

Type 2 Diabetes & Physical Activity

Being regularly active is quite possibly the single most important thing to do for people with diabetes.¹ People with poorly controlled diabetes have three to four times' higher risk of cardiovascular disease, such as heart disease or stroke, than those who do not.² **Regular physical activity not only improves the body's ability to control blood sugar but it has a strong positive effect on other 'risk factors' for cardiovascular disease, such as high blood pressure, obesity and high cholesterol.**

Working muscles, compared to resting ones, use more sugar meaning that there is less excess in the blood. Doing both aerobic activity (which is any sustained movement that makes your heart and lungs work harder) and muscle strengthening exercise improves blood glucose control more than doing either type alone.³

Your doctor may prescribe you medications for diabetes but it should be used in addition, not as

a replacement, to physical activity and a balanced diet.

Regular physical activity also gives you more energy, builds confidence and can help you to sleep more soundly at night. You can combine your activity time with family and friends or use it as an opportunity to reflect on things and listen to your favourite music.



Physical Activity Recommendations for currently inactive adults with Type 2 Diabetes

Aim to do the following three types of activity:

-  **Aerobic activity** at relative moderate intensity for at least 150 minutes (2 hours and 30 minutes) a week – one way to approach this is to do 30 minutes on at least five days each week.
-  **Muscle strengthening activity** on two or more days a week which work all major muscles groups (legs, hips, back, abdomen, chest, shoulder and arms)
-  **Flexibility exercises** on a daily basis



Plan your lifestyle change

Keep it simple: Don't make drastic commitments. Choose activities that are easy, simple and enjoyable to maintain.

Set a goal and monitor: Set weekly targets that are achievable and keep a record of what you do. If you fail, create barriers to the things that stop you from reaching them.

Go Public: Discuss your goals and activities with others to keep you motivated for longer.

See 'Getting started' at www.prescription4exercise.com for useful tips on planning your next move.



Do not worry if you struggle to meet the recommendations, because by trying to become more active, you are still gaining some health benefits



Aerobic activity

Aerobic activity, also known as endurance activity, is when large muscle movements, maintained over a period of time, make the heart and lungs work harder.

Activity? – Any type that you can maintain comfortably is ideal. Choose exercises that you enjoy, such as walking, cycling or group fitness classes. Make sure you use appropriate footwear with supportive midsoles and socks to avoid blisters. Starting off with walking, static cycling or swimming will avoid too much joint overload if you are overweight and have joint pain.

How long (duration)? – One approach to meet the recommendations is to do at least 30 minutes per day. You can split your sessions to a minimum of 10 minutes to reach your total. If you have been inactive for a long

time, start with short sessions and increase the time as your body allows and you feel more confident. Remember not to sit for hours. A regular break from sitting every hour is healthy.

How hard (intensity)? - Try to progress gradually over time to a relatively moderate-intensity activity. Doing moderate intensity activity means that you feel warm, mildly out of breath and mildly sweaty. The 'talk test' is a simple way to measure moderate intensity. Whilst you are working, you can still talk, but not sing, during the activity.

How often (frequency)? – if you aim to do 30 minutes per day then do this at least 5 times per week so that you can reach a total of 150 mins a week. Distribute sessions over the week and aim to have no more than 2 consecutive days without physical activity. When you start any new activity make sure you give your body enough time to recover and adapt between sessions.



Muscle Strengthening and Flexibility

Activities that promote strengthening and flexibility are vital for a complete physical activity programme. Strength training can reduce pain and weakness associated with painful joints. Being stronger and more flexible makes it easier to carry out aerobic activities, such as brisk walking or swimming. Balance training in Tai Chi, yoga and pilates can also boost your joint confidence and reduce your risk of falls. Visit the 'Strength and flexibility' section at www.prescription4exercise.com for some simple video exercises that you can do at home. Specific exercises for painful joints can also be found on the website.

*See prescription4exercise.com for video examples of **strengthening and flexibility** exercises you can do at home



Choosing the right activity

Where to start? Try to choose activities that are local, enjoyable and practical.

