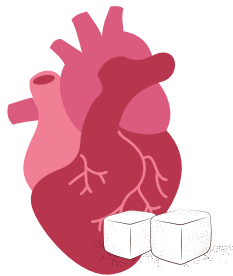
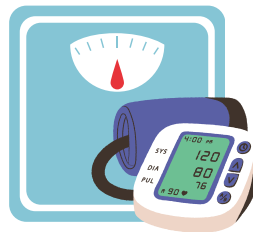


Exercise for Type 2 Diabetes Mellitus (T2DM)

Why is exercise important?



Lower or maintain your blood sugar in a healthy range



Improve your body weight and blood pressure




Reduce your risk of developing health conditions such as stroke and heart attack

It is recommended that you measure your blood glucose before exercise especially if you are on medication such as insulin.

You may purchase a glucometer at the pharmacy and your physiotherapist will guide you on how to perform self-monitoring.



What your blood glucose level tells you

Blood glucose level before exercise	Recommendation
<4 mmol/L	 <p>Blood glucose level is low.</p> <p>Please consume food/beverage which contains approximately 15g of sugar for e.g:</p> <ul style="list-style-type: none">• 5 - 6 pieces of soft sweets• 1/2 cup or 125ml of juice or regular soda• 1 tablespoon of sugar/honey <p>Re-check your blood glucose level 15 minutes later.</p> <p>Repeat the above steps if blood glucose level is still low. Seek medical advice immediately if blood glucose level persistently remains <4mmol/L.</p>
4 to 5.6 mmol/L	<p>You are at risk of having low blood glucose level during exercise. Proceed to have 15g of sugar (as stated above).</p> <p>Ensure your blood glucose level is above 5.6mmol/L before exercise.</p>
5.7 to 14.0 mmol/L	<p>Proceed with exercise!</p>
>14.0 mmol/L	<p>Blood glucose level may be too high for exercise. Check with your physiotherapist or doctor before exercising.</p> <p>Seek for medical help immediately if you are experiencing symptoms such as fatigue, weakness, or increased thirst.</p>

Signs & symptoms of impaired blood glucose levels

Low blood glucose levels



Confusion & Giddiness



Hunger



Weakness

High blood glucose levels



Blurred vision



Feeling of thirst



Frequent urination

Before exercise

- Ensure that you are well and do not have symptoms of low/high blood glucose level.
- Take your medication and meals at least one to two hours before exercise or as instructed by your doctor or physiotherapist.
- Ensure you are well hydrated before exercise and bring along your water bottle.
- Bring along some sweets to consume in event of low blood sugar.
- Wear proper exercise attire, well-fitting socks and footwear.



During exercise

Stop exercising if you are feeling any of the following symptoms



Chest Discomfort



Shortness of breath



Skipping sensation

- If you are experiencing low blood glucose symptoms, check your blood glucose level immediately.
- If it is low, proceed to consume 15g of sugar as stated above.
- If the symptoms persist, please seek medical attention immediately.

It is also important for you to monitor your exertion levels during exercise!

Read on to see how you can do so.



Types of exercises

There are three types of exercise – flexibility, aerobic and strengthening. It is important that your exercise regime includes a combination of these to help you improve your health.

1. Aerobic exercise

Aerobic exercise refers to exercise that increases your heart rate. This includes brisk walking, jogging, cycling, swimming, and dancing. Aerobic exercise is important in maintaining or improving your heart and lung function. It is recommended you perform 150 minutes of moderate intensity aerobic exercise per week.



What does intensity mean?

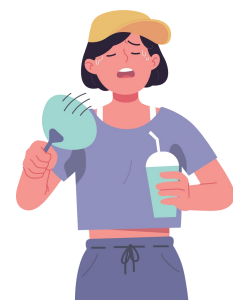
Intensity refers to how hard your body is working during physical activity. Intensity of physical activity can be determined simply by using a 'talk test' or the Rate of Perceived Exertion (RPE) scale.



Talk Test

Moderate intensity:

You can talk comfortably but not sing. You may notice a slight increase in breathing and heart rate. You may also be perspiring.



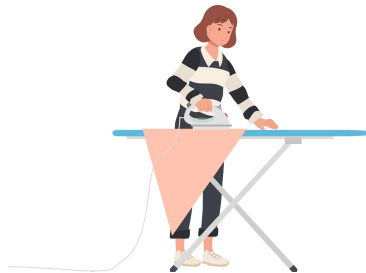
Vigorous intensity:

You are unable to say more than a few words without gasping for breath. You will notice a significant increase in heart rate and find yourself breathing hard and fast.



Here are some examples of physical activities at different intensities:

- Light: Slow walking, shopping, light household chores e.g., washing dishes, ironing/folding clothes, sweeping




- Moderate: Brisk walking, leisure cycling or swimming, playing doubles badminton, dancing



