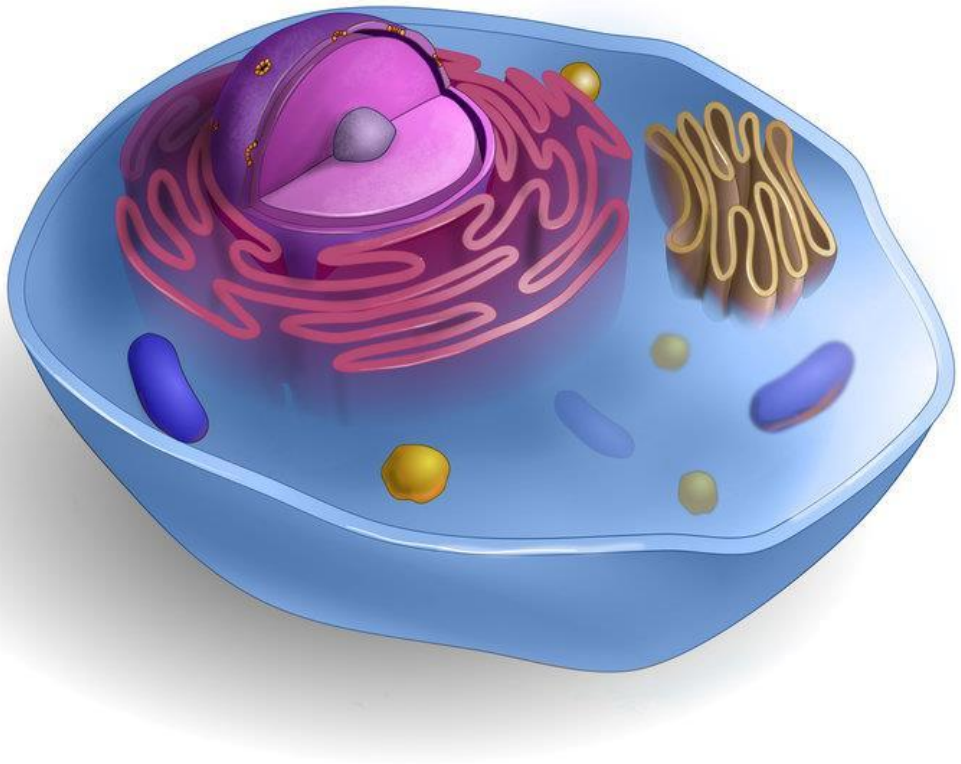


We live on Earth.

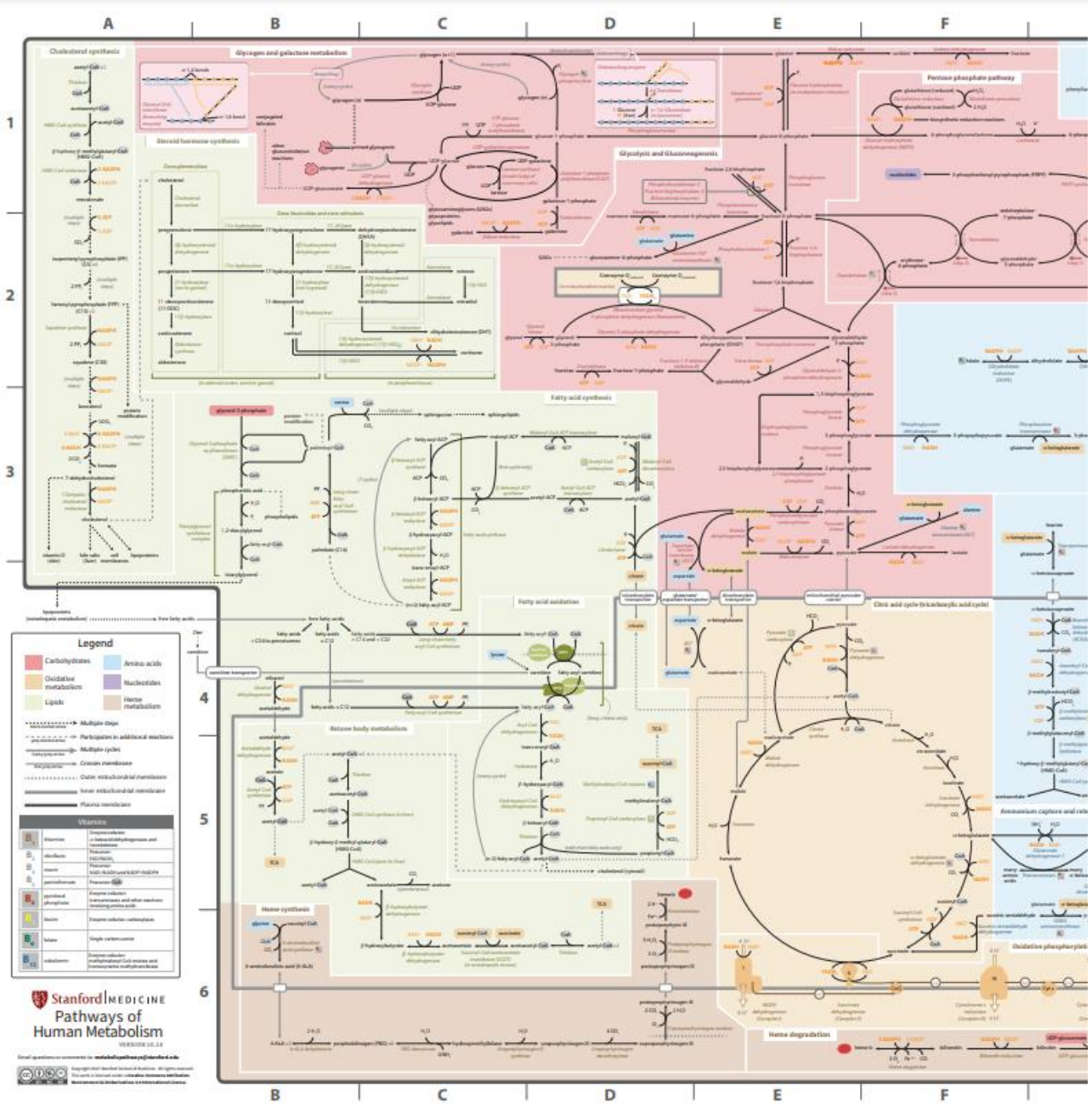
We eat, move, sleep, and think.

