



# Exercise and Management of Type II Diabetes Mellitus

It is widely accepted that routine exercise is a strategy that is central to the prevention, care and management of Type II Diabetes Mellitus (T2DM). T2DM results when there is decreased secretion of insulin from the pancreas and from insulin resistance, causing hyperglycaemia (high blood sugar levels). Some risk factors for development of T2DM are; physical inactivity, abdominal obesity, family history, smoking and excessive alcohol intake.

## Benefits of Exercise

- ◆ **Improved Glycaemic control:** reduces the risk of accelerated cardiovascular, renal and ophthalmic diseases. The exercise-induced benefits from regular aerobic and resistance training are; increased insulin sensitivity, insulin dependent glucose uptake, increase in muscle capillarisation and blood flow, which simply means improved blood sugar control.
- ◆ **Body composition:** decreasing body fat and increasing lean muscle mass.
- ◆ **Cardiorespiratory fitness:** associated with a reduction in cardiovascular disease and lowers blood pressure.
- ◆ **Physical functioning:** improved ability to perform various activities of daily living (ADLs)
- ◆ **Overall wellbeing:** studies show that regular exercise improves physiological as well as psychological wellbeing.

## Exercise Considerations for T2DM

The risks of any adverse events are low in people with T2DM exercising at low - moderate intensities. Considerations around the timing of medication, meals and exercise need to occur to ensure safety and management of BGL. Self-monitoring of BGL pre and post exercise is also a great strategy. Some other considerations with exercise to be monitored:

- ◆ Hypoglycaemia (low blood sugar) BGL<4mmol/L. – some symptoms of hypoglycaemia are feelings of lightheadedness, shakiness, and fainting (although symptoms can vary among individuals). Ingesting extra carbohydrates before and during exercise may be required to prevent hypoglycaemia- can be discussed further with a Dietitian.
- ◆ Peripheral neuropathy (reduced sensation in hands and feet); ensuring appropriate footwear is worn, regular foot inspections and low impact exercise is recommended for these individuals.

**Routine exercise should be performed to improve management of T2DM**

## How to Exercise With T2DM

Type of exercise	Intensity	Duration	Frequency
<b>Aerobic</b> (large muscle groups - walking, running, cycling, swimming)	Moderate: 50-69% HRmax	210 minutes per week	No more than two consecutive days without exercising
	Vigorous: 70-89% HRmax RPE 14-16	125 minutes per week	
<b>Resistance</b> (strength) (multi joint exercises, progressive, large muscle) Exercises with free weights, weight machines, body weight, or elastic resistance bands	Moderate- Vigorous 8-10 exercises 2-4 sets 8-10 repetitions 1-2 minute rest intervals	60 minutes per week	2 or more times/ week

### References:

Colberg, S., et al (2016). Physical Activity/Exercise and Diabetes: A Position Statement of the American Diabetes Association. Diabetes Care

Hordern, M., et al (2012). Exercise prescription for patients with type 2 diabetes and pre-diabetes: A position statement from Exercise and Sport Science Australia. Journal Of Science And Medicine In Sport