- Vigorous: Jogging/running, playing singles badminton, skipping with a rope



Rate of Perceived Exertion (RPE) Scale

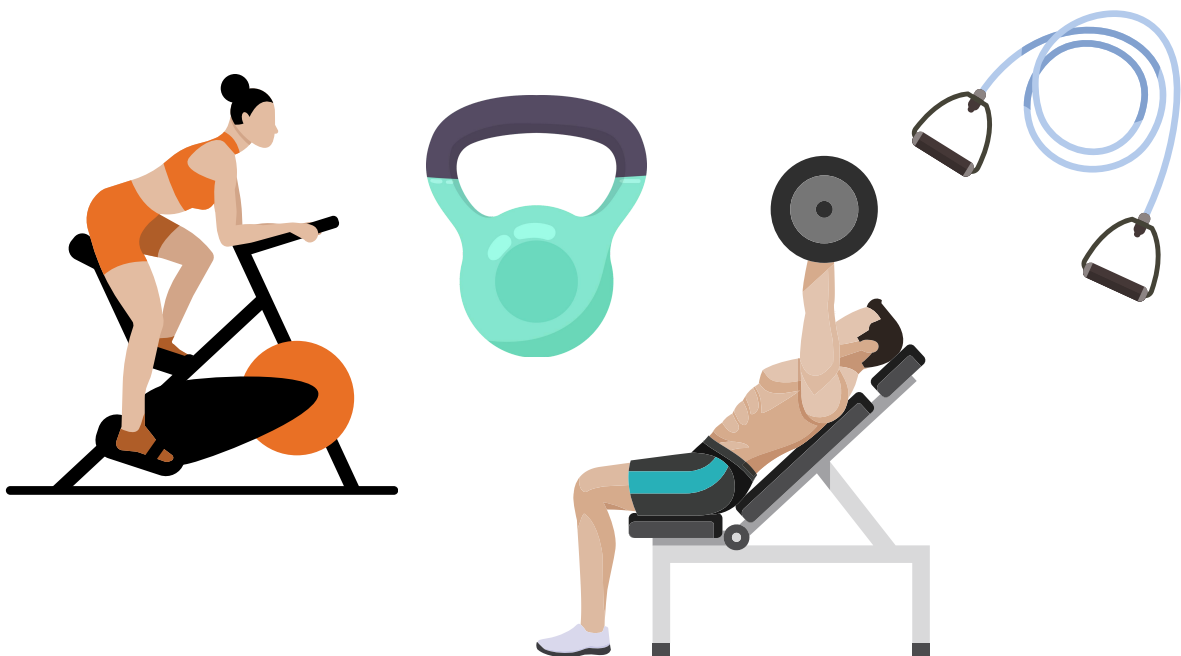
0	Nothing at all	Able to maintain a conversation or sing with no breathlessness or sweating	
0.5	Extremely weak (Just noticeable)		
1	Very weak		
2	Weak(light)		
3	Moderate		
4		Able to maintain a conversation with some breathlessness or sweating	
5	Strong (heavy)	Only able to speak a short sentence	
6			
7	Very strong		
8		Only able to say a few words	
9			
10	Extremely strong (almost maximal)		
Maximum			

To help you attain the above recommendation of 150 minutes of exercise per week, you can consider accumulating it over 5 days per week, for 30 minutes each day. If you have not been exercising, you should start off with 10 – 20 minutes of low intensity exercise and gradually increase the time and intensity as you progress over the next few weeks.

2. Strengthening exercise

Strengthening exercises help you build muscle mass. Strong muscles are important as it prevents additional stress on your joints and minimizes your risk of injury. Strong muscles have been associated with numerous health benefits like a reduction in chronic disease risk factors, increase in lean muscle mass and loss of body fat.

Strengthening exercises can be done using weights (dumbbells or kettlebells), resistance bands or machine weights. It is recommended you include strengthening exercises in your exercise regime on alternate days (2–3 times per week).



Tips for safe strength training

- Always start with a lighter resistance to minimize risk of injury.
- Avoid locking your joints when exercising.
- Ensure proper form. Your physiotherapist will be able to guide you.



- Never hold your breath. Breathe out when you are lifting or pushing. Breathe in as you slowly release the weight or load.
- Listen to your body. Only increase your load or weight if you can finish 12 repetitions comfortably.



3. Flexibility exercise

Flexibility exercises are important in reducing muscle tightness and your risk of injury. Being flexible allows your joints to move through the full range of motion when performing aerobic or strengthening exercises. An example of flexibility exercise is stretching, which can be performed before and after aerobic or strengthening exercise.



Tips for safe stretching

- Always stretch slowly and smoothly for as far as you can, without causing pain.
- Breathe normally.
- Hold the stretch for 20 – 30 seconds and repeat 3 – 5 times.

To ensure exercise becomes part of your lifestyle, do find ways to enjoy it. One way of doing this would be to treat it as a fun activity and include your friends and family.



After exercise

Remember to check your blood glucose level after your exercise.

Blood glucose level after exercise	Recommendation
<4 mmol/L	<p>Blood sugar is low.</p> <p>Please consume food or beverage which contains approximately 15g of sugar for e.g:</p> <ul style="list-style-type: none">5-6 pieces of soft sweets1/2 cup or 125ml of juice or regular soda1 tablespoon of sugar or honey <p>Check your blood sugar 15 minutes later.</p> <p>Repeat the above steps again. Seek medical advice is blood sugar level remain <4mmol/L.</p> <p>Inform your doctor when you have low blood sugar episode</p>
4 to 5.6 mmol/L	<p>Your blood sugar will continue to drop after exercise.</p> <p>Have a snack if your meal is more than an hour away.</p>

For more information on how to exercise appropriately, get in touch with your doctor or physiotherapist.

Contributed by Physiotherapy, Rehabilitation, Allied Health Services

This brochure is produced for educational purposes and should not be used as a substitute for medical diagnosis or treatment. Please seek the advice of a qualified healthcare provider before starting any treatment or if you have any questions related to your health or medical condition.

Information shared is accurate as of April 2024 and subject to revision without prior notice.



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