We are made of organs…



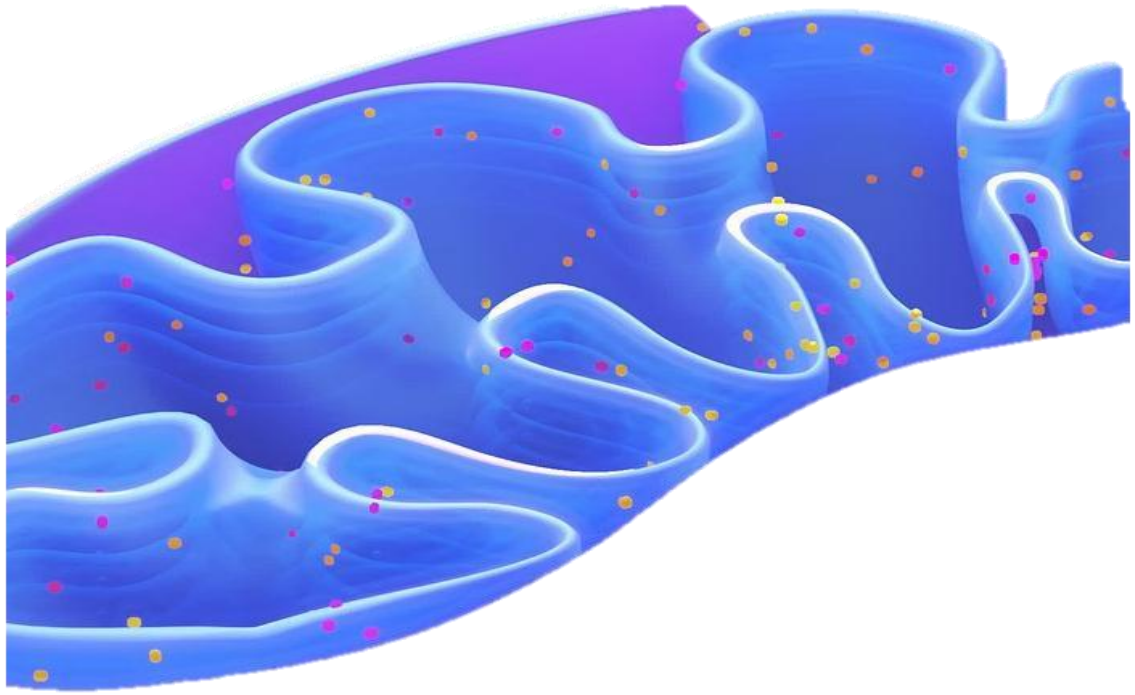


…and trillions of cells,




# constantly metabolising food…

(metabolism: the chemical processes within the body required for life)



…and extracting the energy needed for life.



# Whilst we maintain internal stability.

(homeostasis)

**homeostasis**, any self-regulating process by which biological systems tend to **maintain stability** while adjusting to conditions that are **optimal for survival**.

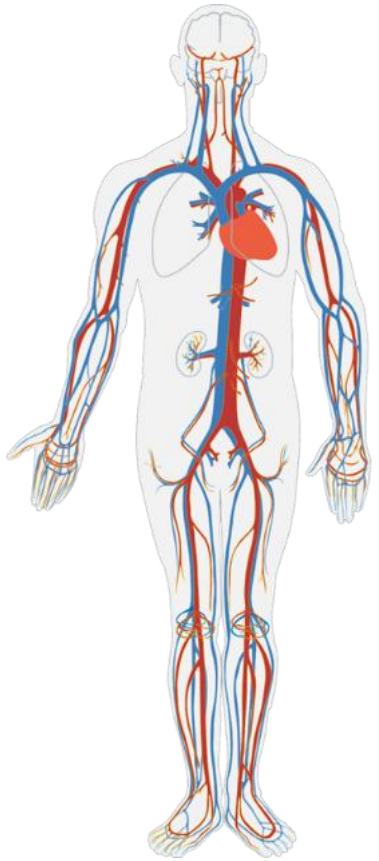
If homeostasis is successful, life continues; **if unsuccessful, disaster or death ensues**.

*Britannica, The Editors of Encyclopaedia. "homeostasis". Encyclopedia Britannica, 8 Apr. 2022, https://www.britannica.com/science/homeostasis. Accessed 13 May 2022.*

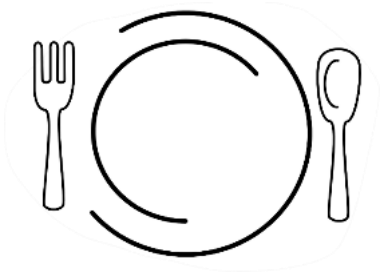


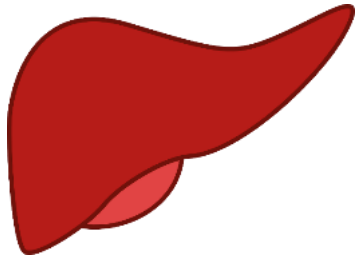
# Blood glucose homeostasis



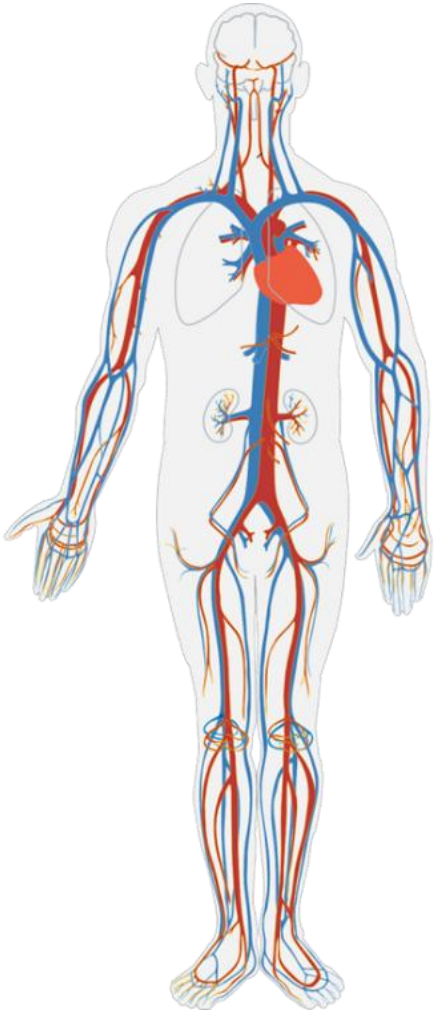


# To raise blood glucose.





GLUCOSE



To lower blood glucose.

# Insulin



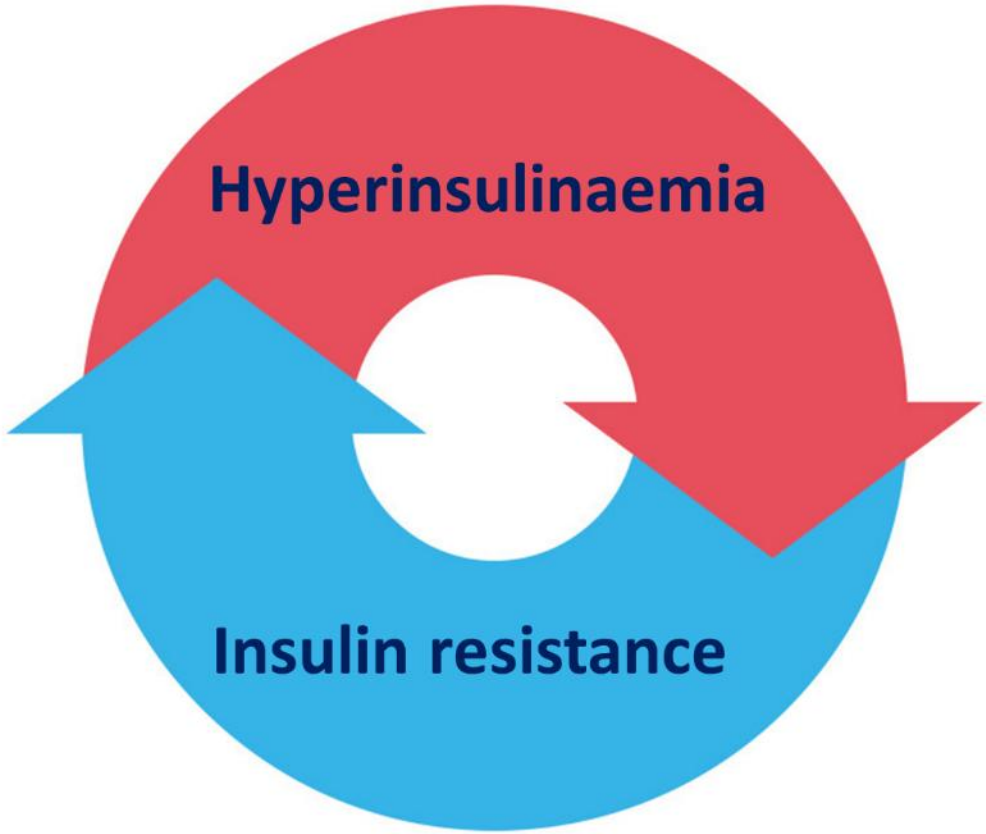
What goes wrong?

