



PHN VERTICAL INTEGRATION

DIABETES TYPE 2 REVERSAL/REMISSION

Dr. Michelle Reiss

26 APRIL 2023

Dr. Michelle Reiss
GP and Lifestyle Medicine Physician

MBChB, LMCC, CCFP, FRACGP, IBLM, FASLM

- **General Practitioner South Africa (1997)**
- **Canadian College of Family Physicians (2003)**
- **Fellow of the Royal Australian College of General Practitioners (2008)**
- **International Certification in Lifestyle Medicine – IBLM (2017)**
- **Fellow of the Australasian Society of Lifestyle Medicine – FASLM (2018)**
- **Director:**
 - **Life Medical Centre (hybrid General Practice and Lifestyle Medicine “specialist” practice)- 2021**
 - **“I Can Change Me” Program - 2018**
 - **Lifestyle Medicine Centre - 2019**

What is T2DM REMISSION?

Type 2 diabetes remission is defined as¹:

- HbA1c of less than 6.5%
- Sustained for at least three months
- After stopping glucose-lowering medication

Important to note:

- Remission may not be a permanent
- Still requires ongoing diabetes management and regular diabetes healthcare checks

T2DM REMISSION OR REVERSAL?

Remission, reversal or cure? – a note on language

The accepted thought per Diabetes Australia, etc. is that we should not use the word
“reversal”

“Remission in type 2 diabetes is not a cure and there is not necessarily permanent reversal of the underlying cause or pathology. Remission simply means that the person has a HbA1c less than 6.5%”

Personally, I don't agree..... Will explain why.

What do you think after this talk?

Improved HbA1C

Better daily glucose readings

Reduce or come off medications

What could a patient achieve ?

Save doctor visits

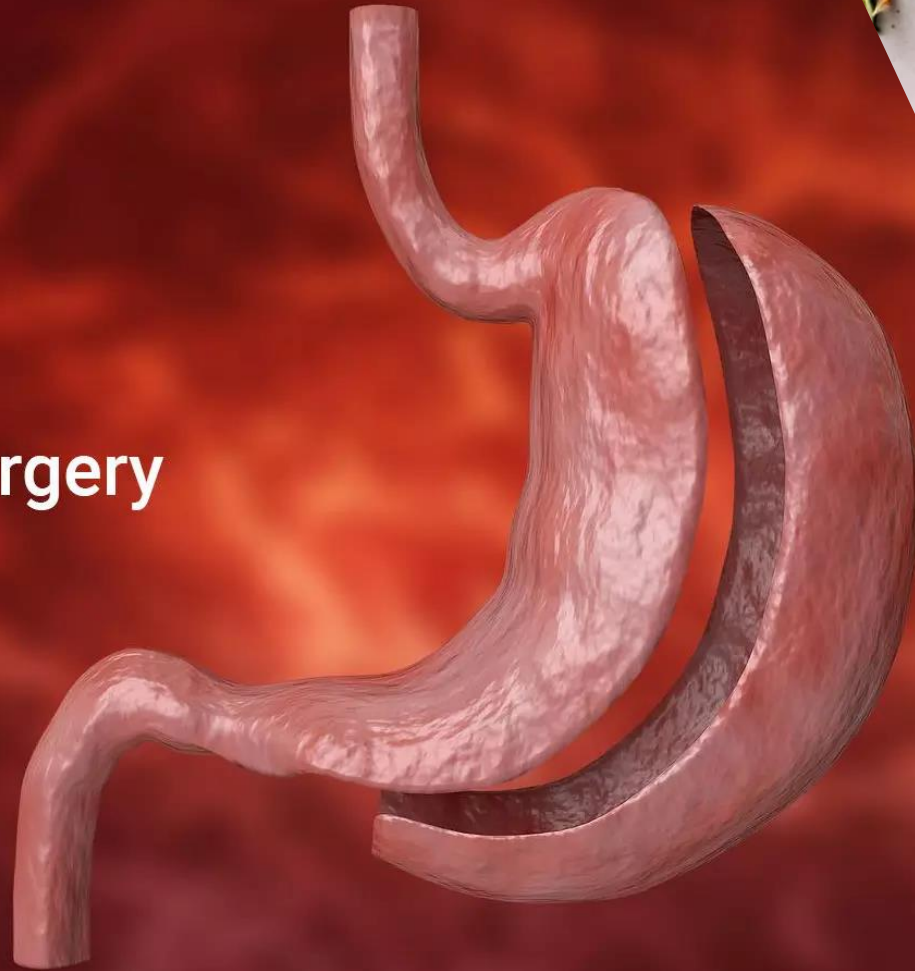
No longer have Diabetes - REMISSION

Reduce the complications: blindness, kidney failure, heart attacks, stroke, toe amputations

