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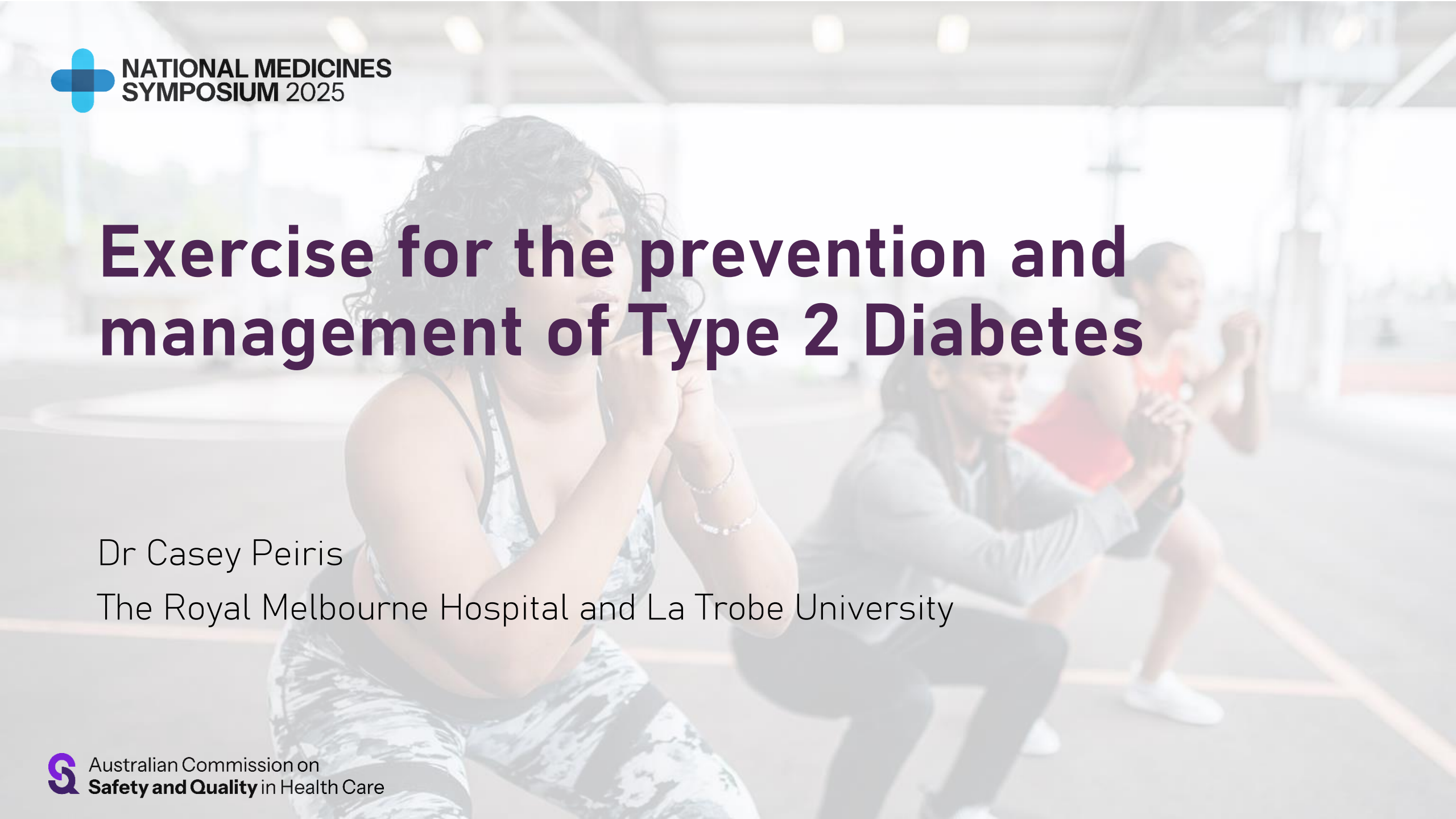
Exercise for the prevention and management of Type 2 Diabetes



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

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How exercise fits

- Chronically elevated BGLs → nerve and vessel damage → neuropathy, kidney disease, cardiovascular disease etc.
- Complications are driven by poor glycaemic control and CVD – exercise addresses both

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Today's focus

Obesity

Prediabetes

T2DM

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How exercise works

- **Mechanism 1**. Improves insulin sensitivity / lowers circulating BGLs
- **Mechanism 2**. Other systemic benefits