# Insulin resistance





# The warzone of poor metabolic health



*“I’m struggling in the morning with my back pain, I need a knee op, and I just don’t feel well.”*

- 52 years old
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- Want to lose weight but back and knee are too painful
- Tired all the time

Why metabolic health?

Core science of insulin resistance

**Testing for insulin resistance**

How to improve metabolic health

Next steps



# Dr Gerald Reaven

(28 July 1928 – 12 February 2018)

Després, JP. The Reaven syndrome: a tribute to a giant. Nat Rev Endocrinol 14, 319–320 (2018). https://doi.org/10.1038/s41574-018-0013-5

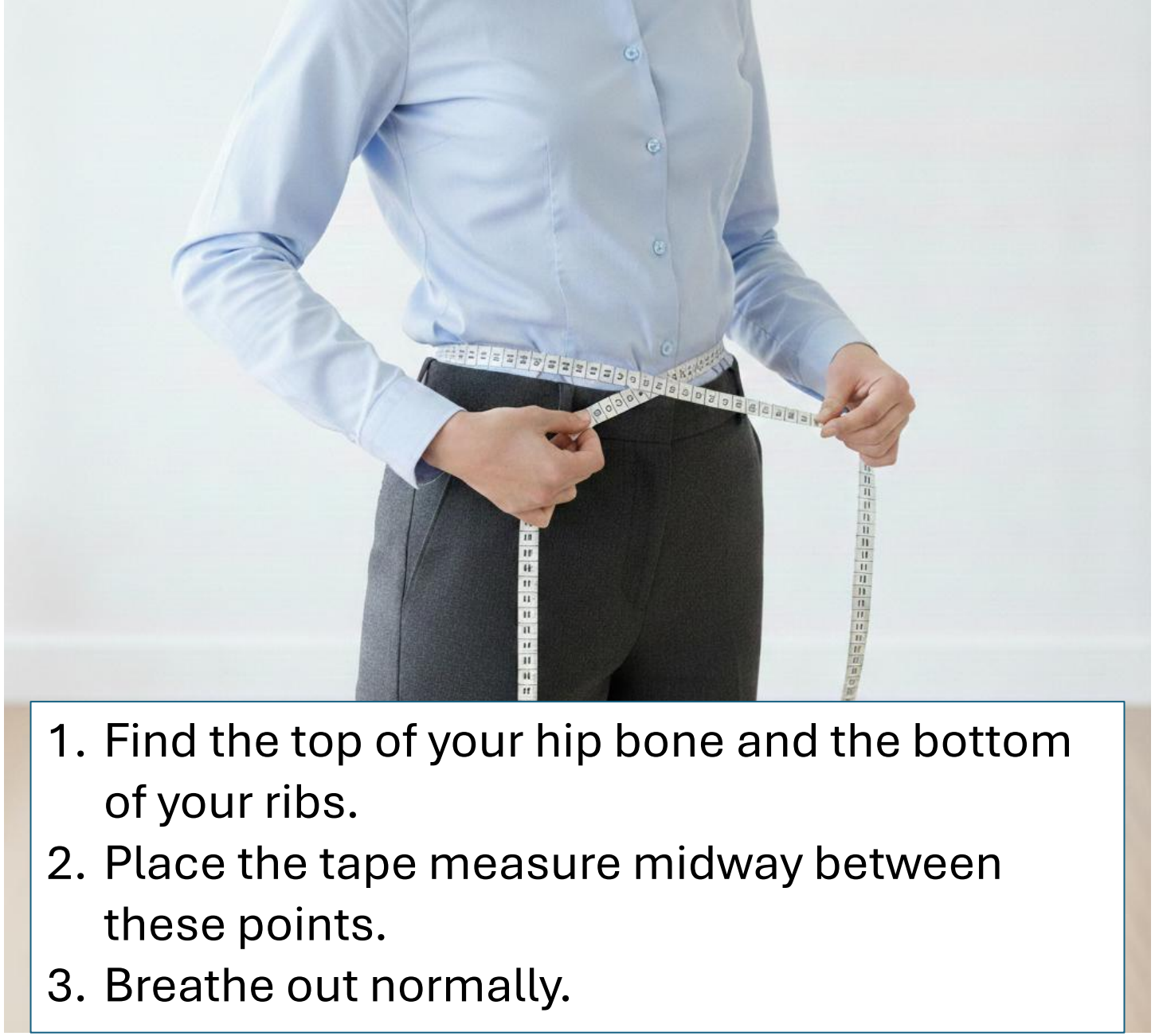
# Insulin resistance syndrome

(metabolic syndrome)

# Insulin resistance markers



| Marker | Alert |
|---|---|
| Waist-to-height ratio | ≥0.5 |
| Blood pressure | ≥130/85 |
| Triglycerides (fasting) | ≥1.7 mmol/L |
| HDL-C | Male <1 mmol/L<br>Female <1.3 mmol/L |
| Glucose (fasting)<br>HbA1c | ≥5.5 mmol/L<br>≥ 42 mmol/mol (Consider ≥ 37) |



1. Find the top of your hip bone and the bottom of your ribs.
2. Place the tape measure midway between these points.
3. Breathe out normally.

Why metabolic health?