Save money

Have more energy

Bariatric Surgery



Tips & Tricks ON KETO DIET FOR BEGINNERS



Lean M, Leslie W, Barnes A, et al. Primary care-led weight management for remission of type 2 diabetes (DiRECT): an open-label, cluster-randomised trial. *The Lancet*, 2018; 391(10120): 541-551.

Taheri S, Zaghoul H, Chagoury O, et al. Effect of intensive lifestyle intervention on bodyweight and glycaemia in early type 2 diabetes (DIadem-I): an open-label, parallel-group, randomised controlled trial. *Lancet Diabetes Endocrinol* 2020; 8: 477-489.

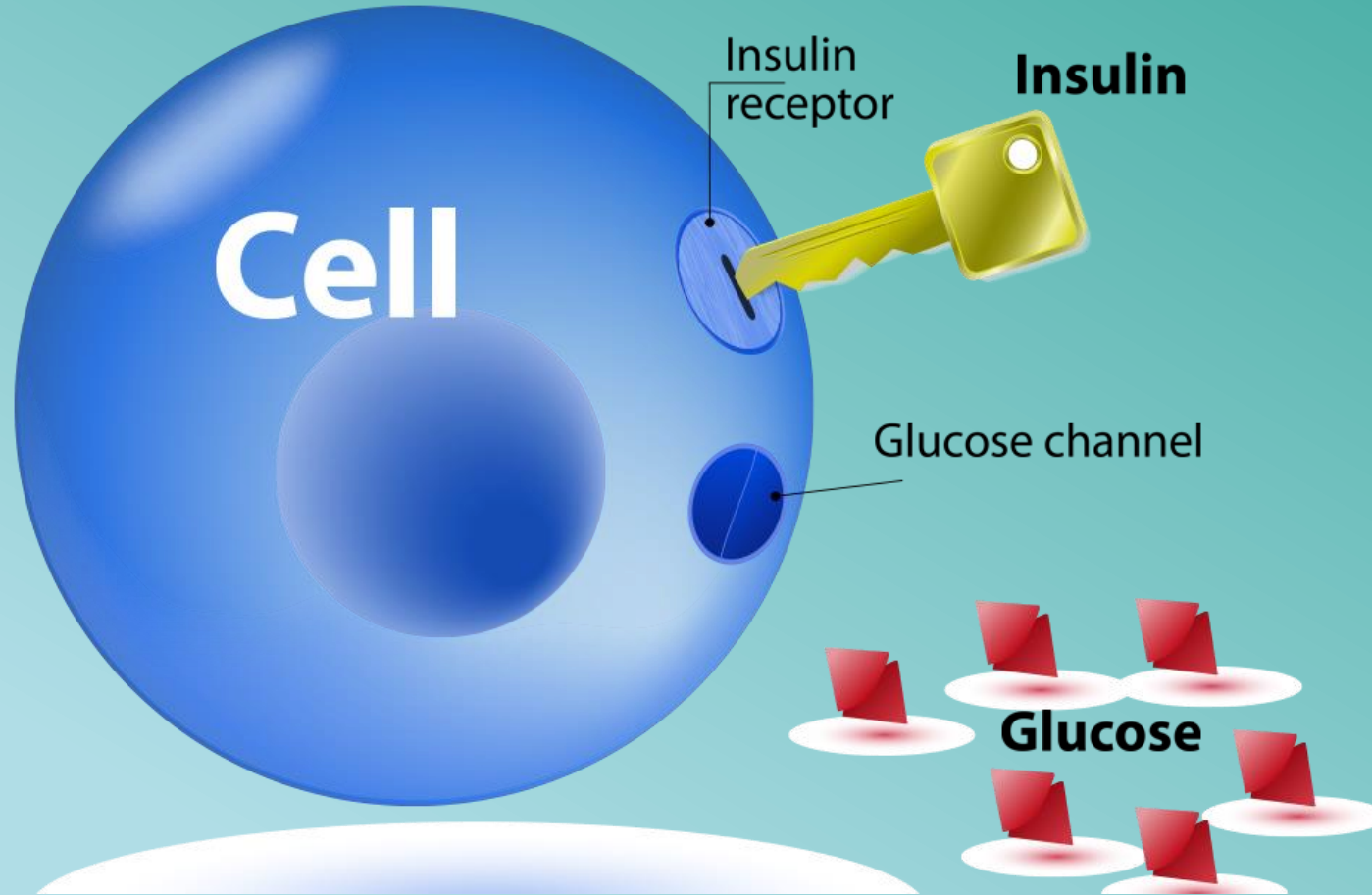
Hallberg S, McKenzie A, Williams P, et al. Effectiveness and safety of a novel care model for the management of type 2 diabetes at 1 year: an open-label, nonrandomized, controlled study. *Diabetes Therapy*, 2018 9(2): 583-612.

