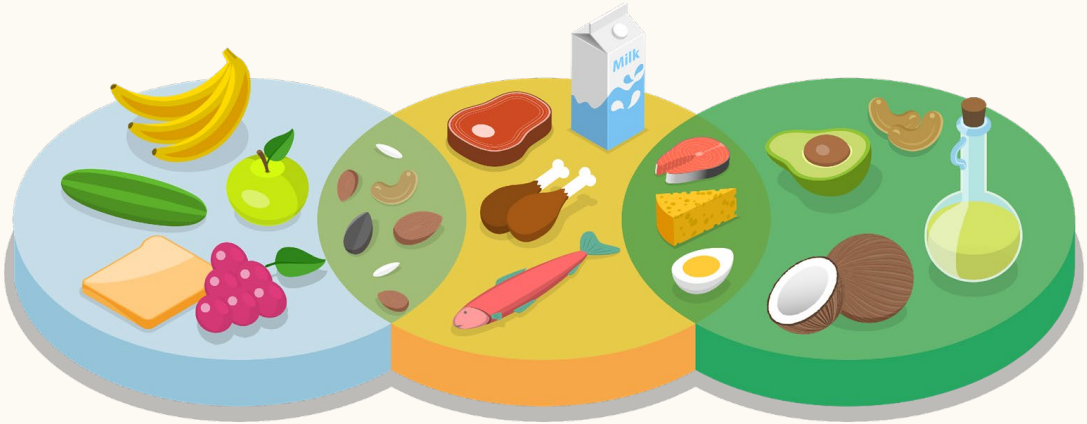
BE HEALTHY

Healthy Eating

Healthy Eating When You Have Diabetes



Diet is an important part of diabetes management. Eating well not only helps with your diabetes control, but also with weight, blood pressure, cholesterol levels and general health.

Healthy eating is recommended for everyone, including individuals with diabetes.
All individuals can enjoy the same healthy meals.

Read on for a general guide on how you can make healthy food choices and have a balanced diet.
For nutritional advice personalised to your condition and needs,
do speak to a healthcare professional such as a dietitian.

What is a healthy diet?

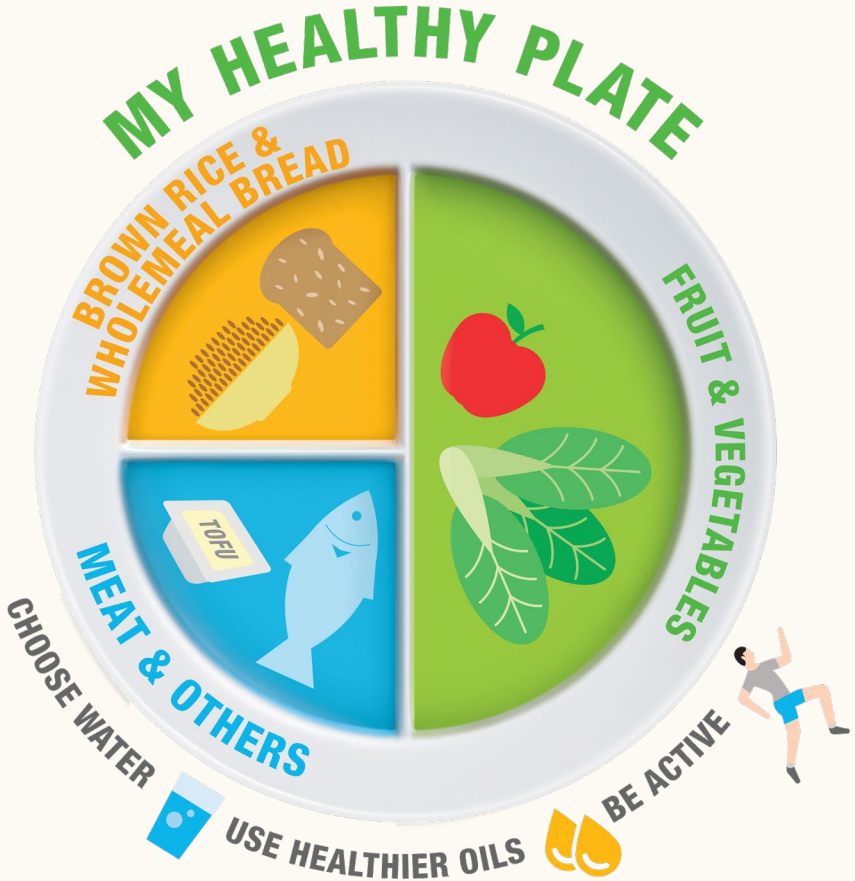
Healthy Eating When You Have Diabetes

Food provides us with nutrients that we need for energy and for our body functions to keep us healthy.

- **Macronutrients that our body needs in larger amounts for energy.** There are 3 main types: carbohydrates, protein and fat.
  - Of these, **carbohydrates have the greatest impact on blood sugar.**
  - While protein and fat may not have a direct impact on blood sugar levels, **eating too much protein and fat can lead to weight gain** which will increase insulin resistance and make diabetes control more difficult.
  - **The type and amount of fat consumed is important.** Mono- and poly-unsaturated fats are better for you. We should limit our intake of saturated and trans fats (e.g., found in fried chicken and baked products) to reduce our risk of cardiovascular disease.
- **Micronutrients that our body needs in smaller quantities are very important for many body functions**, such as bone health and our immune system. There are 2 main types: vitamins and minerals.

There is no one food that contains all the nutrients that we need. Instead, it is important that we eat a variety of foods in the right portions every day as part of a balanced diet.

What should I eat?



My Healthy Plate is a visual guide you can use to help you make healthy food choices.

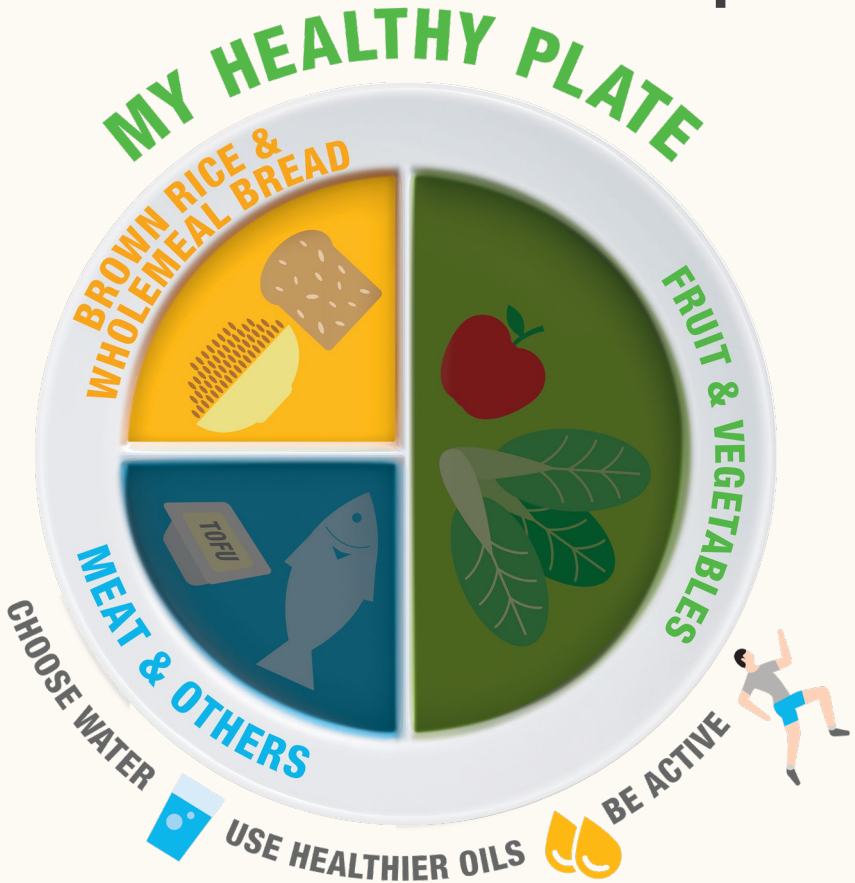
A balanced meal consists of:

- ¼ plate of wholegrains
- ¼ plate of good sources of protein
- ½ plate of fruit and vegetables

We should also be mindful to:

- Choose water as your drink of choice
- Choose healthier oils which are lower in saturated fats
- Keep physically active

Quarter plate of wholegrains

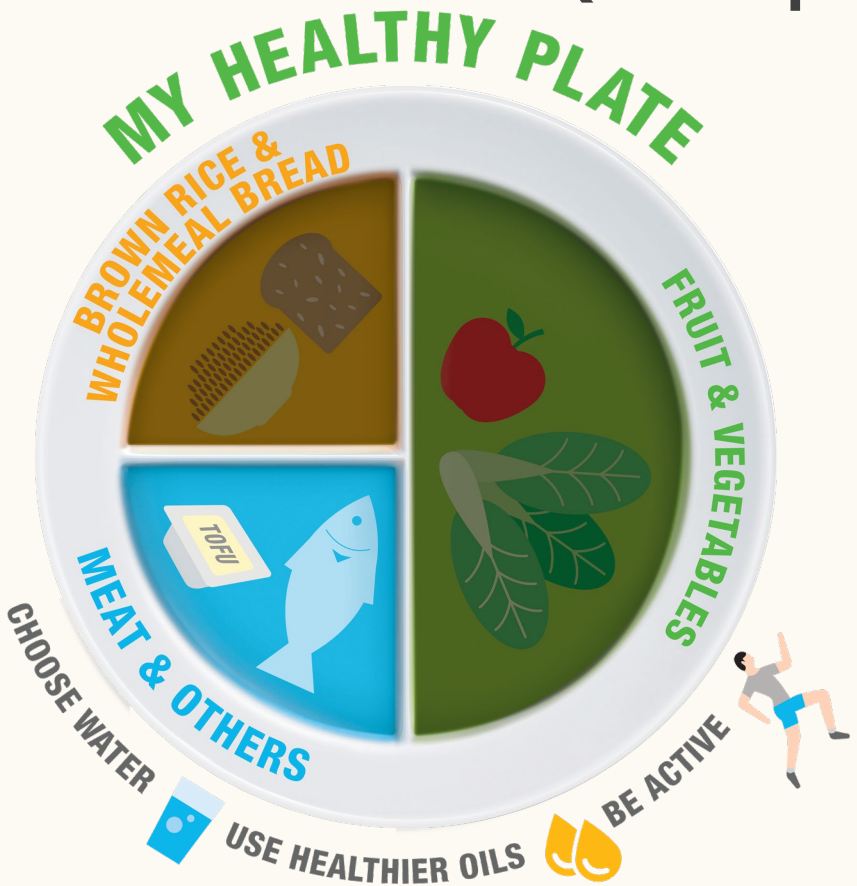


Wholegrains are richer in nutrients compared to refined grains such as white rice as they have not been over-processed.