Core science of insulin resistance

Testing for insulin resistance

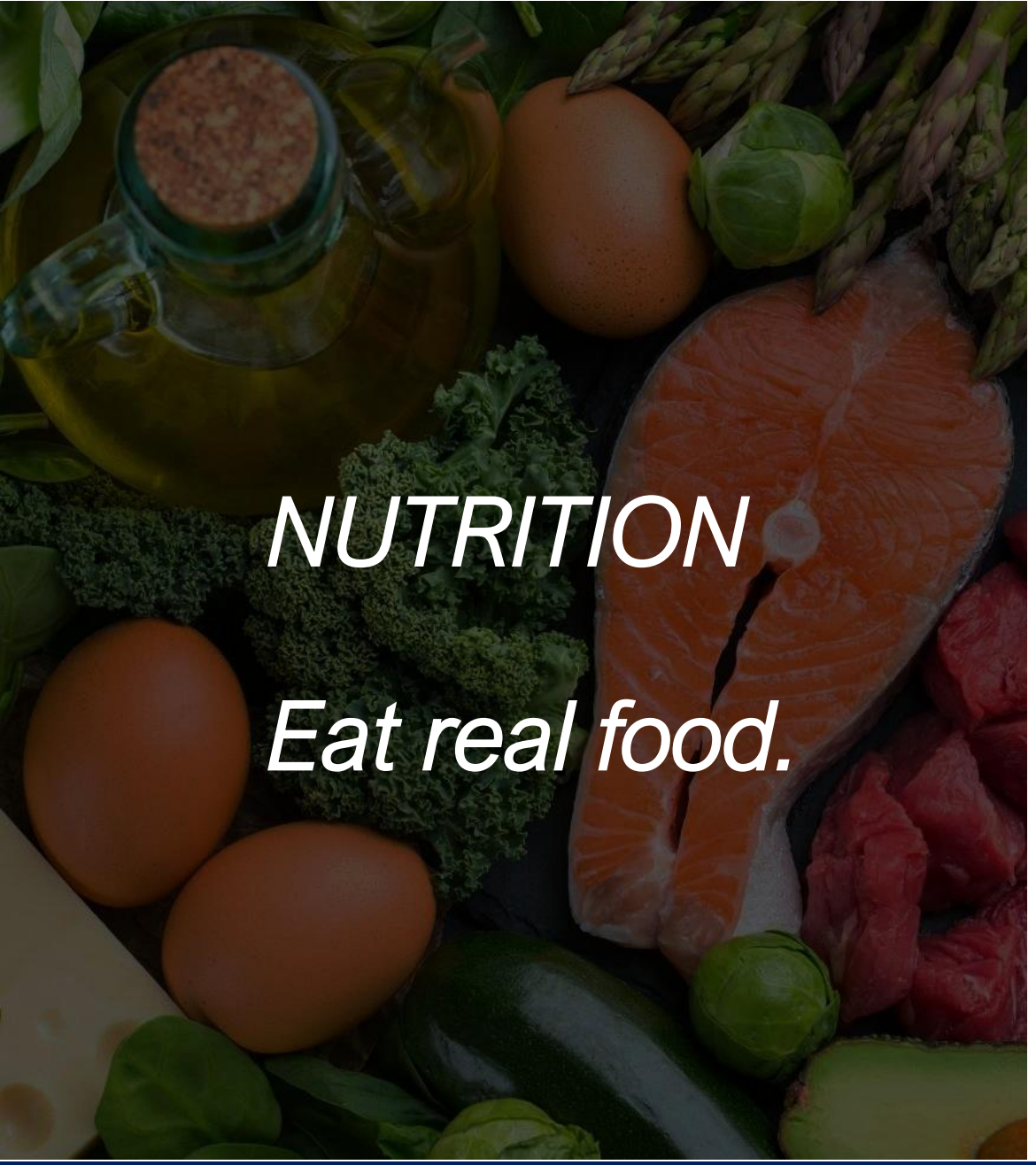
**How to improve metabolic health**

Next steps



# Health Foundations

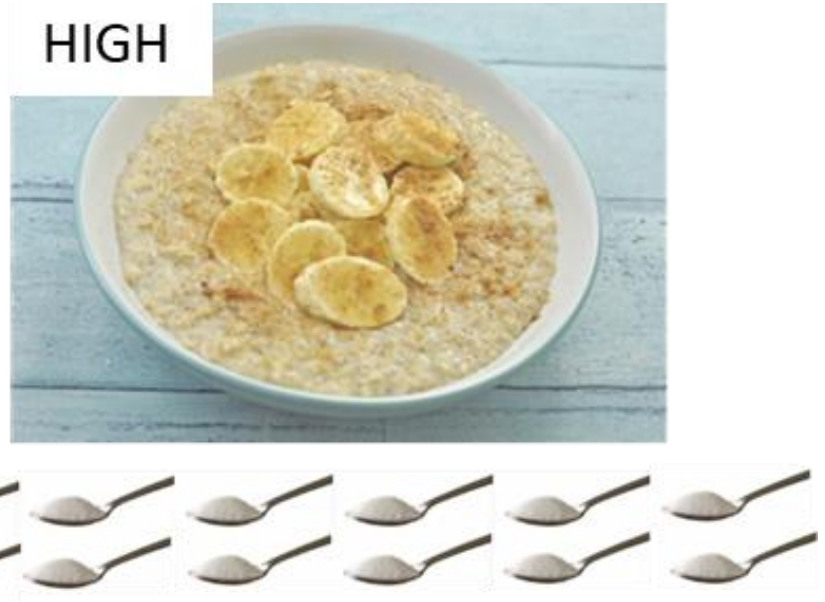
- Nutrition
- Movement
- Sleep
- Mindset
- Environment