Athinarayanan SJ, Adams RN, Hallberg SJ, et al. Long-Term Effects of a Novel Continuous Remote Care Intervention Including Nutritional Ketosis for the Management of Type 2 Diabetes: A 2-Year Non-randomized Clinical Trial *Front. Endocrinology*, 2019; 10: 348. doi: 10.3389/fendo/2019/00348.

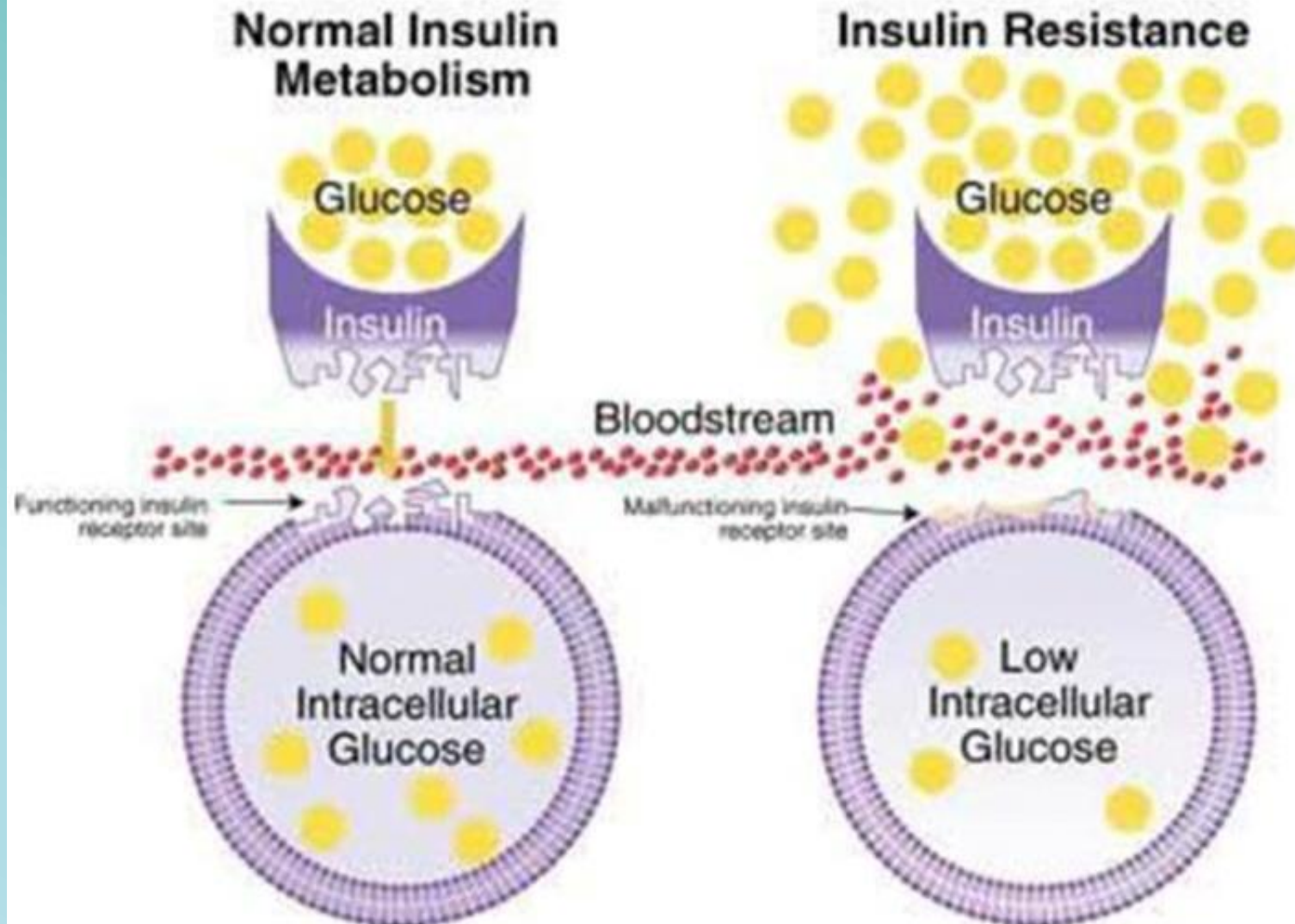
Goldenberg J, Day A, Brinkworth G, et al. Efficacy and safety of low and very low carbohydrate diets for type 2 diabetes remission: systematic review and metaanalysis of published and unpublished randomized trial data. *BMI*, 2021; 372 m4743 doi: 10.1136/bmj.m4743.