As they are **rich in fibre**, they help you feel full for longer, which helps prevent overeating.

¼ plate = 2 servings of carbohydrates
Daily recommended intake = 5 to 7 servings of carbohydrates

Quarter plate of protein



Protein sources include:

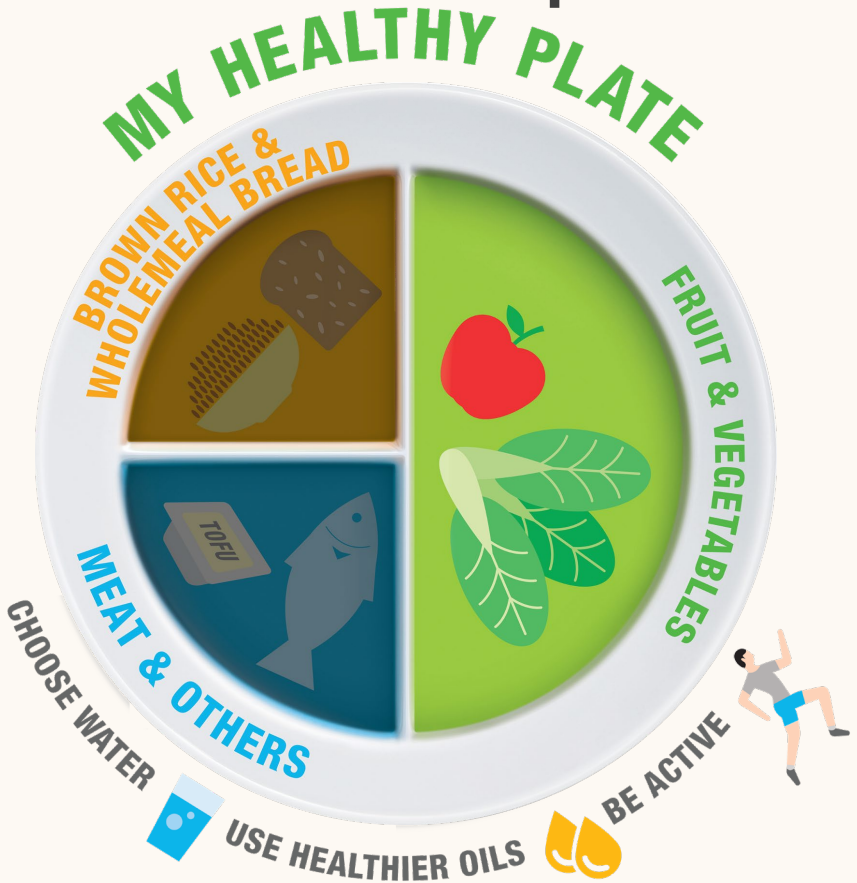
- Animal-based protein e.g., eggs, fish, chicken, dairy products such as milk and yoghurt
- Plant-based protein e.g., soy milk, tofu, nuts, beans and legumes

For quality protein intake:

- Choose lean over fatty meat
- Choose fresh over processed meat
- Have a mix of animal-based and plant-based protein

¼ plate = 1 serving of protein
Daily recommended intake = 2 to 3 servings of protein

Half plate of fruit and vegetables

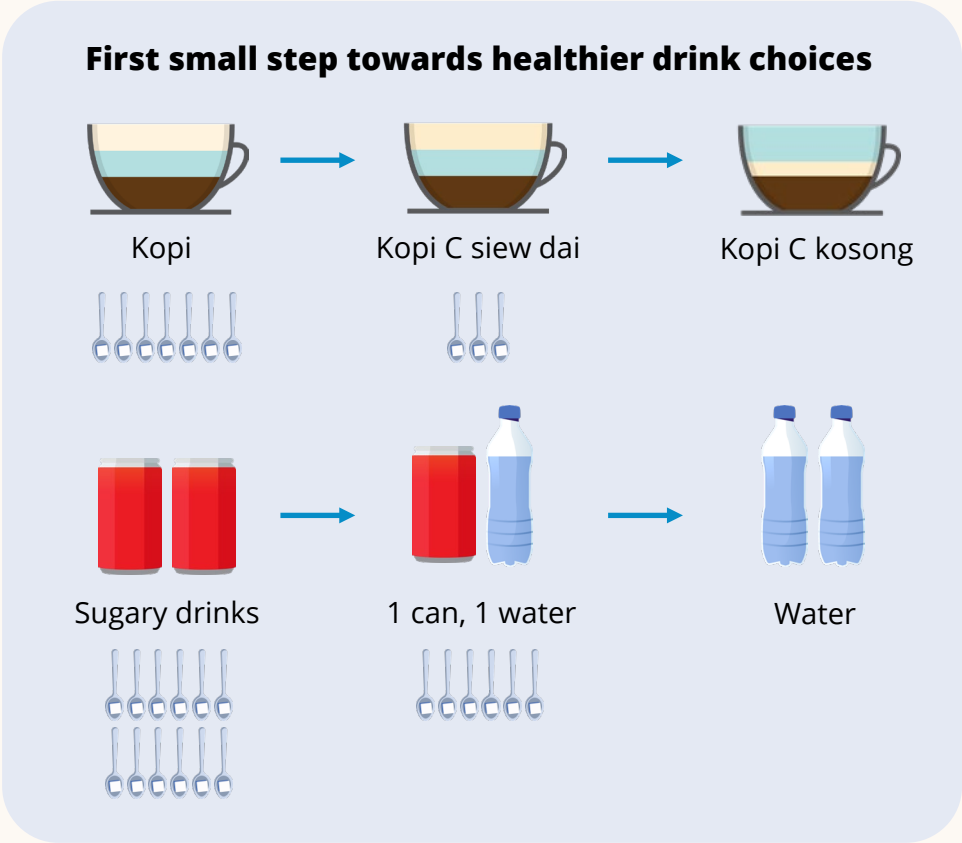


Tips for eating fruit and vegetables:

- End your meal with fresh or frozen fruit for dessert
- Eat whole fruit instead of drinking fruit juices
- Fruit **juices** are not recommended as they can cause a **spike in blood sugar levels**. Instead, eat the whole fruit with the pulp and skin as they are high in fibre, which slows the absorption of sugar into your blood.
- Add vegetables/fruits to your meat dishes to add colour, flavour and fibre to your meat dishes

½ plate = 2 servings, i.e., 1 serving of fruit and 1 serving of vegetables
Daily recommended intake = at least 2 servings of fruit and 2 servings of vegetables

Drinks



- Make water your drink of choice
- Sugary drinks can make your diabetes control more difficult and also lead to weight gain
- Unsweetened tea and coffee can be taken in moderation.
- Canned drinks usually contain a large amount of sugar. For canned drinks, opt for diet or 'zero' versions
- If you choose a sugary drink, avoid drinks with Nutri-Grade mark C or D, and opt for healthier options that have reduced sugar, such as drinks with the Healthier Choice Symbol or Nutri-Grade mark A or B.
- Fruit juices are not recommended. While they usually have a ‘no added sugar’ label, they often contain large amounts of naturally occurring fruit sugar

Carbohydrates

What are carbohydrates?

Carbohydrates are an important nutrient found in foods and drinks. Carbohydrates are converted to glucose by the body and are essential in giving you **energy.** Being the main source of energy in the human diet, there is no need to avoid them and they should be included as part of **a healthy eating plan** for individuals with diabetes. A balanced meal gives your body the nutrients it needs.

How are carbohydrates converted to glucose?

- Your digestive system breaks down the carbohydrates in your food to glucose.
- This enters the bloodstream, causing a **rise in blood sugar levels.**

It's important to note that **different carbohydrates affect blood sugar differently.** Knowing how fast a carbohydrate food converts to sugar can help you to **optimise sugar control.**

Types of carbohydrates

There are 3 types of carbohydrates:

Sugars are simple carbohydrates that are easy to digest. They raise blood sugar levels **quickly**.

Starches are complex carbohydrates that are made up of sugars linked together. The speed at which starches are digested by the body into sugar depend on how processed they are and how much fibre the food item contains.

Fibre is the part of complex carbohydrates that cannot be digested by the body. It makes you feel full and helps with sugar control by slowing down the passage of food through the digestive system.

Sugar

There are two main types of sugar:

1. **Naturally occurring sugar** – this is sugar that is found naturally in foods such as fruits, vegetables and dairy products. Excessive intake of such sugar can lead to weight gain and suboptimal control of glucose. Examples: fructose (found in fruits), lactose (found in milk).

2. **Added sugar** - this includes any sugar (including natural sugar) or caloric sweetener added to food or beverages during processing or preparation (such as when sugar is added to coffee or tea). Example of added sugar: molasses, high fructose corn syrup.

Sugar

Sugars can be both a natural sugar AND an added sugar. Examples include sucrose (also known as table sugar or granulated sugar) and honey, which are natural sugars commonly added to food and drinks.

Avoid food and drinks with “added sugar” (e.g., cakes, sugar-sweetened soft drinks, cookies, kueh) and beware of items with “no sugar added” as they may already contain naturally occurring sugar (e.g., fruit juice). Excessive intake of such foods contributes to caloric intake and can lead to weight gain and sub-optimal blood sugar control.

Starch

Starches should make up ¼ of your plate. Choose wholegrain/wholemeal varieties, such as brown rice, as they result in a more gradual rise in blood sugar levels than their refined versions such as white rice.

Examples include brown rice, rolled oats, potato with skin on, sweet potato, corn, yam, and legumes such as peas.

Minimise foods made from refined grains and processed starchy foods. They tend to be stripped of nutrients and fibre, and can cause a quicker rise in blood sugar levels.

Examples include: white bread, instant oats, white rice, skinless or mashed potato.

Fibre

Dietary fibre can slow carbohydrate digestion and glucose absorption, for better blood sugar control.

High fibre food include vegetables, fruits and whole-grain products.

Increase your fibre intake by **switching** to these options:

- Brown rice
- Wholewheat noodles and pasta
- Wholegrain bread
- Steel-cut or rolled oats

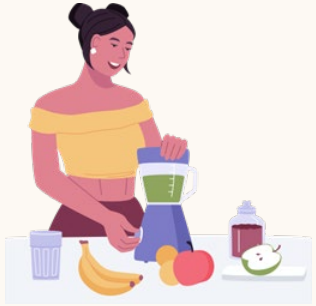
These **contain more dietary fibre** than their refined versions and can help manage blood sugar levels.