Visit the website for plenty of ideas and choices of things to do new you.



Safety considerations^{3,4}

- If you have led a very sedentary lifestyle, begin by doing low intensity exercise of short duration, e.g. 10 minutes. Increase your level of activity gradually to avoid injury.
- Stop exercising if you feel dizzy, sick, unwell or very tired.
- See a doctor if you are having chest pain, black outs or breathlessness on mild exertion.

The following specific precautions are designed to help you avoid problems when exercising:

Hypoglycaemia (low blood sugar)

Hypoglycaemia usually occurs as a result of an excess of either insulin or sulphonylurea medications (e.g. Glicazide, Glimepiride) combined with reduced sugar intake or increase activity. The following advice can help you avoid such problems:

- Learn how your body responds to different types of exercise by monitoring blood sugar levels before and after activity (and every 60 minutes during if exercising for extended periods).
- Take a carbohydrate snack (e.g. fresh fruit, crackers, yoghurt) before beginning exercise if your blood sugar is less than 5.5mmol/l.
- If your level is above 5.5mmol/l before light exercise, a snack may not be necessary but check your blood level following the exercise to see if it dips below 4mmol/l
- An additional carbohydrate (e.g. fruit, carbohydrate drink) is suggested every 30-60 minutes for prolonged and intense exercise.
- Always carry fast-acting carbohydrate food such as glucose tablets which can be used to treat low sugars if needed.
- If you have been active before bedtime, have a snack to prevent night time 'hypos' and check glucose levels on waking.
- Avoid exercising alone and going into remote areas.
- Always wear a diabetes identification bracelet. Let others know that you are going out exercising and what time you expect to return.
- Try to avoid injecting insulin into exercising limbs as this can increase the risk of hypoglycaemia. The abdomen or an alternative injection site is advised.

Hyperglycaemia (high blood sugar)

- Good glucose control can be achieved with regular moderate activity but strenuous activity should be delayed if your blood glucose concentration levels are above 16.7mmol/l without ketones or 13.3 mmol/l with ketones detected in the urine. Moderate activities should be postponed if you feel dehydrated or generally unwell with a high temperature. If in any doubt, postpone exercise.

Retinopathy (damage to the retina at the back of the eye)

Exercising is safe but you should discuss management options with your doctor if you develop advanced proliferative retinopathy (formation of new blood vessels in the back of the eye seen at screening).

Peripheral Neuropathy (signs of nerve damage in the feet)

Good foot care should be practiced by wearing well fitted shoes and cotton socks, and inspecting feet every time after exercise. Keep feet dry. Walking is generally very safe in patients with nerve damage but you may find arm exercises, swimming or cycling more suitable alternatives if your balance is poor.

If you have any other long term health conditions ask your healthcare professional and/or visit [www.prescription4exercise](http://www.prescription4exercise.com) for additional useful safety considerations

References

1. Church TS et al. Cardiorespiratory fitness and body mass index as predictors of cardiovascular disease mortality among men with diabetes. *Arch Intern Med* 2005; 165:2114-20
2. Sigal RJ et al. Effects of aerobic training, resistance training, or both on glycaemic control in type 2 diabetes: a randomized trial. *Ann Intern Med*. 2007;147:357-69
3. Exercise and Type 2 Diabetes. ACSM and ADA Joint position statement. *Medicine and Science in Sports and Exercise* 2010; 42 (12): 2282-2303
4. D Nagi, I Gallen. ABCD position statement on physical activity and exercise in diabetes. *Pract Diab Int* 2010; 27(4):158-163

Further reading

- Start Active, Stay Active - a report on physical activity for health from the four home countries' Chief Medical Officers. UK Department of Health, July 2011. www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128209
- ACSM's Guidelines for Exercise Testing and Prescription, American College of Sports Medicine, 2009
- Swedish National Institute of Public Health. Physical Activity in the Prevention and Treatment of Disease. Professional Associations for Physical Activity, Sweden, 2010. Diabetes Mellitus. P345-355. www.fyss.se

Other useful website
www.diabetes.org.uk

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