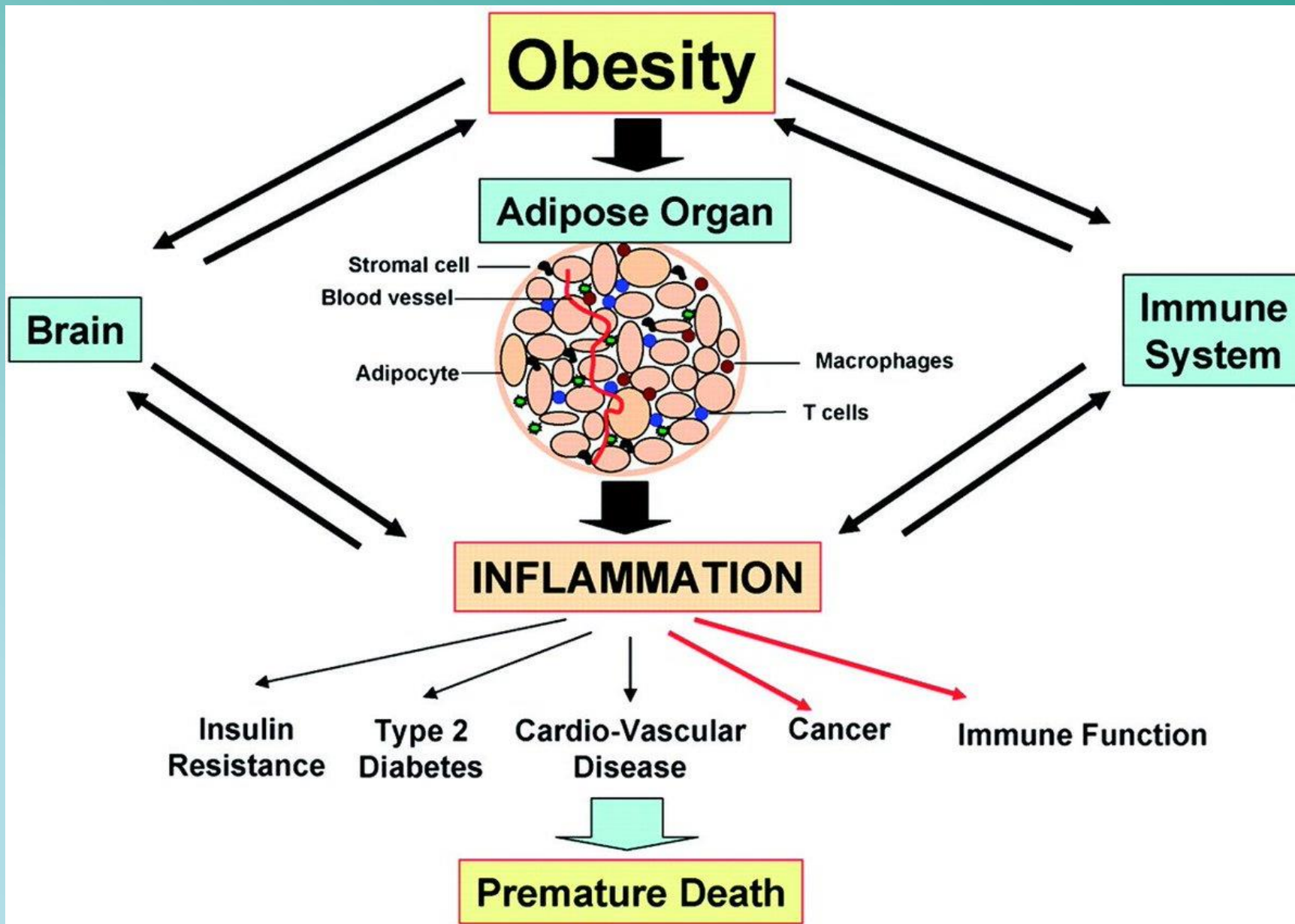
INSULIN

HOW DOES WORK?