What is the Glycaemic Index (GI)?

GI measures **how fast your food or drink can cause blood sugar levels to rise.** It ranks carbohydrates from 0 to 100, according to this impact. The higher the GI, the faster blood sugar levels are expected to rise.

Eating foods lower in GI brings about a slower increase in blood sugar over time, and reduces the spike in the body's insulin hormone response. This also helps the individual feel full longer.

Many factors can affect the GI of food including:



Processing - Less processed foods have a lower GI. For example, whole fruits have lower GI compared to fruit juice as the skin and pulp have not been removed.

Cooking time - Food that is less broken down by cooking has a lower GI. For example, for the same amount of grain, boiled rice has a lower GI compared to porridge which takes longer to cook.

Meal composition - In a meal where carbohydrates are mixed with protein and other food types, the GI will be lower. For example, the same amount of rice eaten with meat and vegetable side dishes will have a lower GI than if it were eaten on its own.

There are limitations in relying on GI alone to make healthy food choices.

Fat in a food item lowers its GI, so not all low GI food are healthy choices. A diet high in fat and calories may have a low GI, but it increases the risk of weight gain, insulin resistance and heart disease.

GI of foods and blood sugar levels

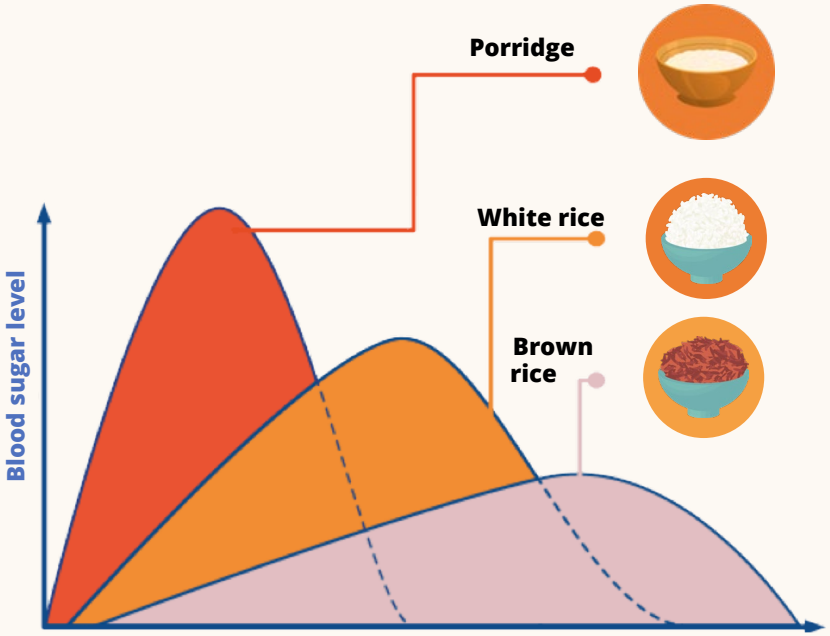


Diagram compares 1 serving of each category

Do note that a high fat content may lower the GI of a meal. Meal 2 may have a lower GI due to its high fat content, but it is a high calorie dish and can cause weight gain in the long run.

Meal 1
Yong Tau Foo with vegetables and tofu

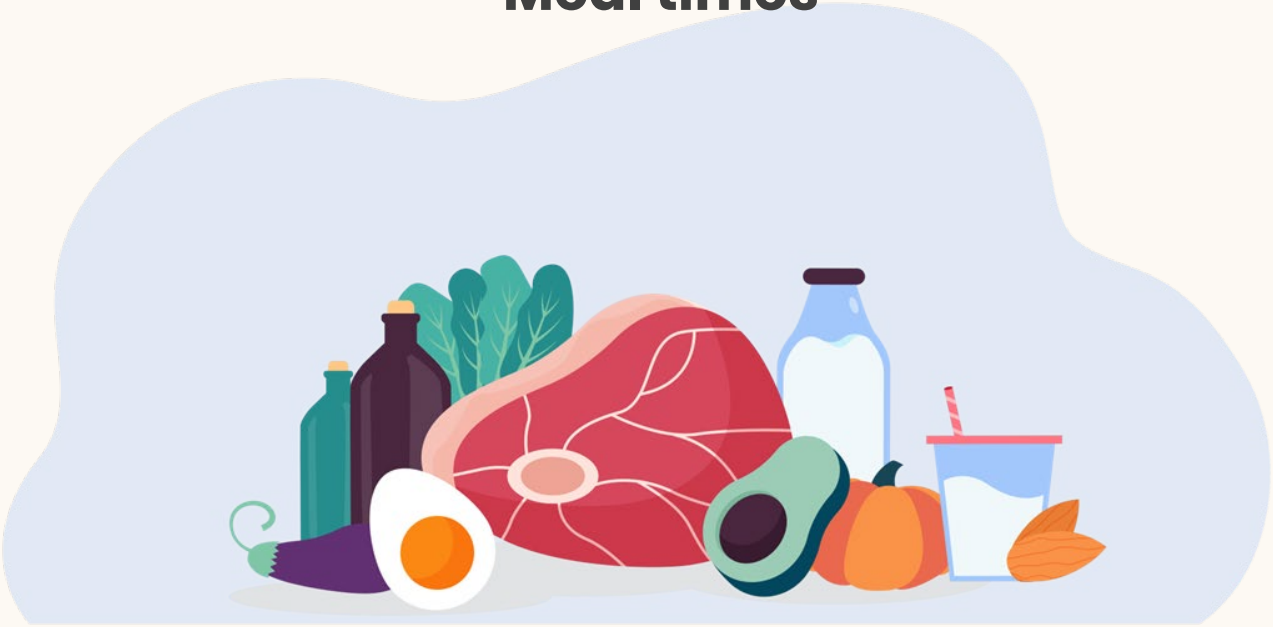
Meal 2
Economy fried rice

Practical tips & advice

Meal times for individuals with Diabetes

- Individuals with diabetes are recommended to have **regular meal times** every day.
- For persons on regular insulin treatment and certain oral diabetic medications (i.e., sulfonylureas such as glipizide, gliclazide, glimepiride, tolbutamide), **it is especially important not to skip or delay meals.** This is to prevent the risk of hypoglycaemia (low blood sugar level).
- **You should consult your doctor if you are planning to fast or change your meal times for a prolonged period of time** (e.g., religious reasons such as Ramadan), as your diabetic medication may have to be adjusted accordingly.

Meal times



- If your schedule does not allow you to take regular meals, do **discuss with your healthcare team on a diabetic medication regimen that is more suited for your lifestyle.**
- **If you are planning to substantially reduce the amount of carbohydrates in your meals, you may be at risk of hypoglycaemia if you are on insulin or certain oral medications** (sulfonylureas such as glipizide, gliclazide, glimepiride, tolbutamide). Do discuss with your doctor on how your medication can be adjusted to match any change in your diet.

Healthier cooking

You can whip up delicious and healthy meals even if you have diabetes. Some tips on how you can do this:

- **Use healthier cooking methods (e.g., steaming, baking, boiling, grilling).**
- **Use healthier ingredients**
  - ↳ Choose wholegrains instead of refined grains. For example, replace white rice with brown rice
  - ↳ Choose lean meat and remove all visible fat before cooking
  - ↳ Reduce salt, instead use natural seasoning (e.g., herbs and spices) Use condiments and sauces in moderation
- **Plan meals that incorporate vegetables as the main dish (together with fruits, they should make up 50% of your plate), rather than meat or carbohydrates as part of a balanced diet.**

Healthy recipes you can try.

How can I cook healthy and yummy meals?

Stir fry

Boil or steam

Grill or bake

Reduce salt, instead use natural seasonings e.g., herbs and spices

Choose healthier cooking oil (e.g., sunflower, olive or canola)

Remove all visible fat before cooking

Healthier Cooking - Local Cuisine

Chinese

- Steam dumplings instead of frying
- Switch to brown rice
- Control the amount of sodium (e.g., salt and soy sauce)
- Use herbs and spices

Malay

- Choose Ikan Bakar or Ayam Panggang
- Use low-fat or skimmed milk in curries and gravies, instead of coconut milk
- Cook meat together with gravy instead of stir-frying separately
- Use leaner cuts of meat

Indian

- Use healthier oil options
- Grill, boil, steam & bake where possible
- Use low-fat plain yoghurt as a substitute

Eating out

It can be challenging to eat healthy when eating out with the wide variety of food and drink options available in Singapore.

Some tips on how you can make healthier food choices when eating out:

- **Plan ahead** – look out for food outlets that are part of the Healthier Dining Programme. These outlets have healthier dishes which are lower in calories , prepared with wholegrains or healthier oil, or lower in sugar. Ordering food when you are very hungry can cause you to order more than you intended to, and overeat. Look at the menu before arriving to better plan your meal.

- **Read the menu with care** – look for menu wordings to check how food is prepared. For example, foods that are described as 'steamed', 'boiled', 'baked' or 'poached' are healthier than foods that are 'fried in oil'. Avoid foods that are also 'rich' and 'creamy' which tend to be high in fat.

- **Eat just enough** – it is okay to not eat everything on your plate. Aim to eat until you are 80% full. To prevent food wastage, request to take away any remaining food to eat later. Do not leave cooked food standing at room temperature for more than 2 hours. Reheat stored cooked food at temperatures above 75°C and make sure it is served piping hot.

Choose healthier options when eating out

For main meals:

- Select **a variety of items** to make up a balanced meal – include one or two vegetable side dishes, and one or two protein-rich items such as tofu, fish, or lean meat
- Select foods that are prepared with healthier cooking methods (e.g., steamed, baked) rather than fried foods
- Rice, bread or pasta – choose wholegrain options (e.g., brown rice, multigrain bread)
- Choose fresh salads with **non-cream based** dressings

For drinks:

- Request for **water**
- Ask for **less ("siew dai") or no added sugar ("kosong")** options
- Choose drinks with reduced sugar or no sugar (e.g., drinks with Healthier Choice Symbol or Nutri-Grade mark A or B)

For desserts:

- Choose **fresh fruits** over fruit juice
- Share desserts to control your intake

Healthier options at hawker centres

Sliced Fish Soup*

Yong Tau Foo*

Grilled Chicken Chop

Bee Hoon Soto

Chapati

*Omit soup to reduce your salt intake

Healthier options with economy rice

Choose this

- Brown rice
- Steamed, stewed, braised or stir-fried dishes

Instead of this

- White, flavoured or fried rice
- Deep-fried dishes

You can also:

- Order more non-starchy vegetables dishes (e.g., kailan, broccoli, eggplant)
- Limit the amount of gravy and sauce

Tips for eating at a buffet

- **Don’t skip your meals before going for the buffet.** Going to a buffet on an empty stomach will cause you to eat more than needed. You can eat a small snack before heading out.

