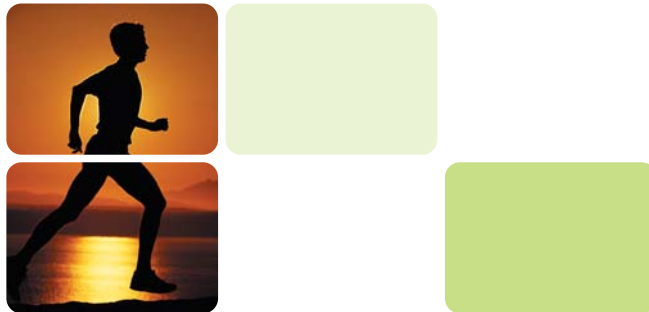


A Patient Education Guide to Living with Diabetes Mellitus



Adding years of healthy life



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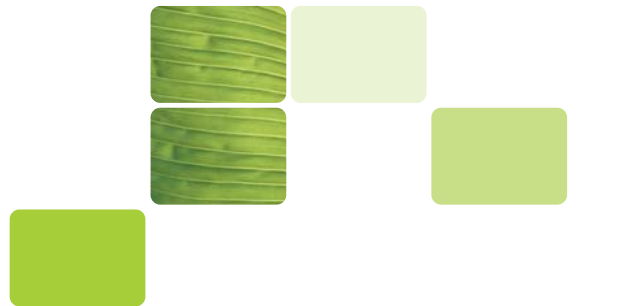
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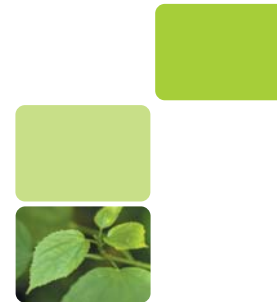
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NHG Diabetes Workgroup



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Home Blood Glucose Monitoring

A person with diabetes cannot always be in the care of a doctor or nurse every hour and every day. This is especially so if you are independent, active and have to work. Learning to test your own blood glucose levels is therefore essential.

The results from the self-checks provide you with information on how your meal intake, medication, exercise and stress affect your blood glucose levels.

Checking Your Blood for Glucose

There are many different meters for checking your blood glucose. Your doctor or diabetes care team will help you decide which kind to buy.

Keep a record

Record your blood glucose results in a log book or diary. Ask your doctor or diabetes care team if you do not already have one.

Getting accurate blood glucose results

To get an accurate blood glucose result, you need to make sure that:

- the meter is clean.
- the meter has the correct code that matches the strip you are using.
- you use a clean finger.
- the drop of blood from your finger is big enough.





How to get a good drop of blood

Before pricking your finger:

- Wash your hands with warm water.
- Shake your hands below your wrist.
- Squeeze or milk your finger a few times.

Storage and disposal of waste

- Store testing strips in a cool and dry place. Avoid storing them in very hot or very cold places.
- Throw away the lancets in a plastic container.
- Seal the container with a tape when nearly full.

When and How Often to Check

Ask your doctor or diabetes care team when is the best time to check your blood glucose and how often you need to check it. You may want to check at different times of the day to get an idea of how well your treatment programme is working for you.

Generally, the best times to check are before breakfast, before lunch, before dinner and before a bedtime snack. Sometimes it is useful to check two hours after a meal to see the effect of the food on your blood glucose levels.

	2-point tests	4-point tests	7-point tests
Pre-breakfast	✓	✓	✓
2 hour post-breakfast			✓
Pre-lunch		✓	✓
2 hour post-lunch			✓
Pre-dinner	✓	✓	✓
2 hour post-dinner			✓
bedtime		✓	✓

Your diabetes care team may ask you to do the following:

- **2-point tests**
Test once before breakfast and once before dinner.
- **4-point tests**
Test before each meal and at bedtime i.e. before breakfast, before lunch, before dinner and at bedtime.
- **7-point tests**
Test before each meal and 2 hours after each meal and at bedtime (often done during pregnancy).