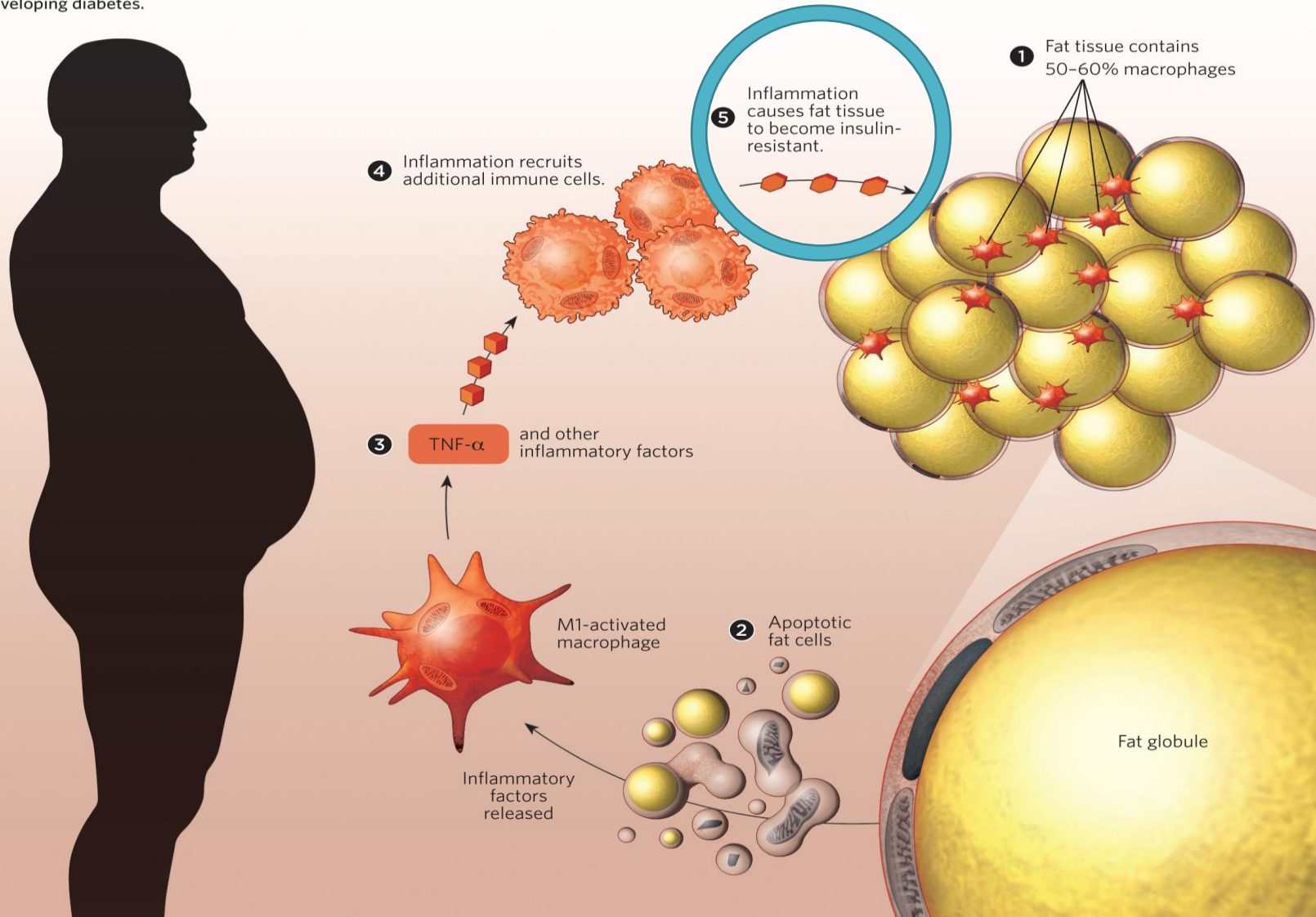
Insulin Resistance





ADIPOSE TISSUE METABOLISM IN OBESE INDIVIDUALS

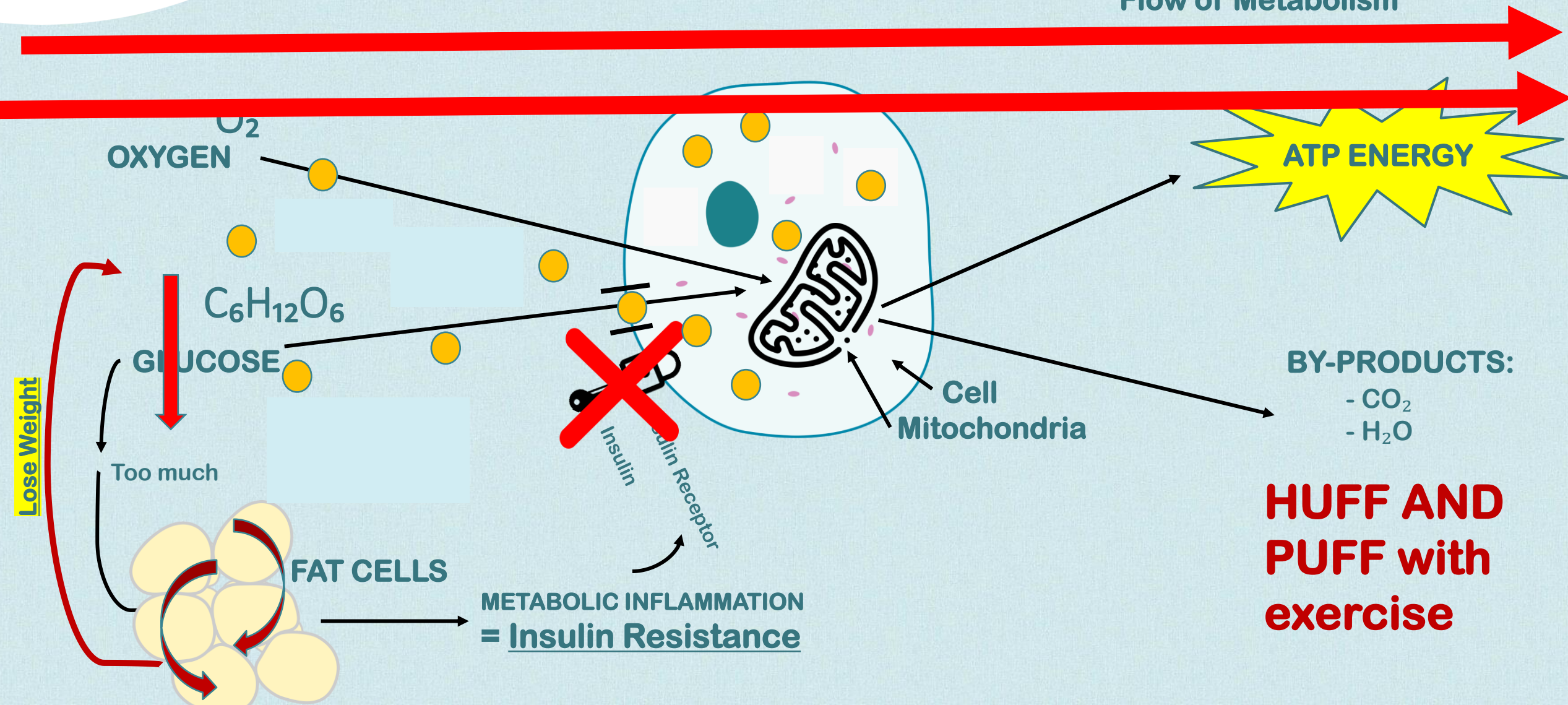
The adipose cells in obese individuals are both greater in number and size than in lean individuals, and the tissue contains a much higher percentage of macrophages **1**. As a result of storing excessive amounts of fat, the stressed adipose cells release inflammation-inducing factors and undergo apoptosis **2**. Both outcomes activate macrophages in a traditional M1 inflammatory state **3** in which they release tumor necrosis factor- α (TNF- α), which recruits and activates additional immune cells to the site **4**. This low level sustained inflammation causes tissues to become resistant to insulin **5**, the first step in developing diabetes.