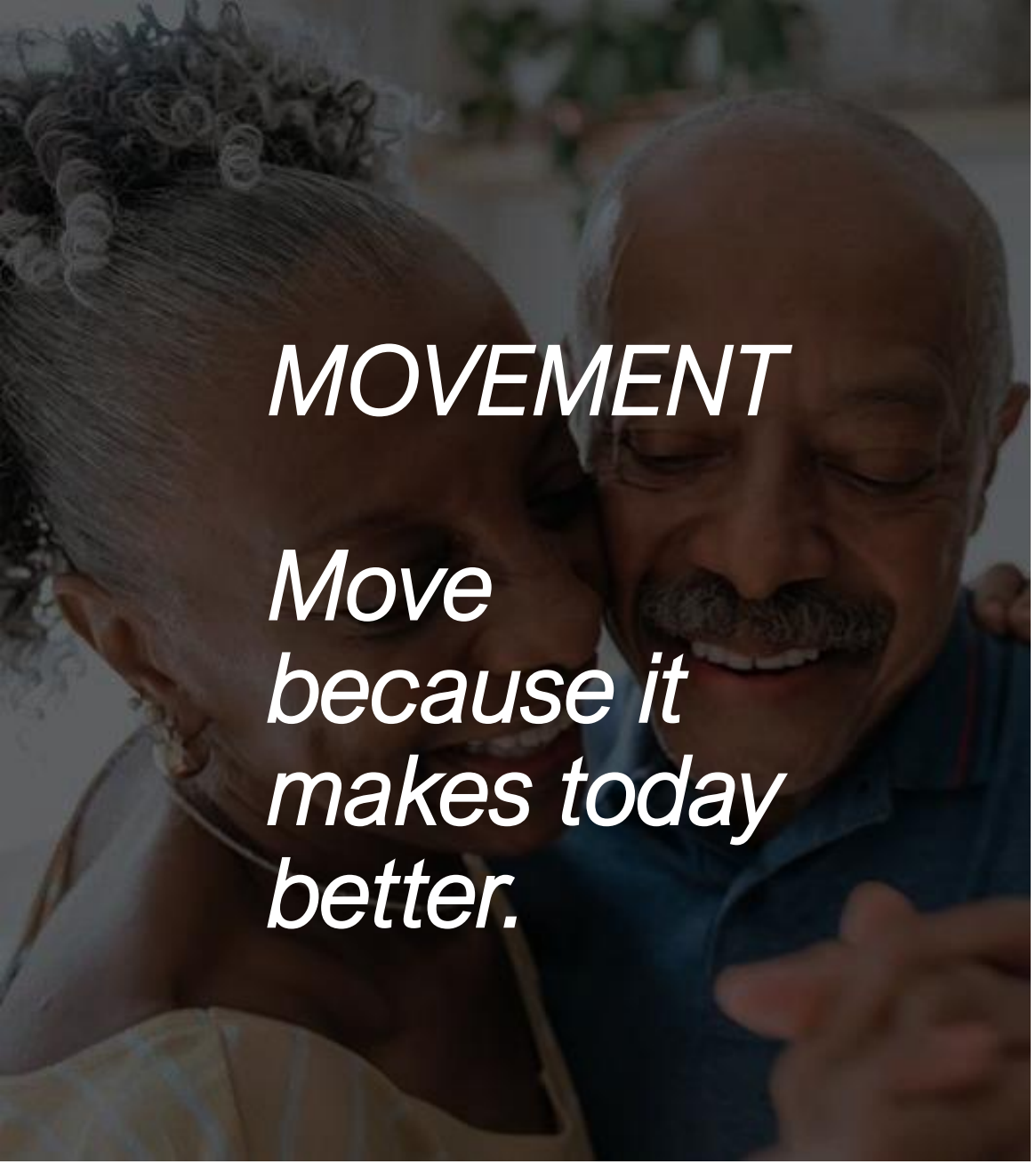



- **Eat real food**
- **Prioritise protein**
  consider 1.5-2g/kg/day
- **Personalise carbohydrate**
  consider <130g or <70g
- **Personalise fat**
  depending on body fat loss desire
- **Timing**
- **Adequate water**

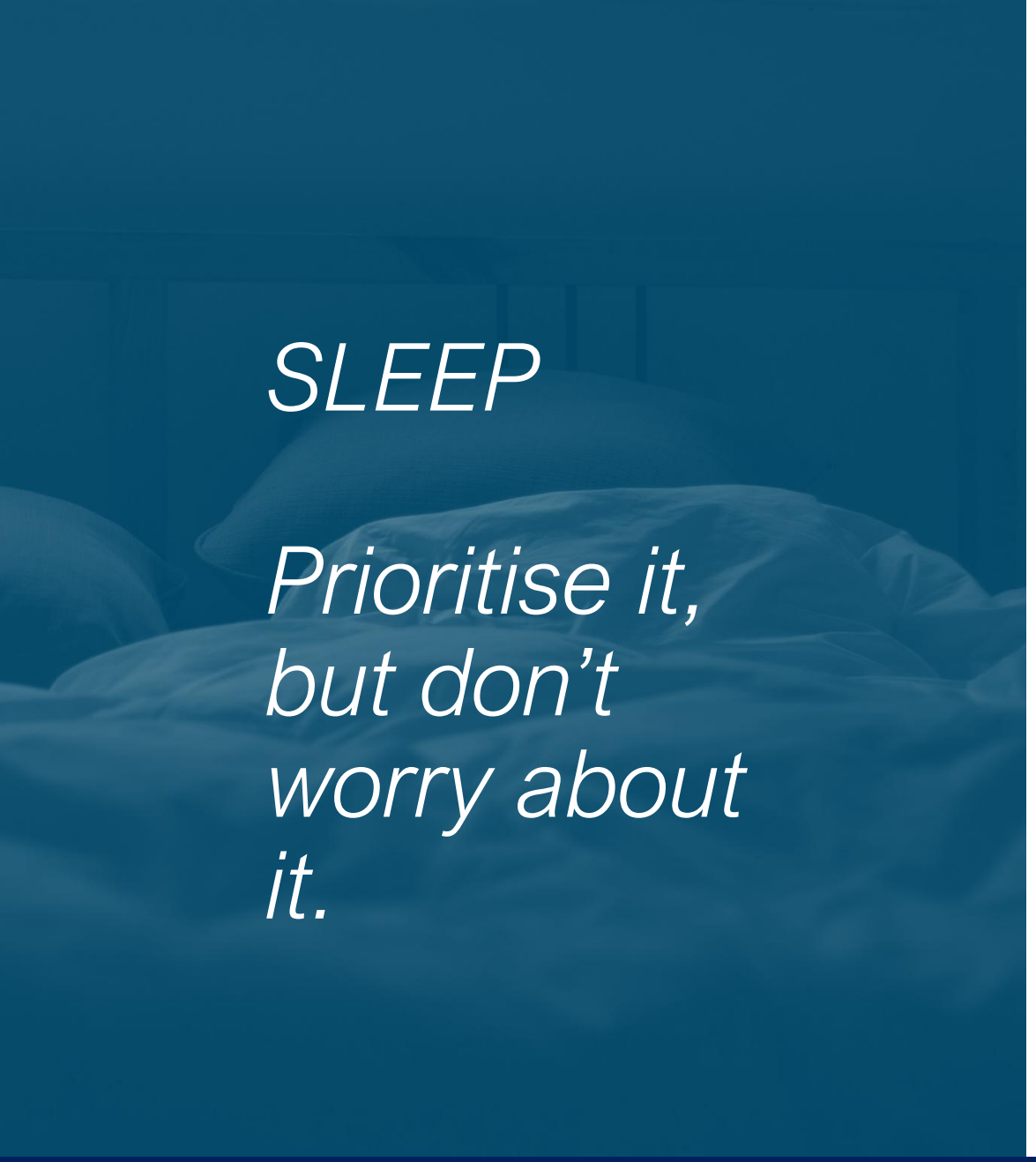
# Personalise carbohydrate
# Go low or high?






- **Move**
  every 1-2 hours
- **Stability**
  be able to keep moving
- **Resistance**
  at least twice a week
- **Aerobic/CV**
  at least 20 mins everyday