- **Check which options are available before you pick up the plate**. Choose healthier options and try new food in smaller portions. This will help you make the best choices for yourself.

- **Enjoy your meal slowly and don’t rush through it just so that you can eat more.** Consuming more food doesn't necessarily mean a better dining experience!

Eating during festive occasions and social gatherings

Food is often an integral **part of social experiences**, such as going to a buffet for celebrations, or catching up with friends over a meal in a restaurant. However, these situations may encourage overconsumption, especially of less nutritious food.

Some tips on how to eat healthy during social occasions:

- **Having a bottle of water on hand** helps you stay hydrated and you will have a readily available alternative to sugary drinks.
- If a meal portion served is too much or if there are leftovers, **don't be afraid to ask to take it away to consume at a later time.**
- **Avoid alcohol** as it provides empty calories, i.e., provides energy with limited nutritional value. If you do drink, **limit your intake and don't consume alcohol on an empty stomach** as it can cause hypoglycaemia (low blood sugar) if consumed excessively.

How can I continue with healthy eating during festivals and celebrations?

Plan meals ahead

HEALTHIER CHOICE
Health Promotion Board

Eat All Foods in Moderation

Opt for healthier products

Use healthier cooking methods

Eat in **moderation**

Avoid alcohol as much as possible

Maintain **medication schedule and insulin** dosage

Peer pressure at social gatherings. How do I handle it?

Peer pressure during social situations is common, and it's okay **to communicate your boundaries** when you feel pressured to eat something you don't want to.

Have some phrases in mind to help practise them politely when a situation calls for it!

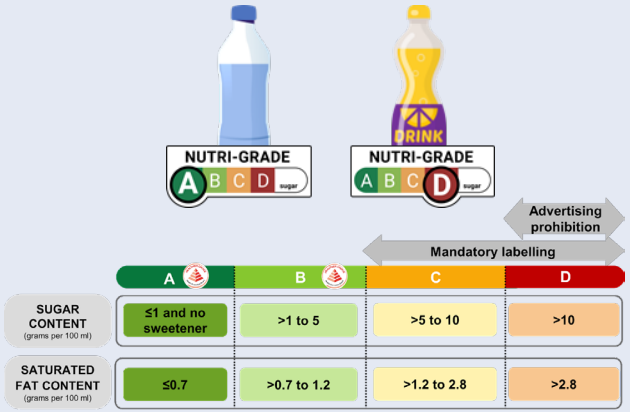
Food shopping tips for healthy eating

- Make a **shopping list** – plan in advance what you intend to prepare for every meal.
- **Avoid food shopping when you are hungry** as you will be likely to buy more food than required.
- **Choose fresh or frozen fruit and vegetables**
- Choose food items with **the Healthier Choice Symbol (HCS)** – these are healthier options compared to others in its category. Even if it's a healthier option, do eat it in moderation.
- **Reduce intake of pre-packaged beverages with Nutri-Grade mark C and D**. All pre-packaged beverages are graded from A to D (from healthiest to least healthy), based on their sugar and saturated fat contents. Look out instead for pre-packaged beverages with Nutri-Grade mark A and B or with the HCS logo.

For more information on Nutri-Grade mark, see https://go.gov.sg/nutri-grade.

Healthier Choice Symbol

Nutri – Grade Mark



Ingredient list

Ingredient lists are listed in descending order according to their weight or amount.
Be aware that some ingredients, such as sugar and salt/sodium, can be listed as other names in different lists.

Sugar is also called:

- Glucose
- Sucrose
- Maltose
- Fructose
- Honey
- Agave nectar
- Brown sugar
- Golden syrup
- Corn syrup
- Rice syrup
- Maple syrup
- Invert sugar
- Fruit juice concentrate
- Molasses

Sodium is also called:

- Monosodium glutamate (MSG)
- Sea salt
- Rock salt
- Celery salt
- Table salt
- Himalayan pink salt
- Meat extract
- Stock cubes
- Baking soda
- Sodium bicarbonate
- Soy sauce
- Vegetable extract
- Yeast extract

Nutrition information panel (NIP)

The NIP provides information on the nutritional value of the food product. This includes:

- Serving size and servings per package
- Energy or caloric content
- Nutritional components, including carbohydrate, sugars, dietary fibre, protein, fat, saturated fat, cholesterol and sodium

The amount of each nutrient is listed in two formats

- Per 100g or per 100ml
- Per serving

Understanding food labels

Food labels provide nutritional information which can help you make informed decisions to choose healthier food products

Date Marking

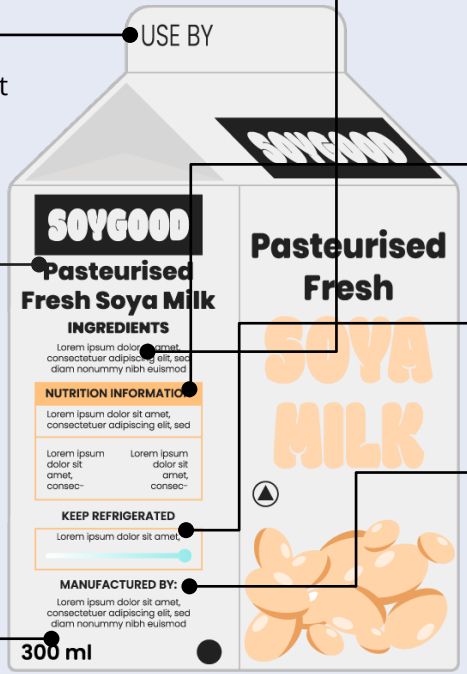
This is the 'Use by', 'Sell by' and 'Best Use Before' date. It gives the date by which the food should be eaten.

Product Name

Usually beside the brand name. Tells you what the food is.

Net Weight

This gives the actual weight of the food excluding the packaging. For canned foods packed in liquid, the net weight is the weight of the drained food.



Ingredient List

This shows all ingredients that make up the product. The ingredients are listed in descending order by weight.

Nutrition Information

This panel shows the nutrients found in one serving or in 100 g / 100 ml of the food.

Usage Instructions

These are instructions for storing or using the product.

Manufacturer's Details

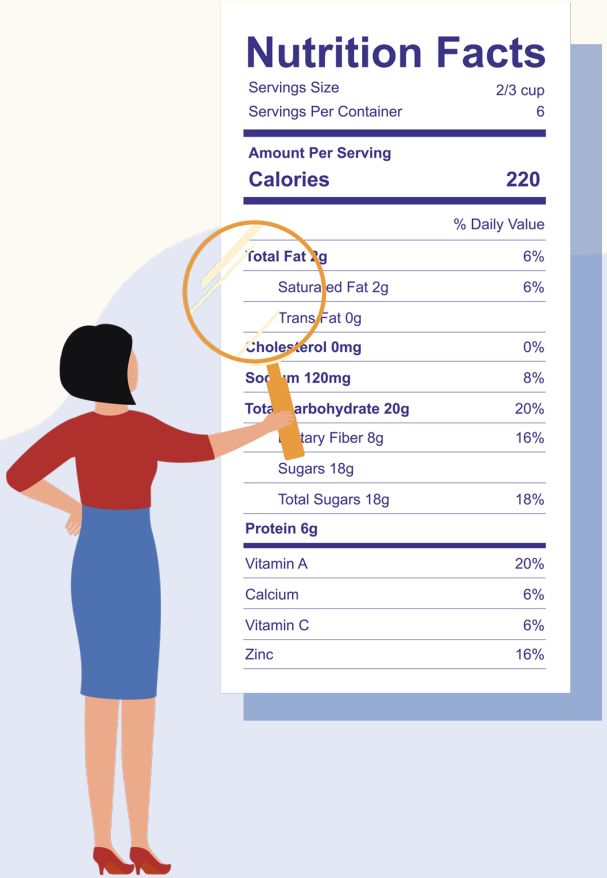
Every label includes the name and address of the manufacturer, importer or distributor.

The ingredient list and nutrition information are particularly useful in making healthier food choices

How to read food labels

Things to pay attention to:

- **Ingredients list** – for example, sugar might be referred by another name such as sucrose
- **Serving size** – the food item may contain more than one serving size
- **Calorie (or energy) content**
- **Carbohydrate content**
  - ↳ **"Sugar-free" does not mean carbohydrate-free – starch also contributes to carbohydrate content**
  - ↳ **"No sugar added" does not mean no carbohydrates. The food item may contain naturally occurring sugars (e.g., fruit juices) or other carbohydrates such as starches**
  - ↳ Fat-free products can still have carbohydrates which contribute to caloric intake

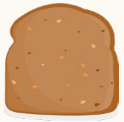


How to read food labels

- **Dietary fibre content** – high-fibre foods (≥ 4g per serving) can slow the rise of blood sugar
- **Fat content** – foods low in total fat (≤ 3g per 100g or ≤ 1.5g per 100ml) and saturated fat (≤1.5g per 100g or ≤ 0.75g per 100ml) reduce the risk of heart disease
- **Sodium content** – choose low sodium foods (≤ 120mg per 100g). Eating too much sodium can increase blood pressure

How to read food labels

Bread A
Wholemeal Bread



Bread B
White Bread

Nutrition Information		
Servings per package: 7		
Serving size: 2 slices (60g)		
	Per serving	**Per 100g**
Energy	145 kcal*	242 kcal*
Protein	7.4 g	12.4 g
Total fat	1.4 g	2.3 g
Saturated fat	0.7 g	1.1 g
Trans fat	0 g	0 g
Cholesterol	0 mg	0 mg
Carbohydrate	28 g	48 g
Dietary fibre	3.6 g	6 g
Sodium	206 mg	344 mg

Nutrition Information		
Servings per package: 7		
Serving size: 2 slices (75g)		
	Per serving	**Per 100g**
Energy	157 kcal*	314 kcal*
Protein	6.3 g	12.5 g
Total fat	3.7 g	7.3 g
Saturated fat	1.0 g	2.0 g
Trans fat	No data	No data
Cholesterol	0 mg	0 mg
Carbohydrate	26.3 g	52.6 g
Dietary fibre	1.9 g	3.7 g
Sodium	142 mg	285 mg

*1 kcal = 4.2kJ

As the serving size of these two products differ, comparing them using the "per serving" values would be inaccurate.