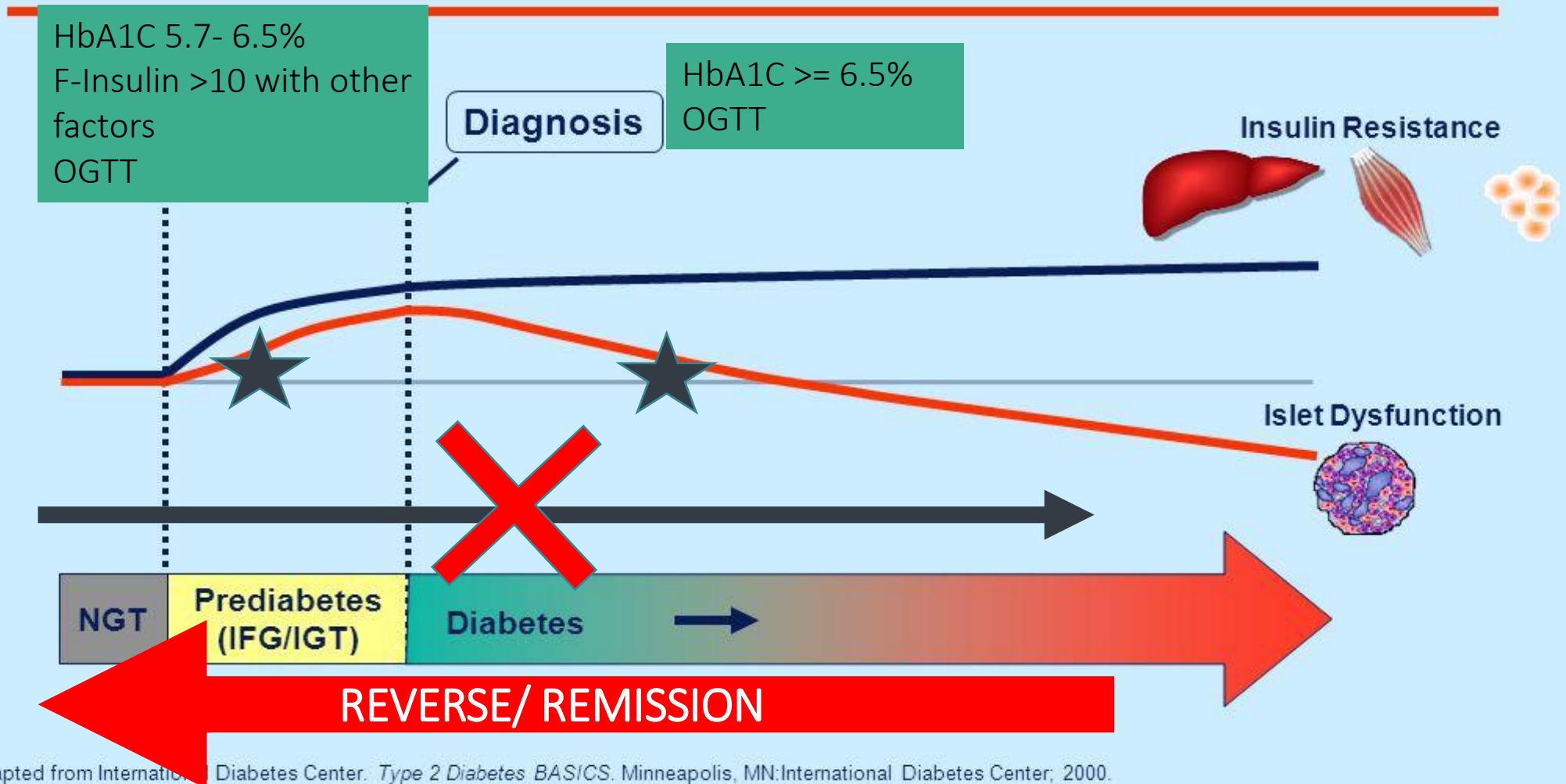
METABOLISM

converting what you eat or have stored into energy

Flow of Metabolism



Natural history of type 2 diabetes: progressive deterioration of Islet Cell Function in the Setting of Insulin Resistance



DiABETES



Of the increase in Type II diabetes between 1950 – 2000, **100%** percent was largely due to lifestyle choices.

Remission, reversal or cure? – a note on language

Type 2 diabetes remission is defined as:

- HbA1c of less than 6.5%
- Sustained for at least three months
- After stopping glucose-lowering medication

Personally, I don't agree.....

Why aim for only less than 6.5%? They are still Insulin Resistant !! But this is because most literature reflects studies done using bariatric surgery/ VLEDs and Keto.....most of these are non-sustainable, have the financial backing and are easily quantifiable.