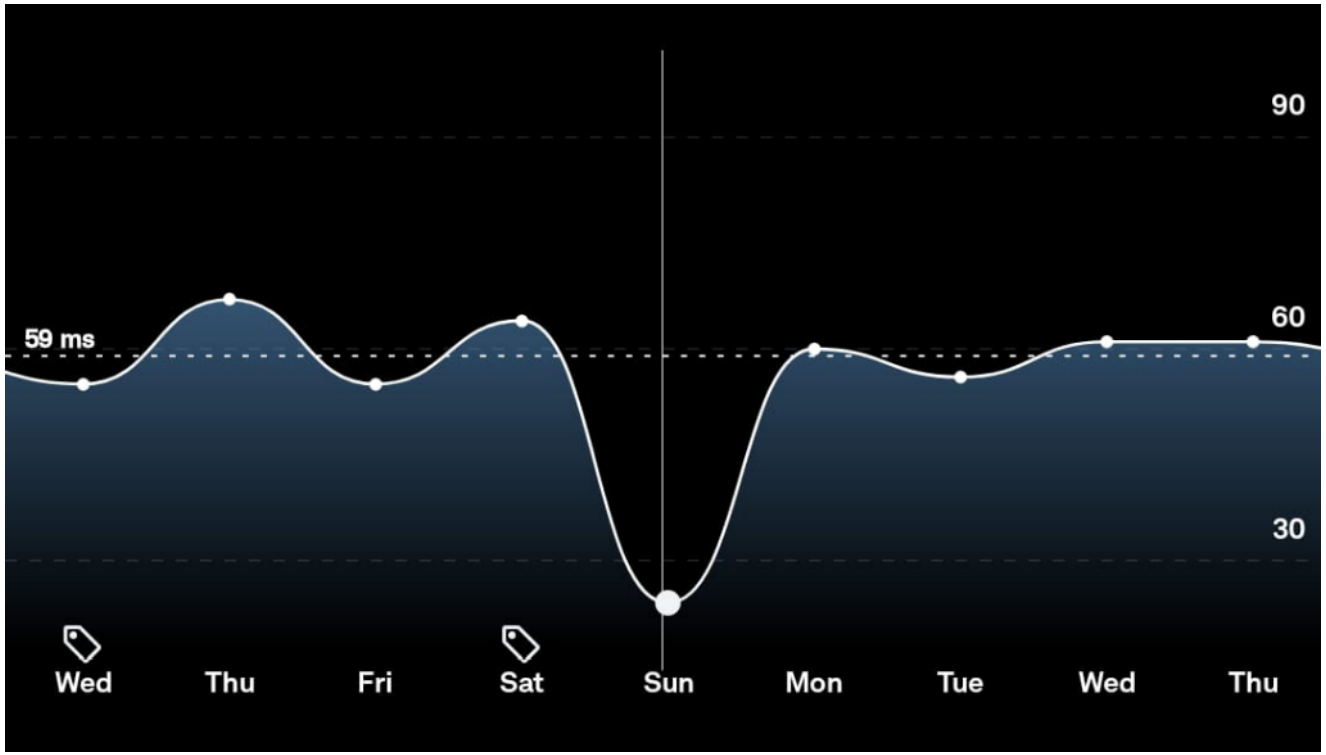
*SLEEP*

*Prioritise it, but don't worry about it.*

- **Timing**
  7-9 hours and routine within same hour
- **Quality**

*SLEEP*

*Prioritise it, but don't worry about it.*






Optimise stress and create habits

- **Connect**
- **Vent or pause**
- **Influence and notice**
- **Growth mindset**




**Choose or create your surroundings to help your choices.**

# Metabolic Health 28-Day Rapid Results Plan

## Daily Checklist · tick each action you complete, then write your daily total score

Print and keep it visible. Review every 7 days — What have I noticed? What has gone well? What will I focus on next?

| DAILY ACTIONS<br>Tick ✓ each day - total your score out of 10 | WEEK 1 | | | | | | | WEEK 2 | | | | | | | WEEK 3 | | | | | | | WEEK 4 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 1 **Real food, high protein**<br>Mostly "Enjoy" foods; minimise sugar & ultra-processed foods | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 **16:8 intermittent fasting**<br>All food within an 8-hour window | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3 **2 litres of water**<br>Water or other calorie-free drinks | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 **Zero alcohol**<br>None for the 28 days | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5 **20 press-ups**<br>Against a wall or on knees to make easier if necessary | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6 **20 squats**<br>Hold a chair or counter to make easier if necessary | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7 **20 minutes cardio**<br>Walk, cycle, swim, dance, gardening... | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8 **Magnesium supplement**<br>A well-absorbed form, as directed | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 9 **7 hours of sleep opportunity**<br>Aim for a regular bedtime each night | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10 **Notice**<br>Note one thing you achieved today | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **DAILY SCORE**<br>Number of actions completed (0–10) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*“I was struggling with knee pain and back pain, and I didn’t feel well.”*

*“I now feel the best I have in years. I’ve got more energy and I’m back in the jeans I wore 20 years ago.”*

- 52 years old
- ~~Acid reflux (omeprazole)~~
- ~~High blood pressure (ramipril)~~
- ~~Prediabetes~~
- ~~Depression (citalopram)~~
- ~~Irritable bowel syndrome~~
- OA of left knee diagnosed 5 years ago – Surgery not required
- ~~Back pain (paracetamol and ibuprofen)~~
- ~~Want to lose weight but back and knee are too painful~~
- ~~Tired all the time~~

Why metabolic health?

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**Next steps**

# Metabolic health in everyday practice

**Consultations**

- Recognise the symptoms, signs, and conditions
- Assess using the simple insulin resistance markers
- Provide information (verbal and written/online)
- Signpost to useful resources and support
- Follow up (yourself or in the team)






# Metabolic health in everyday practice

**Consultations**

- Recognise the symptoms, signs, and conditions
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**Annual (QOF) reviews**

- Make metabolic health a focus. Consider an “Integrated [metabolic health] annual review”



# Metabolic health in everyday practice

## Consultations

- Recognise the symptoms, signs, and conditions
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## Annual (QOF) reviews

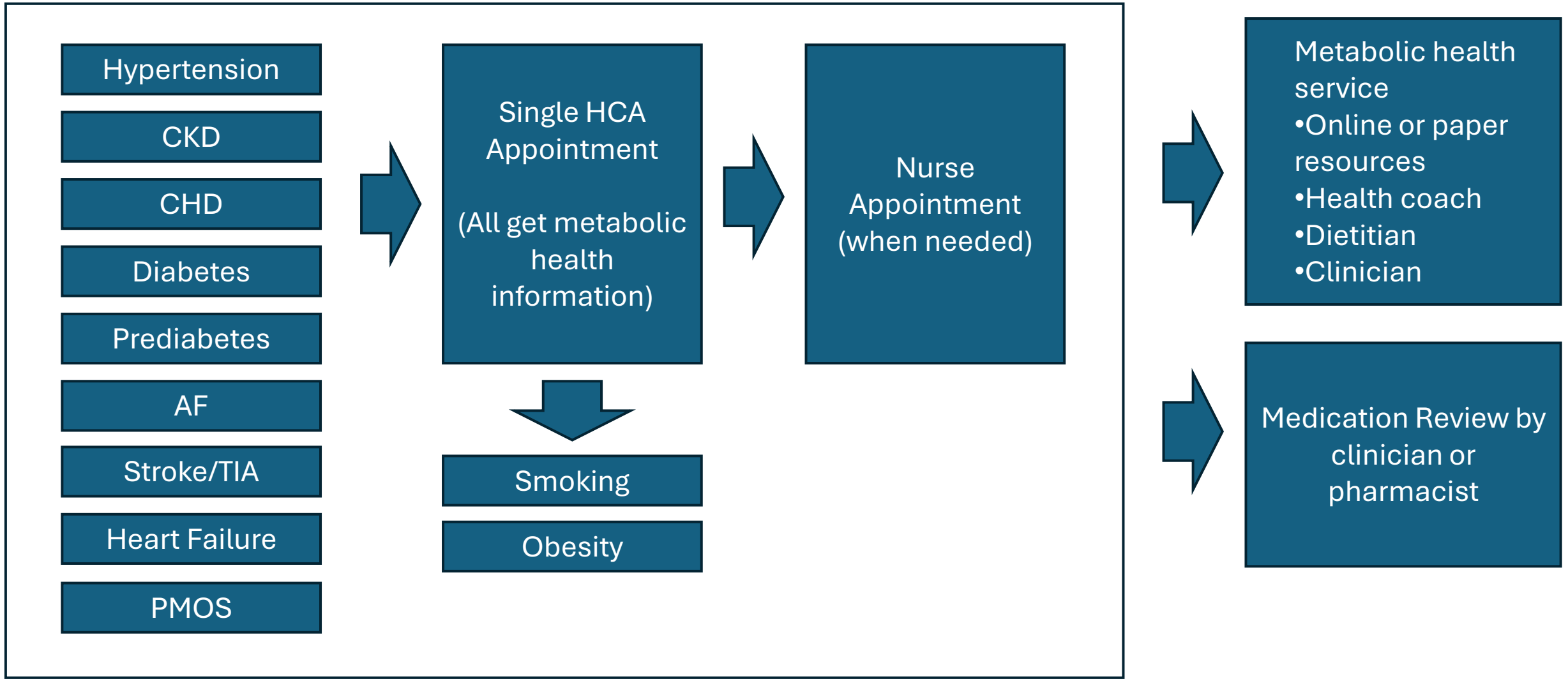
- Make metabolic health a focus. Consider an “Integrated [metabolic health] annual review”