When to check your blood glucose on a regular basis

- During periods of stress, illness, or surgery.
- When low blood glucose is suspected.
- When there are changes made in your treatment programme – such as a change in your medication dosage, meal plan or activity.

Urine Ketone Tests

Urine ketone tests should be done when:

- you are sick.
- you are under unusual stress.
- your blood glucose is high i.e. more than or equal to 15mmol/L (or approximately 250mg/dl).
- Examples of urine ketone tests that are available in Singapore are Gluketur and Labstix.



If urine ketones are positive, you may be developing ketoacidosis.

Glycated Haemoglobin (HbA1c)

Individual blood glucose tests are great for deciding how you are doing at this point in time and what to do to make it better, but they do not give you the big picture. To track how good your blood glucose level has been over time, you need a test that gives an overall picture reflecting 2 to 3 months of the level of glucose in your blood. The test that can do this is called the Glycated Haemoglobin or HbA1c test.

Targets of Control

Every person has his/her own target range. This depends on how old you are, which type of diabetes you have and how long you have had diabetes. This target range will vary when there are changes in your state of health and lifestyle. How much control you want or your doctor suggests you need, will also play a part in setting your target. A rough guideline would be:

TYPE OF MEASUREMENT		TARGET			
		Excellent	Good	Acceptable	Poor
Blood Glucose					
– Before meal	mmol/L	4.0 – 6.0	6.1 – 8.0	8.1 – 10.0	>10
	mg/dl	72 – 109	110 – 144	145 – 180	>180
– 2 hours after meal	mmol/L	5.0 – 7.0	7.1 – 10.0	10.1 – 13.0	>13
	mg/dl	90 – 126	127 – 180	181 – 234	>235
Glycated Haemoglobin					
– HbA1c	%	4.5 – 6.4	6.5 – 7.0	7.1 – 8.0	>8.0

Foot Care

People with diabetes are at risk of serious foot problems. Poor circulation and decreased sensation in the feet cause many of the foot problems associated with diabetes. The good news is that many foot problems are easily prevented if you take care of your feet.

Here is what you can do:

Hygiene

- Wash your feet every day.
- Dry your feet well after bathing and pay particular attention to the areas in between the toes.
- Do not use talcum powder. It tends to stick to moist areas and causes abrasion.

Foot Inspection

- Check your feet every day for redness, swelling, corns, calluses, ingrown toenails or breaks in the skin. If you cannot see them, use a mirror or ask someone else to check them for you.

Skin Care

- Your skin may become very dry and rough.
- Apply a moisturising lotion to keep your skin soft and smooth but avoid putting the cream in the spaces between your toes.



Treating Injury

- Cuts, abrasions and wounds are prone to infections.
- They should be cleaned with mild antiseptic and then covered with a dressing.
- If the injury does not show signs of healing in 2-3 days, consult your doctor immediately.
- Cannot use corn plasters or any commercial product containing acids.

Nail Care

- Cut your toenails straight across, not into the corners, and smoothen the nails. Especially the corners with an emery board
- If your eyesight is poor, get a family member to help you with it.

Foot Protection

- Do not go barefooted, even indoors.
- Wool or cotton socks are better than synthetics as they allow feet to breathe and stay dry.
- Make sure they are not too tight so that circulation is not restricted.



Cut your toenails straight across



Do not go barefooted, even indoors

**Using the right shoes**

- Shoes should be comfortable and well fitting:
 - Wear shoes of the correct size
 - Check your feet for blisters when you are wearing new shoes
 - Check inside your shoes for foreign objects or rough spots every time you put them on

Warning Signs

Be on the lookout for these “at risk” symptoms:

- “Pins and needles” feeling.
- Loss of feelings in your feet.
- Burning sensation especially at night.

Report any unusual feelings or changes, to your doctor or podiatrist.



Exercise

Regular exercise is an important part of managing your diabetes. Together with your meal plan and medications where needed, regular exercise improves diabetes control and has many benefits.

