

Section 6

Physical activity

What does physical activity have to do with type 2 diabetes?

Physical activity and active play is important for all children and adolescents, especially those with type 2 diabetes.

Physical activity in combination with a healthy diet and lifestyle is a vital part in managing type 2 diabetes.

Physical activity and insulin

Physical activity improves your body's response to insulin. This means the insulin can do a better job of moving glucose from your blood throughout your body, resulting in lower blood glucose levels.



Physical activity helps you move glucose from your blood into your muscles without needing insulin - another reason for getting your muscles working!

Other great benefits of physical activity

- Improved overall fitness (heart and lungs)
- Improved cholesterol
- Lower blood pressure
- Weight loss or maintenance
- Stronger bones and muscles
- Better sleep
- Less stress and tension
- Better self-esteem and confidence



What counts as physical activity?

Anything you do that uses your muscles to move your body counts as physical activity. This can include movement you do as you go about your normal day (incidental activity), activity you do on purpose to increase your heart rate and make you breathe more deeply (exercise), or more formal physical activity with rules and maybe organised completion (sport).

Incidental activity examples

- walking around the shops
- walking between classes at school
- chores like making your bed or vacuuming the floor



Exercise examples

- walking the dog
- going for a bike ride
- swimming



Sport examples

- netball
- soccer
- basketball



Australian 24-hour Movement Guidelines

Australia has guidelines that outline how children and young people aged 5 to 17 years old should spend their time to improve their health. They describe what a day for a child or young person should look like, including time for exercise, limiting things like watching TV and screen time as well as getting enough sleep.



Your physiotherapist will help you move towards meeting those guidelines.

What are the Australian Physical Activity Guidelines for me?

Children and young people should aim for at least 60 minutes of moderate to vigorous physical activity every day, as well as several hours of low intensity physical activity.

- Most of that activity should be the type to make you breathe more deeply and quickly, and make your heart beat faster (cardiovascular activity). Three times a week physical activities that make your muscles work hard should be included (strengthening activities).
- You can do this in bits and pieces throughout the day to add up to 60 minutes or more. If you are not used to doing moderate intensity physical activity (medium effort), it is better to do a few shorter bursts of activity.

What is moderate to vigorous intensity?

Your physical activity has to be of moderate intensity or higher for it to count towards your 60 minutes per day.

- **Low intensity (little)** activity doesn't make you hot or puffed, but you are more active than just sitting or lying down.



- **High intensity (vigorous exercise)** makes you very puffed, you can still talk but you have to stop every couple of words to take a breath.



- **Moderate intensity (medium exercise)** makes you feel warm and slightly out of breath, but not so puffed that you cannot talk.



- **Incidental activity, exercise and sport** can all be low, moderate or vigorous in intensity depending upon how you perform them.







Measuring intensity (RPE)

A good way of measuring intensity (effort) is to give yourself a score out of 10 - where 0/10 feels very, very easy and 10/10 feels so hard that you have to stop. If you are scoring 6/10 or above, you are likely to be in the moderate intensity range or above.

You can do a similar scale for how easily you are breathing, or how puffed you feel. If 0/10 is not puffed at all, and 10/10 is so puffed you have to stop, you should be aiming for a 6/10 rating to be in moderate intensity.

Rating Perceived Exertion (RPE)

Just noticeable				Light		Heavy		Almost max		
										
0	1	2	3	4	5	6	7	8	9	10
nothing at all	very weak	weak	moderate	somewhat strong	strong		very strong			very very strong

What are strengthening activities?

These are activities that make your muscles feel tired while you are doing them.

Exercises

- Squats
- Push-ups



Climbing

- Stairs
- Ladders
- Hills

Carrying

- Heavy school bags. They can be incidental activities
- Full basket of groceries around the shop

Sports

- Rock climbing
- Tug of war





How often do I need to do physical activity?

Every day you need to do some physical activity that makes you a bit puffed. Every second day you should also do some strengthening activity. A couple of times a week you should do something that makes you feel very puffed.



How can I make a start?

Your physiotherapist will assess your fitness and then together you will come up with a plan to slowly increase your moderate to vigorous physical activity (MVPA).

- A good way to begin is to think about any physical activity you are already doing. It may help to record this in a timetable at the back of this section. (attached timetable). Remember to include all physical activity – incidental, exercise and sport, regardless of intensity. Your physiotherapist will help with this.
- Decide how much of each activity is spent at moderate to vigorous physical intensity or above, and note that next to the activity in your timetable. For example, you may play netball for an hour but actually only be active enough to be puffed for 10 minutes of that time, so record 10 minutes of MVPA.
- You will then be able to add up the time you spent in MVPA every day.
- On days you have recorded less than 60 minutes MVPA, plan some time in your timetable to do an extra 10 minutes (or more if you are feeling confident) of MVPA.



Together with your physiotherapist you can decide how you can get more MVPA into your day. You might decide to increase the intensity of something you are already doing at low intensity, for example you might decide to walk home from school really fast so you get puffed, instead of your usual slow pace.