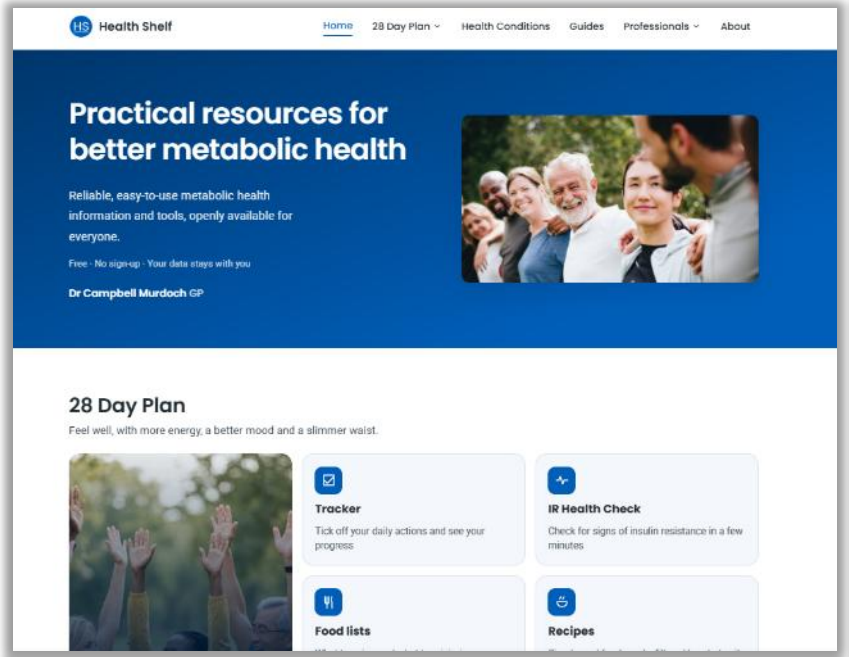
## Practice team and community

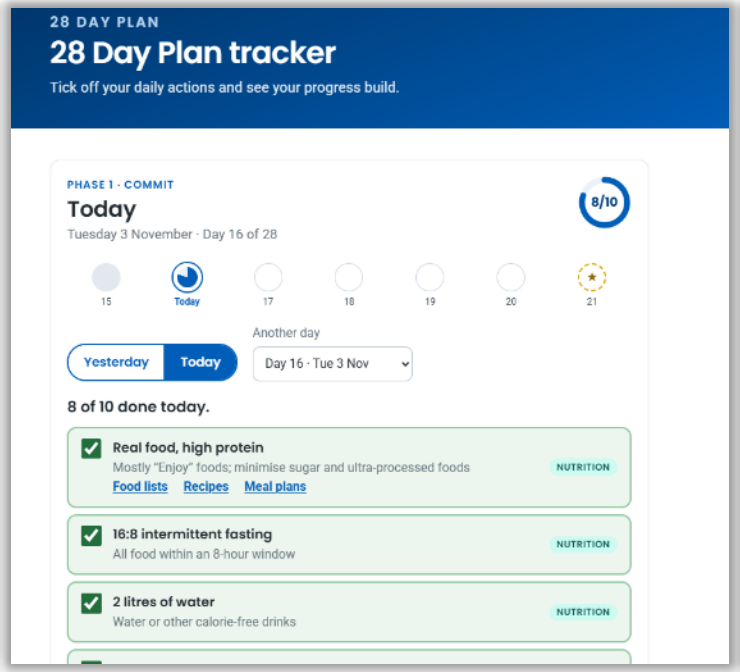
- Education of staff and staff wellbeing intiatives
- Use ARRs funding for health coaches and dietitian
- Run peer support groups and community events

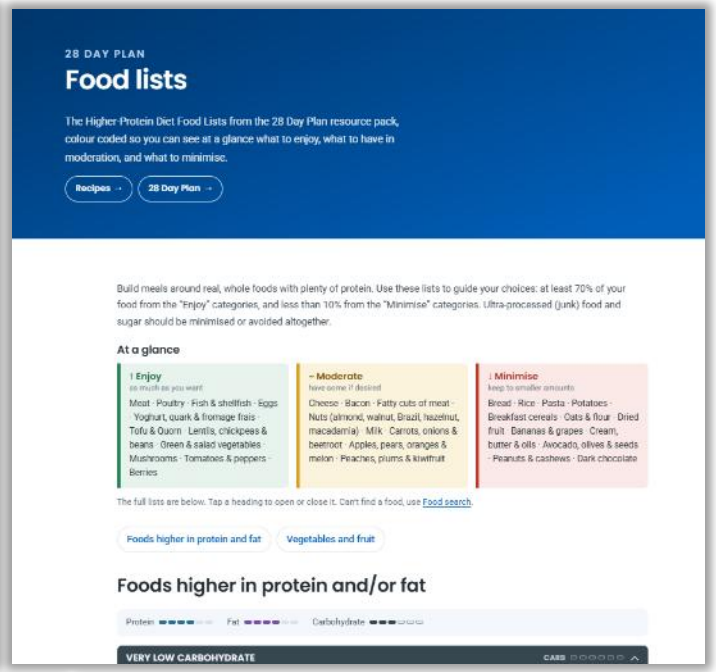


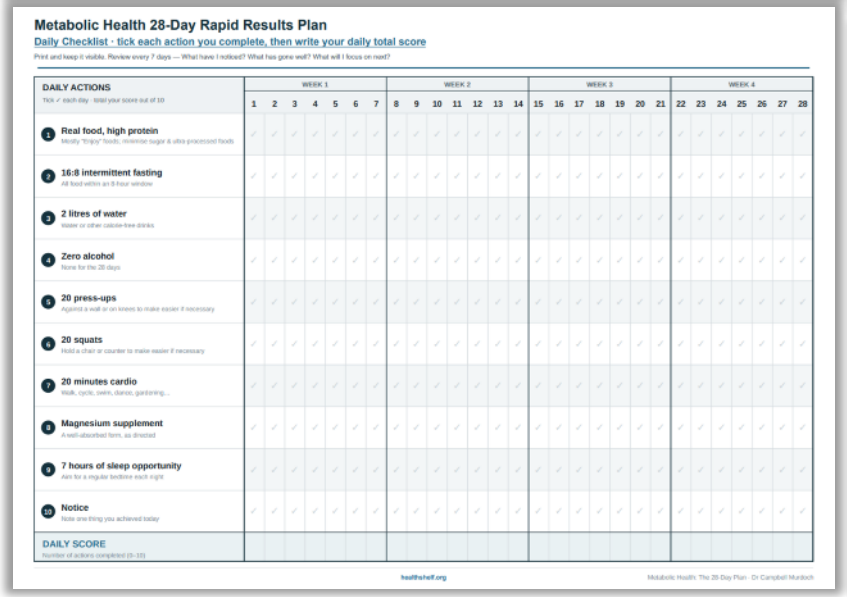
# Integrated (Metabolic Health) Annual Review