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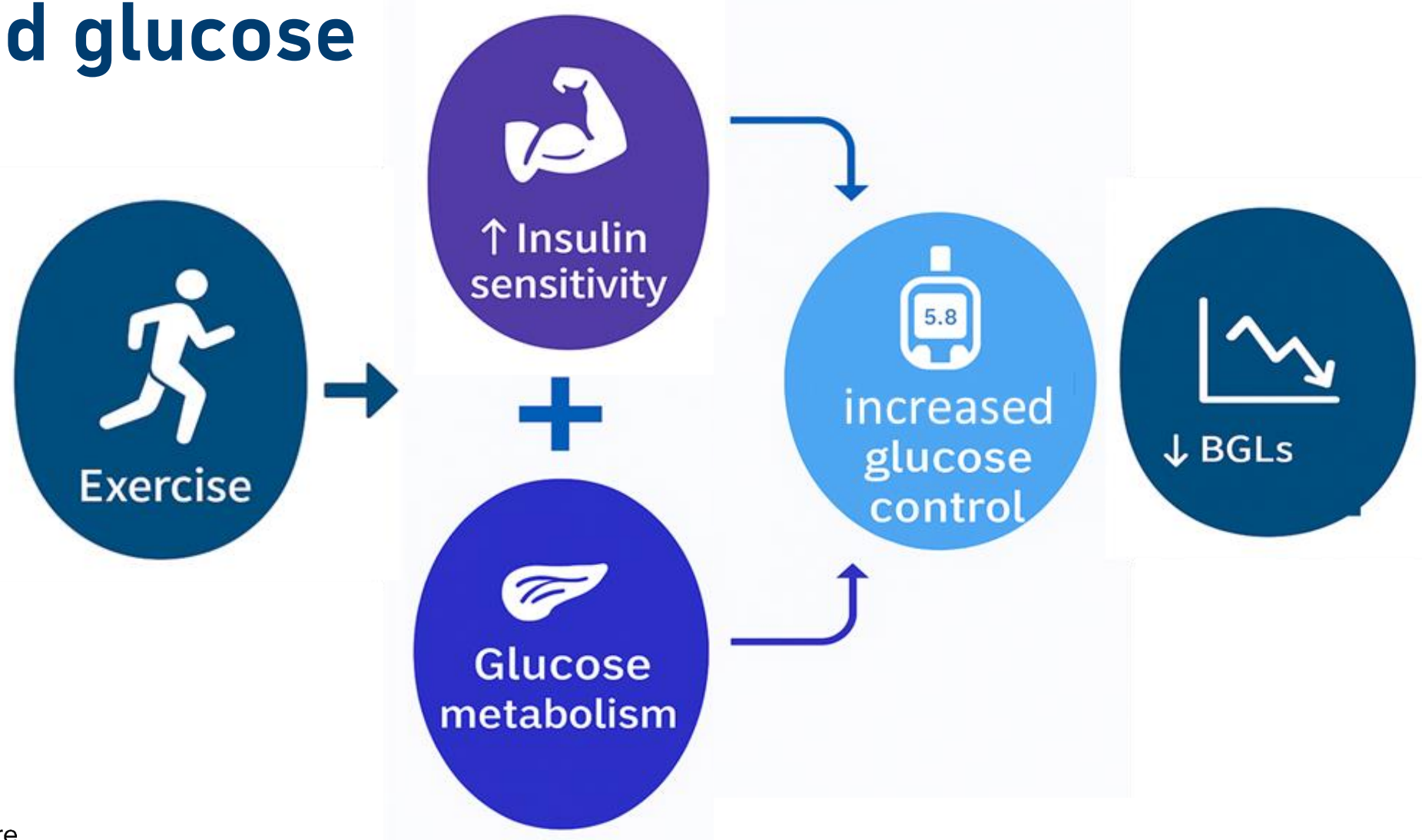