- We can make a fair comparison only by using values in the "per 100g" column.
- Bread A contains lower fat, lower saturated fat and higher dietary fibre than Bread B. Thus, it is a healthier choice as compared to Bread B.

'De-junk' your kitchen

1. **Avoid placing unhealthy snacks on your kitchen counter.** Replace with healthier alternatives - fruits, wholegrain bread etc.
2. **Ensure fresh produce is at eye level** for easier access
3. **Create a shopping list** - keeps you in check to avoid any temptations
4. **Use smaller plates and bowls** - helps control portion to reduce calorie intake
5. **Shop around supermarket perimeters to avoid shopping in the snack aisles** (these tend to be located in the middle aisles)
6. **Avoid shopping when hungry** – your cravings could lead to unhealthy decisions or bingeing

Source

Sugar substitutes (1 of 2)

These are **sweeteners or substitutes** that you can use instead of sugar (e.g., table sugar, honey), and come in 2 categories:

1. Nutritive Sweeteners (also known as caloric sweeteners)

- They are digestible and **contribute to calories**
- **Sugar alcohol** is a commonly used nutritive sweetener
  - ↳ They are neither sugars nor alcohol like wine. Although they have fewer calories and are digested more slowly than sugar, they do contain calories and should not be consumed excessively
  - ↳ **Examples include:**
    - Xylitol (a natural sugar alcohol found in many fruits and vegetables)
    - Sorbitol (commercially produced from glucose)
    - Palatinose (derived from sugar beet)
- Allulose is an uncommon sugar naturally found in figs and raisins, and is much lower in calories compared to sucrose

Sugar substitutes (2 of 2)

2. Non-Nutritive Sweeteners

- These **do not contribute to calories**
- Artificial Intense - produced in the laboratory, and includes aspartame and sucralose
- Natural Intense - found in nature, and includes stevia and monk fruit

While sugar substitutes are not actually needed to help manage diabetes, they can be used to sweeten foods, as long as they are **used in small amounts** and generally eaten as part of a meal.

BE HEALTHY

Physical Activity

Physical Activity

For individuals with Diabetes

Exercise for those with Diabetes

Exercise is important for your general health and well-being. If you have diabetes, you can still exercise if you take some precautions, depending on your:

- **Type of diabetes**
- **Pre-exercise glucose level**
- **Medication and timing**
- **Recent food intake**
- **General health condition**

What exercise are appropriate for me?

If the patient is a wheelchair user, skip Step 1 and proceed to Step 2

Step 1: Determine mobility level		
• On your own, do you have any difficulty standing up from a seated position without using your arms?	**Yes**	**No**
• On your own, do you have any difficulty walking for about 1 bus stop (~400m) without resting and using walking aids?	**Yes**	**No**
• On your own, do you have any difficulty climbing up 10 steps without resting, using handrails or walking aids?	**Yes**	**No**
• On your own, do you have any difficulty getting up from the floor without using furniture or other aids?	**Yes**	**No**

Step 2: Determine activity level	
• Sedentary	Seldom exercise
• Semi-active — some exercise	30 minutes, 3 times per week, at **less** than moderate intensity (can talk but can't sing), for past 3 months
• Active — regular exercise	30 minutes, 3 times per week, at **moderate** intensity (can talk but can't sing) to **high** intensity (can only say a few words) for past 3 months

What exercise are appropriate for me?

If the patient is a wheelchair user, skip Step 1 and proceed to Step 2

Step 3: Get relevant handouts			
	Full mobility	**Limited mobility**	**Wheelchair users**
Sedentary	**1A**	**1B**	**1C**
Semi-active	**2A**	**2B**	**2C**
Active	**3A**	**3B**	**3C**

- This assessment tool is designed for use by individuals as a guide to calibrate their physical activity based on their mobility and activity levels
- Complete steps 1 to 3 to identify the relevant category of handouts for the individual

Exercise recommendations

Frequency

- Aim to exercise **3 to 7 days per week**
- Aerobic and stretching exercises can be done every day, with strength training on alternate days

Intensity

- Aim for **moderate intensity**, i.e., **talk but can't sing** while exercising

Time

- Aim for an average of **150 - 300 minutes of exercise per week** or 30 minutes of exercise for 5 days per week
- Do more to lose weight

Type

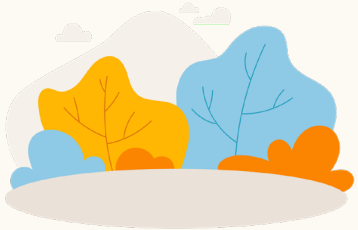
- Include a combination of aerobic, resistance and flexibility (stretches) exercises
- Progress to include other types of exercises such as balance, agility and even power training

How can I exercise safely?

Start slow if you have not been physically active

Wear **comfortable clothing** and **appropriate footwear** (well-fitted shoes with adequate support)

Check your feet for wounds before and after exercising



Exercise at a **cooler time** (mornings or evenings, or in a cooler environment)

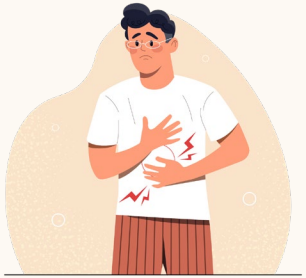
Bring along **healthy snacks** or sugar-containing sweets, in case of hypoglycaemia (low blood sugar)

Keep hydrated

Exercise **with family and friends**

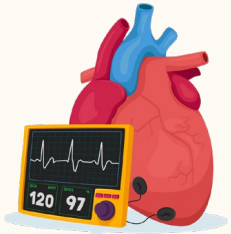
How can I exercise safely?

When exercising, please rest or stop if you experience
Symptoms of hypoglycaemia (low blood sugar of < 4 mmol/L)



Hunger

Hand tremors

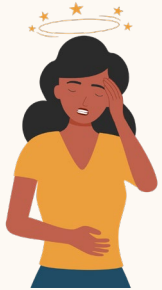


Abnormally fast heartbeat

Difficulty breathing

Fatigue

Mood changes
(e.g., anxiety, irritability, nervousness)



Dizziness or **headaches**

Pain
(especially in the chest or abdomen)

To note: Delay or postpone exercise if you are feeling unwell. Always listen to your body.

Regular physical activity benefits you in many ways

Improves productivity
Boost attention, memory and creativity

Improves overall mood
Reduces stress and improves mental health

Increases health benefits
Reduces risk of colon cancer, heart diseases, diabetes and high blood pressure

Increase fitness levels
Improves strength and stamina

Recommended guidelines

At least moderate intensity
150 - 300 mins/week

and

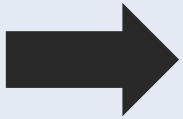
At least 2 days/week
Muscle strengthening

Singapore Physical Activity Guidelines 2022

You can’t out exercise a bad diet

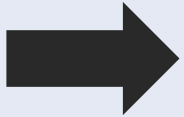
For an 80kg individual:

320 calories



39 minutes of walking

792 calories



1 hour & 35 minutes of walking

Taking small steps towards an active lifestyle

Make it a habit to do a few of these activities throughout your day

Take the stairs instead of the lift

Brisk walk for 10 minutes

Walk around every hour

Take **10,000 steps** daily

Get off one bus stop earlier and walk

Exercise with **family** and **friends**

Improving your fitness and performance gradually

Progression of aerobic exercise

Once you're ready, you can add more structure into your routine.

You can progress to higher intensities of exercise based on your individual exercise tolerance.

There are 3 methods for challenging your aerobic fitness:

- Increase your speed
  - E.g.,: Walking on a treadmill, at 3.5km/h → 3.8km/h → 4.2km/h
- Increase your resistance
  - E.g.,: Lifting hand-weights, of 0.5kg → 1kg → 1.5kg
- Increase your duration
  - E.g.,: Going for a walk, for 20min → 30min → 40min

Exercise and pain management

Post-exercise muscle soreness

- Normal and expected discomfort occurs between 24 and 48 hours after activity (especially if you are new to the activity).
- Usually resolves on its own.
- If it is (1) excessive in intensity or (2) persists longer than 2-3 days, consider reducing the duration or intensity of your exercise.

Injury management (for minor sprains and strains)

- Rest: Do so for 48-72 hours; avoid excessive movement to the injured area.
- Ice: Apply for 10-15 mins to the affected area. Precautions: (1) use a towel – do not apply directly against your skin; (2) do not apply onto open wounds; (3) check your skin integrity and condition after applying ice.
- Elevate: If possible, keep the injured area elevated to reduce swelling.
- Seek medical attention if the injury does not improve.

Exercise and pain management

Claudication pain* for those with peripheral vascular disease

- Only exercise to the point of moderate pain (i.e., 3 out of 4 on the Claudication Pain Scale).
- Sit and rest intermittently when moderate pain is reached, and resume only when pain is COMPLETELY alleviated.

Claudication Pain Scale	
0 = no pain	Resting or early exercise effort
1 = very mild pain (onset of claudication)	1st feeling of any pain in legs
2 = mild pain	Pain which the patient's attention can be diverted
3 = moderate pain	Intense pain from which patient's attention cannot be diverted. (Most exercise programmes may recommend cessation of exercise at this point)
4 = severe pain	Excruciating and unbearable pain

* Pain in your thigh, calf, or buttocks when you walk, which can make you limp.
Source: https://www.hopkinsmedicine.org/health/conditions-and-diseases/claudication

Monitor your blood sugar before exercising

For individuals with Type 2 Diabetes

#For individuals with Type 1 diabetes, please seek advice from your health provider

< 4.0 mmol/L	4.0 – 5.5 mmol/L	5.6 – 15.0 mmol/L	> 15.0 mmol/L

HYPOGLYCAEMIA

- **Delay your exercise**
- Follow the 15/15 rule to treat hypoglycemia
- **Do not exercise if you:**
  - ↳ Feel unwell
  - ↳ Had a hypoglycaemic episode in the last 24 hours that required someone's assistance.
  - ↳ Are exercising alone or engaging in a potentially unsafe exercise.