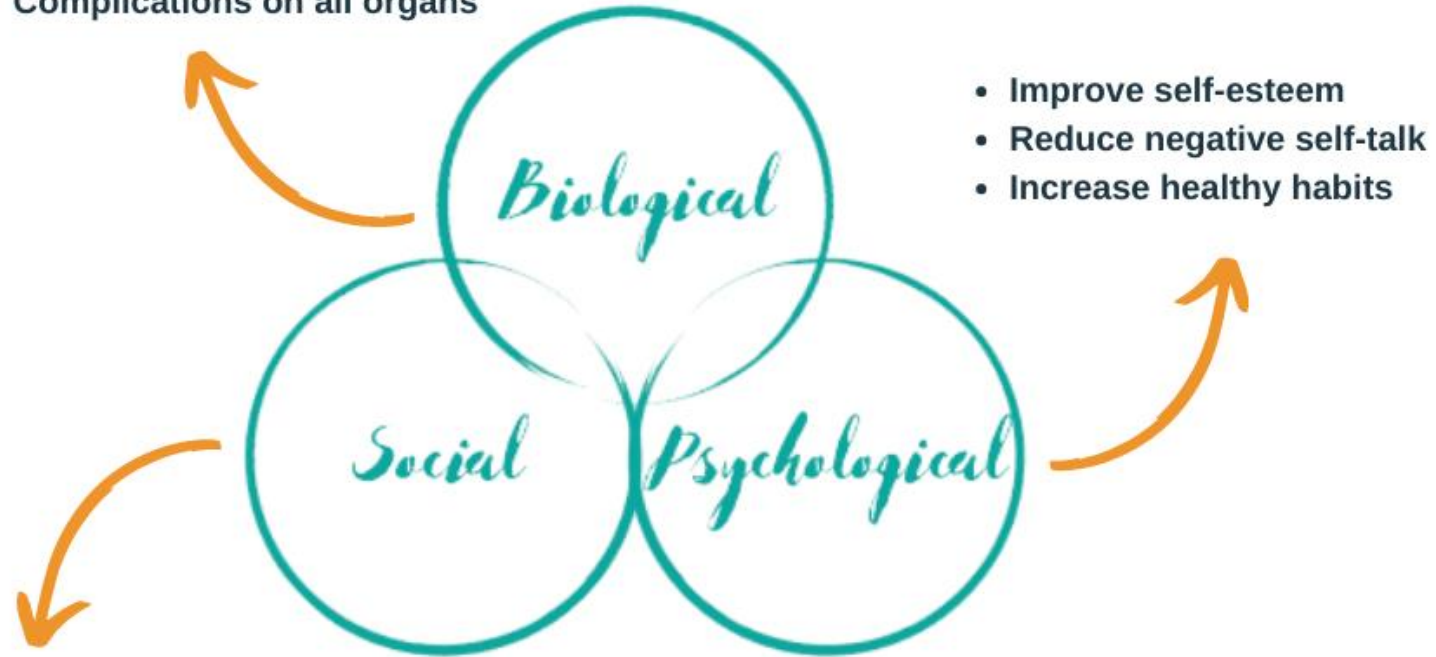
Any “reversal” in HbA1c more than 1% has significant complication reductions, reduces medication and side effect burden, reduces co-morbidity, lowers ED admissions and improves QOL..... so why not use both terms and address both reversal and remission

3 months is really clinically insignificant If patients make sustainable lifestyle habit and behaviour change, then significant remission is probable.

What does Lifestyle modification mean?

- Doesn't just “manage disease”
- Addresses the CAUSE
- Evidence-based approach to Lifestyle modification and behaviour change
- Lose weight through gut-health change, reduced energy-excess food intake, exercise to lift Basal Metabolic Rate
- Ultimately – reduce *Metabolic Inflammation by addressing all lifestyle factors Bio-Psycho-Socially*
- Does no harm and has no Side Effects
- Probably: The best Medicine we have

- Improve sugar control
- Reduce metabolic inflammation
- Excess fat
- Medications
- Complications on all organs



- Improve self-esteem
- Reduce negative self-talk
- Increase healthy habits

- Save money
- Add more energy & sense of vitality
- Add quality of life



When we help **ourselves**, we find moments of **happiness**.

When we help **others**, we find lasting **fulfillment**. *- Simon Sinek*

michelle@lifemedicalcentre.com.au