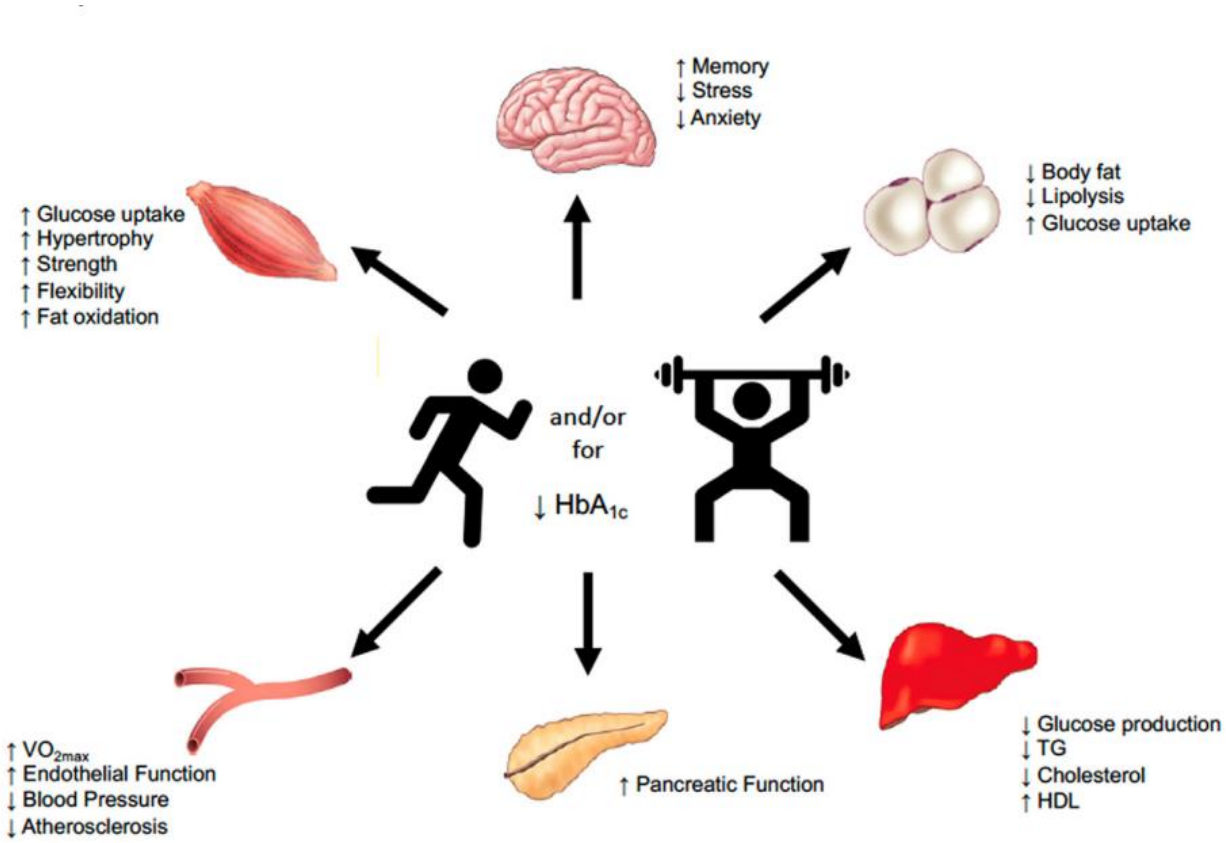
Exercise and glucose control