You might do a bit more of something you are already doing at moderate intensity e.g. if you already ride your bike with your family at a moderate pace you could ride for an extra 10 minutes. Or you might decide to add something new - just make sure you can do it at moderate intensity so it counts towards your 60 minutes per day. Something you know you enjoy, or maybe something you can do with a friend would be a good start.

Your physiotherapist will teach you some safe body weight resisted exercise specifically to strengthen the large muscle groups in your body. You can do these exercises without additional equipment, which means you can do them at home or anywhere with enough space.



You may want to do other activities that will help strengthen your muscles like swimming with hand paddles. Strengthening activity several times a week is part of the 24 Hour Movement Guidelines.



Whether you are new to MVPA or extending your current MVPA, it is important to remember to increase your activity little by little over time. Making big and fast changes to your physical activity may make you feel sore and tired, at risk of injury, and less likely to stick with it.

I have made a start, now what do I do?

After a few weeks with your extra 10 minutes of MVPA, you can add another 10 minutes or so each day. Remember you don't have to do the same activity each day, at the same time. Some people find having a set routine helps them get into the habit of regular physical activity. Others like a lot of different exercise and time to stay interested.



Whatever works for you is fine - the best activity is the one you actually do!

Should I focus on strengthening or cardiovascular activities?

Strengthening or resistance exercises can lower your fasting blood glucose levels for 24 to 48 hours after the activity. This makes them an important part of your physical activity program.



Cardiovascular activity reduces your blood glucose levels immediately after the activity, and if you do it regularly, your glucose levels will stay down for longer. It will also make your heart and lungs stronger. A combination of cardiovascular activity (things that make you puffed like walking, running or cycling) and strengthening activities (where your muscles are working against resistance like push-ups or squats, or walking up and down stairs) is best. You can do strengthening every second day and cardiovascular activities every day.

What if I stop doing my physical activity?

Everyone who exercises has times and reasons for when they can't keep up with their exercise routine. It is perfectly normal and you should expect it to happen to you - more than once.

If it has only been a few days you should be able to pick up your previous level of activity with no trouble. If it has been a couple of weeks or more, you may need to take it a bit easier for the first week or so and slowly work back up to your usual level.



The key is to make sure you start again – TODAY.

What if I feel sore after my physical activity – should I stop?

It is normal to feel sore in your muscles a day or two after exercise. Especially if you are new to activity or if you are doing more than usual or at a higher intensity. This is called 'delayed onset muscle soreness' (DOMS). It doesn't happen during the activity, it happens a few hours later or the next day. The soreness indicates your muscles were working hard - eventually they will adapt to the new level of activity and you will gradually stop feeling sore after the activity.

If DOMS is happening to you, make sure you listen to your body and stop any high intensity activity for a day to give your body time it needs to recover.



Light to moderate intensity activity such as walking, bike riding or swimming and some stretches will help reduce the soreness and stiffness.



Remember this is normal soreness – even elite athletes get DOMS!

What can I do to prevent DOMS?

You won't be able to stop DOMS totally, but following these tips will help:

- Drink plenty of water before, during and after exercise
- Do a warm up and some stretches before your physical activity
- Do a cool down and some stretches after your physical activity
- Progress slowly, increase your intensity a little bit at a time and give your body time to adapt before increasing again.



What if my muscles feel sore during my physical activity?

Another normal muscle soreness that can happen during some physical activity is caused by the build-up of lactic acid in your muscles – **it feels like your muscles are burning!** This is normal, and will go away straight or soon after you stop.



What if my pain doesn't go away?

If you get a sharp sudden pain in a muscle or joint during exercise, you may have an acute (more serious) injury. You can manage this the same way you would any other acute injury at home. If the pain is severe or lasts more than a couple of days, or if you have muscle spasm, numbness or tingling or severe swelling, you should follow this up with your GP.



If you are in doubt about what to do, you should follow up with your GP or phone health direct.

Does it matter when I do my exercise?

When you do your physical activity, is up to you. There is no recommended best time. Some people prefer to be more active in the mornings, others find later in the day suits them better.



The most important thing is to actually do it!





How can I make it easier for myself?

Make a time for your activity. Mark it on a schedule. Tell everyone in the family. Do it!

- Get the gear – find equipment beforehand. Pump the balls up, dig out the frisbee, make sure shoes still fit
- Keep water bottles clean
- Set alarms. Don't 'just forget' to get active!
- Find a friend to exercise with, talk to after
- Join a group – can be a sports team or a mob down at the park
- Keep an exercise diary/exercise chart
- Bike, walk or scooter to school
- Use school facilities before or after school – oval, basketball court, obstacles
- Use a timer for some activities
- Set timer to limit TV and screen time
- Choose activities you enjoy – avoid ones you don't
- Disguise part of your physical activity – park further away, then walk faster to your destination.
- Have the right clothing, especially shoes

● **Decide on a reward system that is meaningful to you such as:**

- ✓ getting to choose the walking trail to try on the weekend
- ✓ having a week off a usual chore – like loading the dishwasher
- ✓ choosing the movie for movie night.