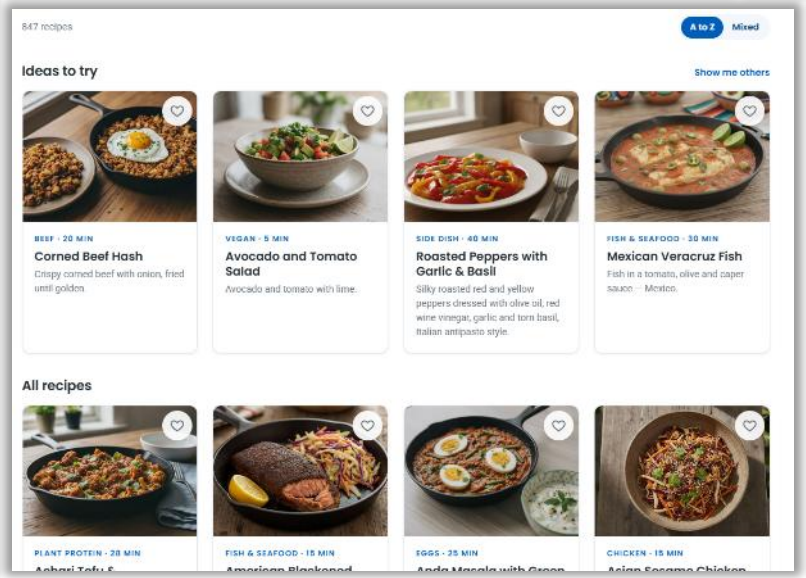


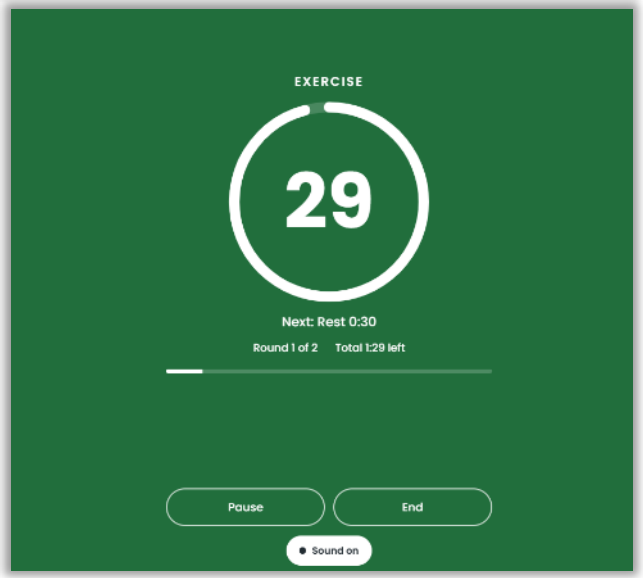

Health Shelf
Home
28 Day Plan
Health Conditions
Guides
Professionals
About
Practical resources for better metabolic health
Reliable, easy-to-use metabolic health information and tools, openly available for everyone.
Free · No sign-up · Your data stays with you
Dr Campbell Murdoch GP
28 Day Plan
Feel well, with more energy, a better mood and a slimmer waist.
Tracker
Tick off your daily actions and see your progress
IR Health Check
Check for signs of insulin resistance in a few minutes
Food lists
Recipes


28 DAY PLAN
28 Day Plan tracker
Tick off your daily actions and see your progress build.
PHASE 1 · COMMIT
Today
Tuesday 3 November · Day 16 of 28
8/10
15
Today
17
18
19
20
21
Another day
Yesterday
Today
Day 16 · Tue 3 Nov
8 of 10 done today.
Real food, high protein
Mostly "Enjoy" foods; minimise sugar and ultra-processed foods
Food lists
Recipes
Meal plans
NUTRITION
16:8 intermittent fasting
All food within an 8-hour window
NUTRITION
2 litres of water
Water or other calorie-free drinks
NUTRITION


28 DAY PLAN
Food lists
The Higher-Protein Diet Food Lists from the 28 Day Plan resource pack, colour coded so you can see at a glance what to enjoy, what to have in moderation, and what to minimise.
Recipes
28 Day Plan
Build meals around real, whole foods with plenty of protein. Use these lists to guide your choices: at least 70% of your food from the "Enjoy" categories, and less than 10% from the "Minimise" categories. Ultra-processed (junk) food and sugar should be minimised or avoided altogether.
At a glance
↑ Enjoy
as much as you want
Meat · Poultry · Fish & shellfish · Eggs · Yoghurt, quark & fromage frais · Tofu & Quorn · Lentils, chickpeas & beans · Green & salad vegetables · Mushrooms · Tomatoes & peppers · Berries
~ Moderate
have some if desired
Cheese · Bacon · Fatty cuts of meat · Nuts (almond, walnut, Brazil, hazelnut, macadamia) · Milk · Carrots, onions & beetroot · Apples, pears, oranges & melon · Peaches, plums & kiwifruit
↓ Minimise
keep to smaller amounts
Bread · Rice · Pasta · Potatoes · Breakfast cereals · Oats & flour · Dried fruit · Bananas & grapes · Cream, butter & oils · Avocado, olives & seeds · Peanuts & cashews · Dark chocolate
The full lists are below. Tap a heading to open or close it. Can't find a food, use Food search.
Foods higher in protein and fat
Vegetables and fruit
Foods higher in protein and/or fat
Protein
Fat
Carbohydrate
VERY LOW CARBOHYDRATE
CARB


Metabolic Health 28-Day Rapid Results Plan
Daily Checklist · tick each action you complete, then write your daily total score
DAILY ACTIONS
WEEK 1
WEEK 2
WEEK 3
WEEK 4
1 Real food, high protein
2 16:8 intermittent fasting
3 2 litres of water
4 Zero alcohol
5 20 press-ups
6 20 squats
7 20 minutes cardio
8 Magnesium supplement
9 7 hours of sleep opportunity
10 Notice
DAILY SCORE
healthshelf.org


847 recipes
A to Z
Mixed
Ideas to try
Show me others
BEEF · 20 MIN
Corned Beef Hash
Crispy corned beef with onion, fried until golden
VEGAN · 5 MIN
Avocado and Tomato Salad
Avocado and tomato with lime.
SIDE DISH · 40 MIN
Roasted Peppers with Garlic & Basil
Silky roasted red and yellow peppers dressed with olive oil, red wine vinegar, garlic and torn basil, Italian antipasto style.
FISH & SEAFOOD · 30 MIN
Mexican Veracruz Fish
Fish in a tomato, olive and caper sauce · Mexico.
All recipes
PLANT PROTEIN · 28 MIN
FISH & SEAFOOD · 15 MIN
EGGS · 25 MIN
CHICKEN · 15 MIN


EXERCISE
29
Next: Rest 0:30
Round 1 of 2
Total 1:29 left
Pause
End
Sound on

# Fuelling Your Future - 4 November 2026 - Feedback