15g of fast-acting sugars (carbs) example:

- 3 teaspoons of dextrose powder/table sugar in 120ml of water
- ½ can of regular soft drink
- 1 can of low-sugar soft drink
- ½ glass (150ml) of fruit juice
- 3 soft/jelly sweets

Check your blood sugar level after 15 minutes

Monitor your blood sugar before exercising

For individuals with Type 2 Diabetes

#For individuals with Type 1 diabetes, please seek advice from your health provider

< 4.0 mmol/L	4.0 – 5.5 mmol/L	5.6 – 15.0 mmol/L	> 15.0 mmol/L

- **Exercise with caution.**
- **Have a light snack** (15 - 30g of long-acting sugars e.g., 3 pieces of biscuits and milo) **and wait 15 minutes before exercising**
- **If exercising duration > 30 minutes, consume additional carbohydrates**

Note: *If you are on insulin and/or sulphonylurea, standby 15g of fast-acting sugars due to a higher risk of hypoglycemia occurring with exercise.*

Monitor your blood sugar before exercising

For individuals with Type 2 Diabetes

#For individuals with Type 1 diabetes, please seek advice from your health provider

< 4.0 mmol/L	4.0 – 5.5 mmol/L	5.6 – 15.0 mmol/L	> 15.0 mmol/L

< 4.0 mmol/L
HYPOGLYCAEMIA

- **Perform 15/15 Rule**
- Check blood sugar level after 15 minutes

4.0 - 5.5 mmol/L

- Have a light snack (15 – 30 g of long-acting sugars e.g., 3 pieces of biscuits and milo) and wait 15 minutes before exercising
- If exercising duration > 30 minutes, consume additional carbohydrates

Increase in blood sugar levels

- Certain exercises cause an increase in blood sugar levels for a short while.
- The stress (of exercise) on the body releases hormones (e.g., adrenaline, cortisol) that cause a temporary increase in glucose production and hence an increase in the glucose level.

Examples:

- Brief but intense exercises such as sprinting, powerlifting.
- Usually a small increase that lasts for 1-2 hours is not a concern if your pre-exercise glucose level was not excessively high.

Perform the 15/15 rule

15g of fast-acting sugars (carbs) example:

- 3 teaspoons of dextrose powder/table sugar in 120ml of water
- ½ can of regular soft drink
- 1 can of low-sugar soft drink
- ½ glass (150ml) of fruit juice
- 3 soft/jelly sweets

Check your blood sugar level after 15 minutes

Monitor your blood sugar before exercising

For individuals with Type 2 Diabetes

#For individuals with Type 1 diabetes, please seek advice from your health provider

< 4.0 mmol/L	4.0 – 5.5 mmol/L	**5.6 – 15.0 mmol/L**	> 15.0 mmol/L

- **Good range!**
- Go ahead with your exercise, **but monitor signs and symptoms throughout** as you do so.
- If your session lasts longer than 60 mins, you may **need additional carbs.**

Pro tip!

Blood sugar levels between 5.6 to 15 = Good to Go!

Note: *If you are on insulin and/or sulphonylurea, standby 15g of fast-acting sugars due to a higher risk of hypoglycemia occurring with exercise.*

Monitor your blood sugar before exercising

For individuals with Type 2 Diabetes

#For individuals with Type 1 diabetes, please seek advice from your health provider

< 4.0 mmol/L	4.0 – 5.5 mmol/L	**5.6 – 15.0 mmol/L**	> 15.0 mmol/L

DIFFICULT TO REMEMBER?

Pro tip!

Blood sugar levels between 5.6 to 15 = Good to Go!

Note: *If you are on insulin and sulphonylureas, it is best to consult a physiotherapist for a guided exercise session before determining the appropriate blood sugar levels for exercise, as there are many other factors to consider.*

Monitor your blood sugar before exercising

For individuals with Type 2 Diabetes

#For individuals with Type 1 diabetes, please seek advice from your health provider

< 4.0 mmol/L	4.0 – 5.5 mmol/L	5.6 – 15.0 mmol/L	> 15.0 mmol/L

- **If you are feeling well and have taken your usual medications, proceed to exercise with caution**
- Monitor your **glucose trend** and **increase your fluid intake**

Summary of Pre & Post-Exercise Monitoring

Post-exercise

< 4.0 mmol/L	4.0 – 5.5 mmol/L	5.6 – 15.0 mmol/L	> 15.0 mmol/L

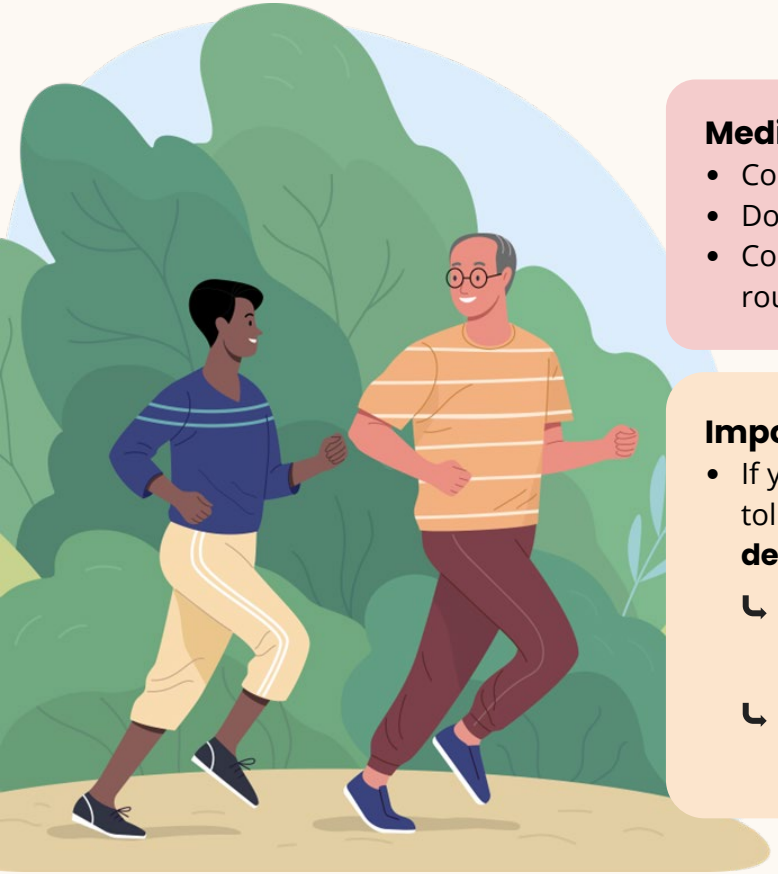
< 4.0 mmol/L
HYPOGLYCAEMIA!

- **Perform 15/15 rule:**
- 15g of fast-acting glucose e.g.,
  - 3 teaspoons of dextrose powder/ table sugar in 120ml of water
  - ½ can of regular soft drink
  - ½ glass (150ml) of fruit juice
  - 3 soft/jelly sweets
  - 1 can of low-sugar soft drink
- Check blood sugar level after 15 minutes

4.0 - 5.5 mmol/L

- Have your next meal **within 1 hour.**
- Have a light snack if your next meal is more than 1 hour away.

Pre-exercise Medication



Medications

- Consume your medications as prescribed by your doctor.
- Do not skip medications and attempt to replace it with exercise.
- Consult your doctor for a medication review if you are changing your exercise routine.

Important Medicine

- If you are on insulin, sulphonylurea (e.g., gliclazide, glimepiride, glipizide and tolbutamide) or meglitinides (e.g., repaglinide), your **blood sugar levels may decrease faster** as compared to other medications.
  - ↳ Start easy, monitor signs and symptoms closely, and avoid prolonged exercise.
  - ↳ Consult your doctor for a medication review if you experience signs and symptoms of **hypoglycaemia.**

Exercise Recommendations:

For individuals with foot ulcer and lower limb pain

Non-Weight Bearing Exercises

If you have a foot ulcer or have difficulty exercising while standing, you can modify your exercises

You should still aim to include aerobic, resistance and flexibility exercises while avoiding periods of being sedentary/inactive

Non-Weight Bearing Aerobic Exercises

Arm cycling, supine air cycling, seated marching, seated dance exercise.

Depending on the location of your ulcer, you may be able to use the recumbent exercise bike at a low intensity. Discuss this with your podiatrist.

Non-Weight Bearing Resistance Exercises

Upper body:
While seated, certain exercises such as shoulder press, lateral raises, biceps curl, reverse flyers, chest press (band/free weights), seated row (band), lats pull down (band) and abdominal curl/seated reverse crunch can be performed

Lower body:
Straight leg raises (supine and long sit), side lying hip abduction, knee extension (ankle weights/band), prone hip extension, knee flexion (ankle weights/band).

Depending on the location of your ulcer, you may be able to do seated calf press (band), double/single leg bridge.

Non-Weight Bearing Flexibility Exercises

Upper body:
While seated, consider performing exercises such as chest stretch, deltoid stretch, neck stretches, triceps stretch and forearm stretch.

Lower body:
Some examples of exercises include side lying quads stretch, seated calf stretch using towel, seated hamstring stretch and seated gluteal stretch.

For individuals with obesity

How obesity affects you

Mechanical consequences:

Osteoarthritis, sleep apnoea, gastro-oesophageal reflux disease etc.

Metabolic health:

Diabetes mellitus, gout, fatty liver, certain cancers etc.

Mental health:

Self-esteem, body image etc.

Monetary health:

Cost from treatment

Effects of weight loss on diabetes & pre-diabetes

For individuals with pre-diabetes or at high risk of developing diabetes:

A 5-7% weight loss is recommended to prevent or delay the onset of Type 2 diabetes.

For individuals with Type 2 diabetes:

A ≥ 5% weight loss improves glucose, lipids and blood pressure control

Types of interventions and expected weight loss

Type of intervention	Expected weight loss
Exercise only*	0 to 3%
Diet + exercise	3 to 10%
Weight loss medications, very low calorie diet	5 to 10%
Endoscopic bariatric procedures	15 to 20%
Bariatric surgery	25 to 30%

(SGH Obesity Centre; Swift et al., 2018*)

General considerations for individuals with obesity

Lower physical activity levels are prevalent in adults who are overweight and obese

This is likely due to low exercise capacity and being easily fatigued

Modifications:

Start slow

E.g., If you are starting a walking programme, start with leisure walking instead of brisk walking.