Walk the long way to school/ shops/ wherever you're going

- **Include active chores:**
sweeping, window washing, car washing, scrubbing etc



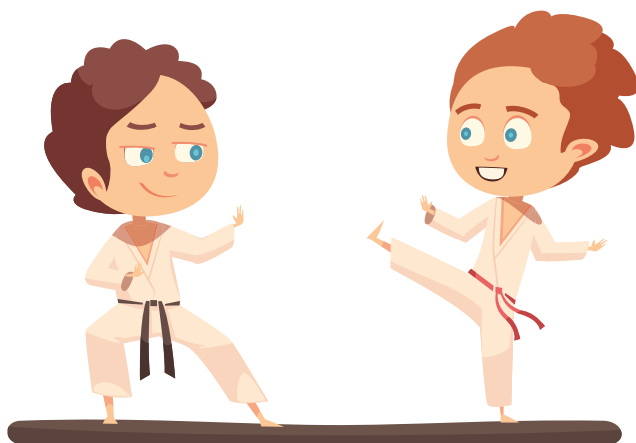
Use the stairs
- walk up the
escalator or stairs
instead of the lift

- Make active dates with friends – meet for a walk and talk
- Go to all training sessions for your sport, not just the game
- If siblings are training, go along and use balls and equipment too



- Exercise with the whole family - you can cheer/challenge each other

- Keep it fresh – try something new



Keep a list of things to try for indoor time – look on YouTube for free activity sessions you can do at home





What is sedentary behaviour in the Australian 24 hour Movement Guidelines?

Sedentary behaviour is any time (when you're not sleeping) where you are sitting or lying down for more than about half an hour. Sedentary behaviour increases the risk of problems with your heart, lungs and bones. You can be sedentary at school, home or when you are out e.g. sitting at a desk, the movies or when visiting family.

The Australian 24 Hour Movement Guidelines recommend breaking up prolonged sedentary periods. You don't have to break them up with physical activity, although that would be great! **Just getting up and walking around for a few minutes will be enough.** Sometimes just rearranging your day so your usual activities are used to break up sedentary periods is enough.

Here are some tips:

- Spread your usual chores out during the evening so they break up your screen time.
- Set a timer to remind you to get up and move every half hour. Using the kitchen timer means you have to get up to turn it off!
- Only drive part way to or from school and walk the rest of the way.
- Use recess and lunch time to walk and talk rather than sitting about.
- Do a set of strengthening activities every half hour – you will get through the main muscle groups in one evening.

Why are there guidelines for screen time?

When you are on screens (phone, tablet, television, gaming) you are likely to be sedentary.

The guide to healthy amounts of screen time is less than two hours a day – this doesn't include time you spend doing school work or homework. Adding in some physical activity each day will reduce the time available for you to be on screen – so that is double benefit!

Here are some tips for less screen time:

- Find activities that you can do instead of screen time.
- Make a list – get others to help you and use the list at times when you are trying to stay off your screens.
- Develop a contract for screen time use.
- Help set some family rules around screen time access eg. no screens before school, or after dinner. These rules should be for everyone in the house, so work them out together.
- Screen time reduces sleep quality – so try to cut out screen time half an hour before bed.

Use technology as a force for good

- Use your phone to track your walk - time and distance. Then push yourself to go further or quicker next time.
- Use an exercise app like Zombie Run to motivate you.
- The SuperBetter app helps you set goals and share them with your friends and families.
- Geocaching, geohashing, geodashing and waymarking all involve getting out and about – look them up!
- Look up scavenger hunt apps – there are a whole range of them.



Get plenty of sleep

The Australian Guidelines for Healthy Growth and Development recommend children (5 - 13 years) should have 9 to 11 hours of uninterrupted sleep per night and young people (14 - 17 years) should have 8 to 10 hours of uninterrupted sleep per night.

Strategies to improve sleep:

- Keep the same routine – bed-time and wake-up time shouldn't vary more than half an hour.
- If your bed-time is too late, go to bed a half hour earlier per week, until you reach your ideal bed time.
- Make bedrooms a screen free zone.
- Avoid screens half an hour to an hour before bed.



Good sleep will help you make better food choices and you will feel like exercising more.



How do I get past the things that stop me being physically active?



What's stopping me?	How can I overcome this?
Not enough time	<ul style="list-style-type: none">● Have a weekly planner - schedule in at least an hour of physical activity each day. Remember this can be broken up throughout the day. Include physical activity into daily routine (e.g. Taking stairs instead of the lift)
Bad weather	<ul style="list-style-type: none">● Plan a mix of indoor and outdoor activities that you can do E.g. swimming on a hot day E.g. dancing, weights, boxing or exercise DVD indoors when it's raining
Exercise is boring	<ul style="list-style-type: none">● Find an exercise buddy, a friend or family member, join a sporting team or exercise class that will help motivate you.● Mix it up - try a range of different activities.
Too tired	<ul style="list-style-type: none">● Make sure you are getting enough sleep and schedule exercise in times where you are more energetic. Exercise can actually help you feel more alert and energetic.
You have an injury	<ul style="list-style-type: none">● Brainstorm ways to keep moving that don't involve the injured body part while it heals. eg. If you have hurt your arm, there is nothing stopping you from keeping your legs active.● Make sure you warm up, cool down and stretch with exercise to prevent injury.