Systemic effects of exercise

- Improved mitochondrial function and fat oxidation
- ↓ Visceral adiposity → ↓ insulin resistance
- ↓ Inflammation, ↑ vascular health



From: Syeda USA, Battillo D, Visaria A, Malin SK. The importance of exercise for glycemic control in type 2 diabetes. Am J Med Open. 2023 Jan 18;9:100031. doi: 10.1016/j.ajmo.2023.100031.

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Evidence for effectiveness

Lifestyle interventions that aim for 2-10% weight loss + 150 mins/week exercise

↓ Risk of diabetes in adults by 45%

↓ Incidence of diabetes by 58% for people with prediabetes

Reverse diabetes in up to 60% of people with T2DM

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Syeda et al., 2023

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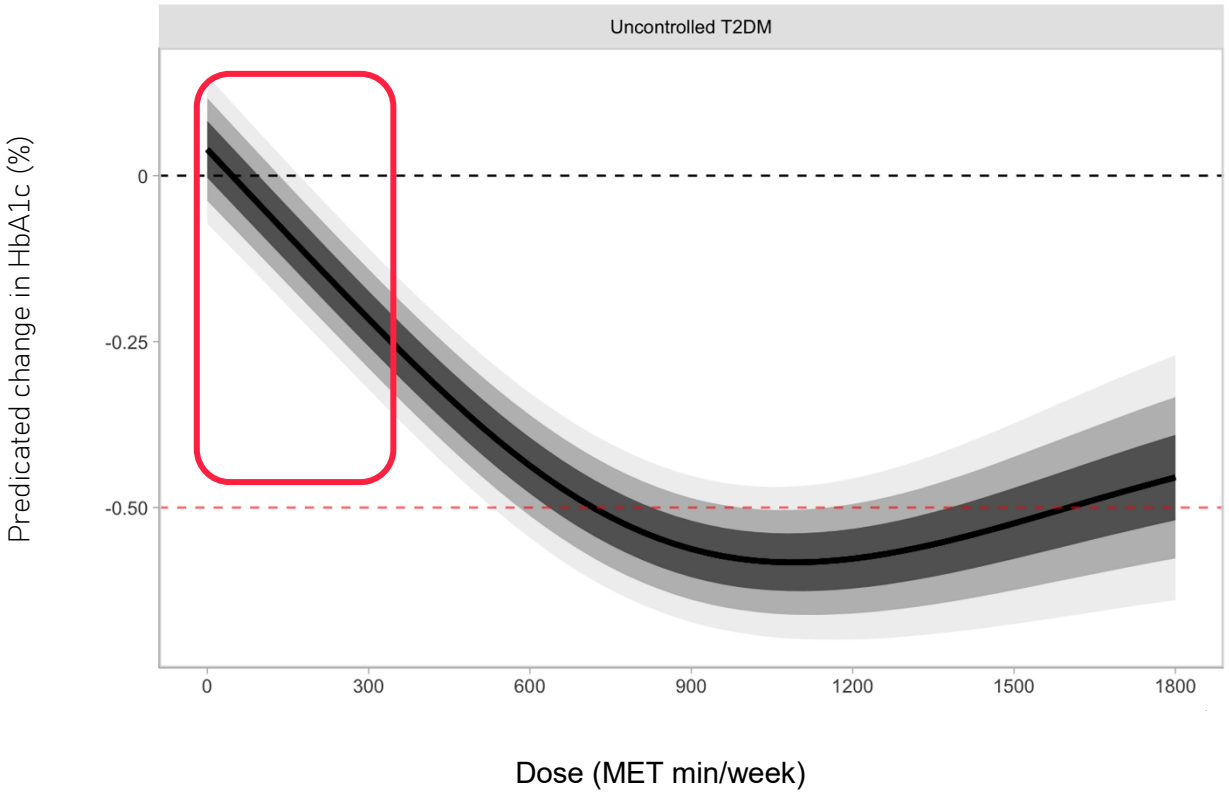
Dose-response relationship



From: Gallardo-Gómez D et al., **Optimal Dose and Type of Physical Activity to Improve Glycemic Control in People Diagnosed With Type 2 Diabetes: A Systematic Review and Meta-analysis.** Diabetes Care. 2024;47(2):295-303. doi:10.2337/dc23-0800

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American Diabetes Association®

Types of exercise

Aerobic: 150 mins/week moderate intensity

Resistance: 2–3 sessions/week

Combined = greatest $HbA1_c$ reduction

Exercise guidelines and recommendations

- Guidelines: 150 minutes/week MIPA + resistance training 2-3 x week (ACSM/ADA 2016)
- More is better, but anything is better than nothing
- Be as active as able

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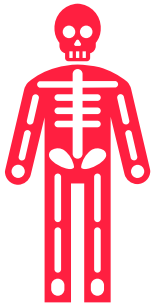
Exercise prescription

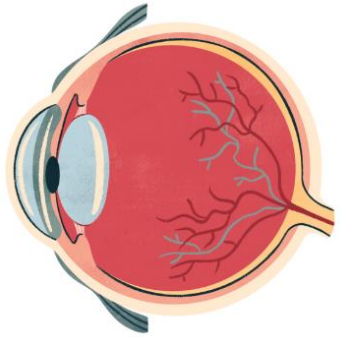
- Young people with good metabolic control can safely exercise
- Middle and older-aged should also be active but need an assessment for vigorous activity
- Anything is better than nothing
- Start slowly, progress gradually
- Emphasis should be on sustainability

Precautions



Peripheral artery disease:

PA is recommended but modify to increase comfort

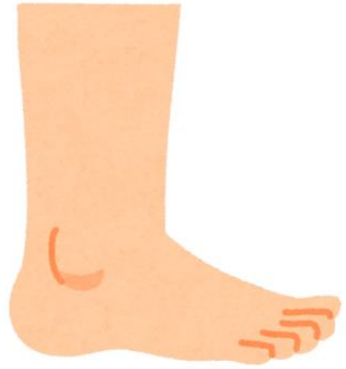


Retinopathy:

People with proliferative diabetes retinopathy should avoid strenuous exercise

Nephropathy:

Avoid high-intensity PA



Peripheral neuropathy:

Blister prevention, carefully monitor feet

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Role of healthcare professionals

- Brief intervention during consult (Ask–Advise–Refer)
- Referral pathways (exercise physiologists, physios)
- Exercise is medicine – prescribe it

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Take home messages

Important to include exercise as part of diabetes management for ALL

Give every patient the opportunity to experience exercise

Even small changes make a difference

Refer on for support as needed

Thank you

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LA TROBE UNIVERSITY