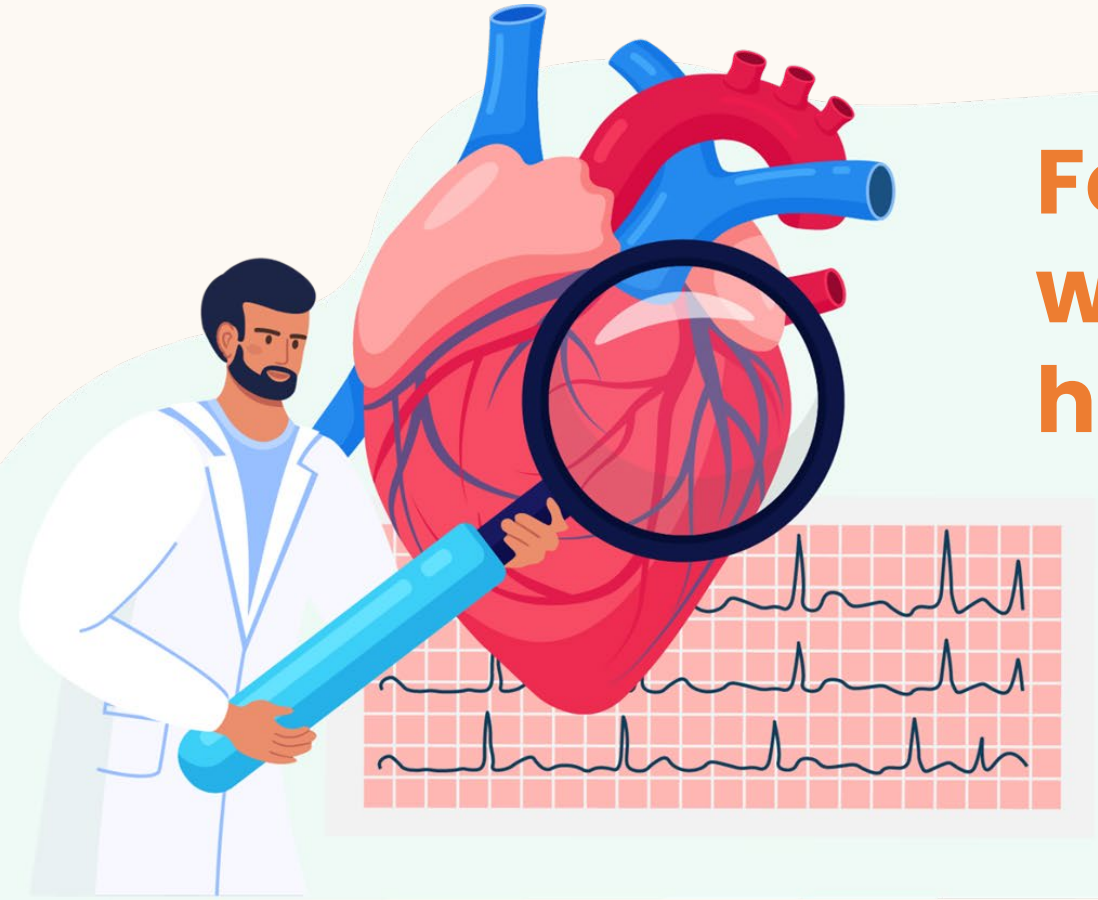
Take breaks in between

E.g., Instead of doing 20 mins of physical activity continuously, aim for 2 x 10 mins with a break in between.

Progress gradually

Monitor your overall energy and fatigue levels during and the day after exercise. Ensure that you do not feel excessively fatigued, such that you can't carry out your normal daily routine.

(Source: Cassidy et al., 2017)



For individuals with coronary heart disease

Benefits of being physically active for individuals with Diabetes and Coronary Heart Disease

Exercising and participating in physical activity:

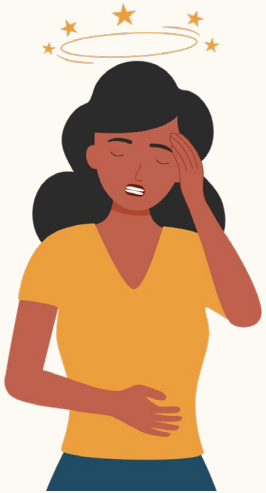
- Improves glucose utilisation and insulin sensitivity
- Controls weight
- Improves fitness
- Reduces your risk of a cardiac event
- Increases your chances of surviving a cardiac event

Impaired glucose control and being sedentary are major risk factors of coronary heart disease. **Increasing your participation in physical activity and exercising is a modifiable factor that you can work on**.

Precautions – what to look out for

Seek medical attention IMMEDIATELY if you experience one or more of the following symptoms before, during or after exercising:

Chest pain (with or without the discomfort radiating through left shoulder/arm)



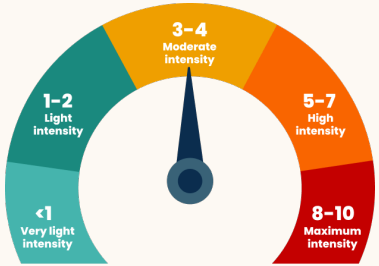
Dizziness/lightheadedness

Profuse perspiration

Monitoring your intensity (Exertion)

- **Exercise at moderate intensity.**
- If you have a less active lifestyle, start off with a **lower intensity.**
- **Monitor the intensity of your activity with:**

A heart rate monitor
Get a recommendation from your health care team

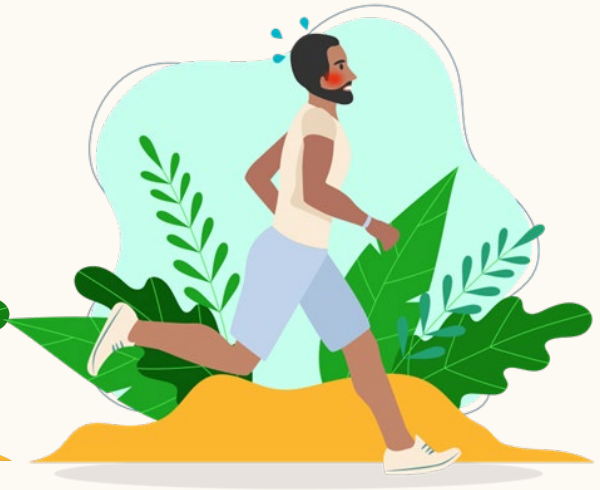


An exertion scale
Rating of Perceived Exertion (RPE) or talk test

Using the “Talk Test” to estimate exercise intensity

Low Intensity:
Able to sing and talk in full sentences

Moderate Intensity:
Noticeable increase in breathlessness, but can talk in phrases and short sentences



High Intensity:
Breathlessness and having difficulty talking

Exercising After A Cardiac (Heart) Event

Reduce sedentary time by:

- Adopting an active lifestyle through daily physical activities
- Increasing your daily step count

Seek medical clearance – get a referral for a Fitness Assessment and enrol yourself in a Supervised Cardiac Rehabilitation Programme:

- At the Singapore Heart Foundation
- Through your cardiologist at the hospital

BE HEALTHY

Avoid Smoking & Drinking

Smoking increases insulin resistance, risk of diabetes and its complications

Quit smoking!

Managing common withdrawal symptoms

Warn family and friends of potential irritability

Distract yourself by doing something else

Do light exercises like brisk walking to lift your mood

Take small, regular meals

Do **stretching exercises**

I QUIT Health Promotion Board

Join the **I Quit 28-Day Countdown**

Smoking increases insulin resistance, risk of diabetes and its complications

Managing common withdrawal symptoms

- **Feeling irritable**

(Your brain is adjusting to a nicotine-free life)

  - Do light exercises (e.g., brisk walking) to release endorphins to lift your mood
  - Engage in relaxing hobbies

- **Having headaches**

(Your brain is most likely adapting to the increased level of oxygen)

  - Get enough sleep
  - Read or watch TV with adequate lighting

- **Coughing**

(Your lungs are starting to function properly again and are working to clear tar, dead cells and extra mucus accumulated from smoking)

  - Sip warm water

- **Feeling tired**

(Nicotine is a stimulant that forces your body to feel awake; as your blood circulation improves, you will feel alert without the need to smoke)

  - Take small, regular meals to regulate your blood sugar level and boost your energy

- **Tingling hands and feet**

(Your blood circulation is slowly improving; as more oxygen gets to your fingers and toes, the tingling will stop)

  - Do stretching exercises

- **Constant cravings**

  - Distract yourself by doing something else

Avoid drinking alcohol

- Drinking excessive alcohol can cause hypoglycaemia (low blood sugar) due to increased insulin secretion, especially if consumed on an empty stomach or if you are taking certain diabetes medications.
- Alcohol has been linked to increased insulin resistance, and can interfere with meals plans and glucose control, especially if you are taking insulin or medication for diabetes.
- The amount of sugar content varies depending on the type of alcohol. Commercial alcoholic drinks may also be mixed with soda or fruit juices that are high in sugar content.
- Alcoholic drinks such as beer contain high amounts of calories, which can lead to weight gain.

What to do if drinking is unavoidable?

- Avoid drinking regularly
- Do not drink on an empty stomach
- Limit your alcohol intake per day to:
  - 1 standard drink for women
  - 2 standard drinks for men
- Choose light beer or wine spritzer, dilute mixers with water
- Avoid craft beer and sweet wine
- Sip your drinks slowly
- Drink plain water for hydration

What is 1 standard drink?

330 ml beer

100 ml wine

60 ml sweet wine or fortified wine

30 ml spirit or liqueur (e.g., brandy, vodka, whisky)

1 standard drink contains 10g of alcohol

BE HEALTHY

Emotional Well-being

- Diabetes can affect your emotions as well as your physical health.
- Difficulties coping with emotions can increase the risk of diabetes-related complications.
- Getting support can help you manage stress, low mood, uncertainty or even feelings of burnout.
- This can happen whether you’re newly diagnosed or have been living with diabetes for a while.
- Here are some ways to detect and better understand how you feel.
- You can also consider these steps to gain greater control over your diabetes management.

Living well with diabetes by creating your healthy body & self

The first step begins with being clear about:

- Your symptoms
- What you want to do to make it better and
- What you can actually do to feel better

These can take you closer to living well with diabetes and creating your Healthy Body and Self

Here are positive affirmations you use to motivate yourself or your loved ones.
This is a journey that begins with choosing a path with the belief that:

‘I can’
‘I want to’
‘I will take one step at a time’
‘I will go step-by-step’
‘I’ll be better than yesterday”
‘I’ll persevere”
‘I will ask, when in doubt’
‘I will be kind and patient with myself’

You get closer to creating your Health Body and Self when you feel healthy, happy, in harmony and willing to do what is helpful to achieve your goals for living well with diabetes

Living well with diabetes by creating your healthy body & self

- What you do to take care of yourself and manage diabetes day-to-day matters and affects how successful the prescribed treatment would be.
- Making lifestyle changes for diabetes can be as powerful as medications to prevent complications. These include healthy eating, being active, blood sugar monitoring, taking medication, problem solving, reducing risks, coping with stress.
- Starting can feel difficult and overwhelming, but as you learn, build skills and carry these steps out, they will become easier and more effortless.
- Learning self-care and ways to tackle stress and diabetes distress, and then following through with them, can get you feeling more independent, in-charge and gaining better health.