Benefits of exercise

- Lowers blood glucose
- Helps insulin work better
- Helps overweight patients lose weight and fat
- Lowers risk of heart attack
- Improves cholesterol levels
- Lowers risk of osteoporosis
- Improves blood flow
- Improves muscle strength and tone
- Improves ability to carry out daily functions



What type of exercise can you do?

The best exercise is an activity that you enjoy and which uses large muscle groups in your body constantly over a fairly long period of time. A low to moderate level of intensity of exercise e.g. walking, will benefit your diabetes. However if you are physically fit and enjoy games requiring activity of a heavier intensity, you may do so after discussions with your diabetes care team.

Examples of suitable exercises:

Walking/swimming/cycling/dancing
Ball and racket games

Whatever exercise you choose, do it regularly. Make time for exercise everyday or every other day. If you have not been active, start with a short duration of exercise e.g. 10 – 20 minutes. You may then slowly build it up to 30 – 40 minutes.

You should also learn to be more active as you go about your daily routine. Walk to the MRT station instead of taking the feeder bus. Take the stairs instead of the lift.





Precautions

- If you are over the age of 40 or have underlying heart disease, consult your diabetes care team before considering vigorous exercise. You may need to do an exercise stress test.
- Similarly, if you have numbness of the feet or blurred vision or bleeding in the eye, consult with your diabetes care team before exercising.
- If you are exercising just before your next meal, take a small snack $\frac{1}{2}$ to 1 hour before the exercise so as to avoid hypoglycemia during the exercise.
- Make sure your diabetes control is satisfactory before you exercise. If your blood glucose has been high for some time, diabetes control should be improved before you start your exercise.
- Check your blood glucose level before and after exercise. Some people with diabetes have delayed hypoglycemia. If you feel unwell, check your blood glucose again.
- If you are on insulin, even more care is needed to prevent a low blood glucose level during and after exercise. Your diabetes care team will be able to advise you.

Smoking



Smoking increases the risk of coronary heart disease and other vascular disorders. This risk is even higher for smokers who have diabetes.

It is never too late to stop smoking. If you stop now, your body will start to repair itself. You should consult your doctor to help you kick the habit or join a programme or support group to quit smoking.

Sexual Dysfunction

Blood glucose levels that are not managed well can lead to blood vessel and nerve damage that affects sexual performance and enjoyment. This can cause diabetes-related sexual dysfunction in men as well as in women.

Other factors can cause or aggravate sexual dysfunction, including psychological issues, self-consciousness and fear of failure. If you are experiencing impotence or sexual dysfunction, it is important for you to consult your doctor for an accurate diagnosis of your condition.

Sexual dysfunction in men

- Diabetes can cause nerve and artery damage in the genital area, disrupting the blood flow necessary for an erection.
- This is more common in older men who have had diabetes for a long time. Smoking can also contribute to the problem.

Sexual dysfunction in women

- Diabetes-related nerve damage can cause dryness in the vagina that makes intercourse uncomfortable.
- Nerve damage can also lead to loss of sensation in the genital area, making orgasm difficult or impossible to achieve.
- The use of water-based lubricants e.g. K-Y jelly can help in improving sexual pleasure.

Treatment options for men

A range of treatments are available for impotence. When selecting a treatment, it is important for you and your partner to consider all your options. Remember that any therapy will be more successful if both you and your partner are involved in the process of making the decision.

Impotence treatments include:

- Oral medications including the pill Viagra®.
- Mechanical methods such as vacuum pumps and constriction rings.
- Local therapies such as suppositories and injections.
- Surgical methods like the penile implant.

Discuss with your doctor which of these treatments is most appropriate for you.



For more information

Please contact:

Doctor's Name

Tel

Nurse's Name

Tel

Case/Care Manager's Name

Tel

DISCLAIMER

This booklet is produced for educational purposes only. Because each person's medical condition is unique, you should not rely on the information contained in this booklet as a substitute for personal medical attention, diagnosis or treatment. If you are concerned about your health, please consult your family physician or healthcare professional immediately.

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