Stress & Diabetes

- When stressed, your adrenal glands release ‘stress hormones’ (i.e., adrenaline & cortisol) into your bloodstream, resulting in increased blood sugar.
- When blood sugar remains high, it makes diabetes control difficult.
- Stress can also contribute to high blood pressure, increase the risk of heart attack and stroke, and suppress the immune system.
- Stress can cause mood changes and result in worries that affect sleep.
- When not managed well, the impact of this stress can affect your personal, work and social functioning.

If you are experiencing any of these symptoms, talk with your doctor, nurse or healthcare professional.

Stress & Diabetes

Signs that stress may be out of control & further action is needed:

- Worries and anxious thoughts
- Irritability, frustration, anger
- Low mood or depression
- Changes in appetite (eating too much or not enough)
- Significant weight loss or gain
- Teeth grinding
- Loss of memory, concentration and difficulties completing tasks
- Sleeping too much or too little
- Stomach discomfort (e.g., nausea, constipation, diarrhoea)
- Headaches
- Trembling
- Profuse sweating

If you are experiencing any of these symptoms, talk with your doctor, nurse or healthcare professional.

Diabetes distress

- Diabetes distress is the emotional distress from living with diabetes and the difficulties faced with daily self-management.
- Strong negative emotions from living with diabetes can happen with checking blood sugar, taking medication, keeping up with physical activity and eating healthy.
- These feelings may be unique to you. Diabetes distress can be managed.

What can contribute to Diabetes Distress:

- Newly diagnosed diabetes
- Not reaching target goals for managing diabetes
- Loss of meaning of life, direction and focus in life
- Start and persistence of long-term complications
- Diabetes self-care expenses
- Unclear goals or direction for diabetes care
- Feeling disconnected, unheard or misunderstood by diabetes care providers
- Lack of psychosocial-emotional support
- Feeling burn out from the burden of living with diabetes

Diabetes & Depression

- Living with diabetes can be stressful, and limit your involvement in pleasurable activities.
- Ongoing emotional struggles of coping with diabetes can include feeling you are constantly failing at managing your diabetes, feeling hopeless, fearing the long-term complications and feeling very alone.
- Physical symptoms including fatigue, low energy, poor sleep, appetite and concentration.
- Depressive symptoms impact self-care, reduce motivation in taking care of yourself, and can contribute to hyperglycaemia or hypoglycaemia.
- Depression can be managed.

Have you experienced … or noticed changes in

- Sleep
- Interest
- Guilt
- Energy
- Concentration
- Appetite
- Nervousness
- Suicidal thoughts?

If you are experiencing any of these symptoms, talk with your doctor, nurse or healthcare professional.

FOUR 'A'S OF STRESS MANAGEMENT

1. Avert

You don't have to deal with all the stressors all at once. Avert and divert your attention to activities that relax you.
If you already have a lot to do, it is alright to say no.
If you feel tired and need time to rest, it is alright to let your family / friends know you will join them for the next outing.

2. Alter

Change the way you see your situation.
You want to get all your work done, and go for a 30 minute walk this evening.
You can choose not to tidy the kitchen today and do so the next day instead.
You want a good relationship with your family members.
When they remind you not to eat 2 bowls of rice at every meal, you feel irritated.
Tell yourself that they are your family, that they care about you and your health.

Swift, C.S., & Clark, N.G. (2015) Overcoming Type 2 Diabetes. New York, Penguin Random House LLC.

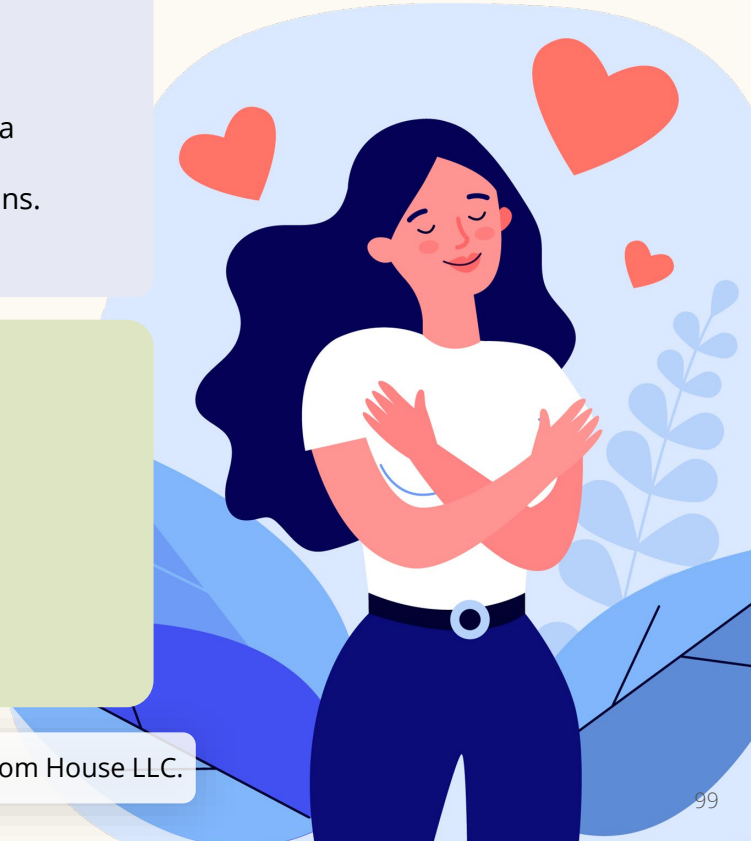
FOUR 'A'S OF STRESS MANAGEMENT

3. Accept

Accept, acknowledge and deal with stressors.
You feel frustrated and stressed when you think about living with diabetes the rest of your life. You know you choose how you feel and there is always a choice.
You can choose to use helpful or unhelpful ways to deal with your frustrations.
You know you cannot change the situation causing you stress. Decide what you want or don't want, and focus on what you can do about it.

4. Adapt

Adjust how you think and adapt to stressful situations.
When you notice a negative or unhelpful thought, turn it around, think positive, for example, 'I'm open to giving this a try', 'I can do it one step at a time', 'I can be kind to myself', 'I know it's okay to be imperfect'
When you are feeling down, make a list of all the things you are grateful for. Read through this list whenever you find yourself stressed.



Swift, C.S., & Clark, N.G. (2015) Overcoming Type 2 Diabetes. New York, Penguin Random House LLC.

Overcoming Stressors in Diabetes Management: Manage Emotional Eating

Manage emotional eating

- Identify the negative emotions that drive you to eat mindlessly and find alternative methods for addressing and overcoming the difficult emotions.
- Minimise temptations to eat mindlessly e.g., don't buy / put snacks in the cupboard. Plan and engage in meaningful activities in the evening.
- Minimise over-restriction and schedule a regular (morning / afternoon / evening) snack time.
- Plan for your snack and take intentional steps to select a satisfying and enjoyable one, based on healthy portions recommended.
- Engage in conversation or activity with close friends or find a meaningful hobby.

Overcoming Stressors in Diabetes Management: Enhancing Moods with Exercise

(cont'd)

Engage in physical activity

- Identify activities that are fun, enjoyable and rewarding.
- Adjust to your environment; arrange an activity and exercise at a time and location you find convenient.
- Make a concrete plan for regular exercise you want to do, think you can do and are willing to do.
- Find company for the activity or exercise you want to do.
- Identify and address self-defeating thoughts by asking yourself what evidence you have or how true it is, e.g., that you are too old or too overweight to exercise.

Problem Solving:
4 steps for better diabetes management

- Problem solving helps people to cope with stressful or overwhelming situations, and when no solution seems workable or it is difficult to get started.
- Helps you feel more motivated when the task is broken down into easier steps.
- First, select steps even if there is no ideal solution.
- Second, take a difficult task and break it into manageable steps.
- Let’s look at how we can use this technique in 4 steps.

Problem Solving:
4 steps for better diabetes management

Step 1
Describe the problem in as few words as possible.
Example – I do not exercise enough but would like to as I know it will help my health.

Step 2
List all **possible solutions.**
Come up with as many solutions as possible even if you are not sure they will give you the ideal outcome. List them even if you think you are not sure if you will do them.

Examples of possible solutions:
- Get off the bus two stops early and walk to work.
- Use the staircase instead of the lift.
- Join a gym.

Problem Solving:
4 steps for better diabetes management

Step 3
List the **pros and cons** of each solution.
Think about the pros and cons for each possible solution.

Example of Pros & cons of solution
For possible solutions: Walk to work instead of drive.

Pro: More relaxed walking than driving; better for health with fresh air.

Con: With heat from weather, I'll get sweaty and uncomfortable; needing more time to walk than drive means I need to get up earlier, even when I don't get enough sleep.

Problem Solving:
4 steps for better diabetes management

Step 4

Is this a solution you think you would likely choose?

If so, let's break the solution down into doable steps.

Carry out the best option.
Do it one step at a time.

IMPROVING MY RELATIONSHIP WITH OTHERS WHO CARE ABOUT ME

Positive relationships with your **doctor, nurse and any healthcare professional** who support you in diabetes management give you more confidence to better manage diabetes.

Connecting and seeking support from people in your life, like **family, friends, co-workers** help you to feel better understood, valued and boost your motivation to make positive changes.

IMPROVING MY RELATIONSHIP WITH OTHERS WHO CARE ABOUT ME

Family members you relate well with make helpful allies who stand by you and support you when you feel angry, frustrated, disappointment, down or depressed.

NOTE:
Overly concerned family may also offer support in unwanted ways. This could contribute to strong negative emotions, with no constructive or helpful outcomes for both.

You could share with them what enables you to feel more supported.

IMPROVING MY RELATIONSHIP WITH OTHERS WHO CARE ABOUT ME

COMMUNICATE

What you think, How you feel, and What can help

a. Describe: When you _____
b. Explain: I feel _____
c. Specify: If you would do _____ instead
d. Consequence: I will feel _____

Here is an example

a. Describe: When you tell me I cannot eat kueh
b. Explain: It makes me feel like I don't know my limits and I feel like eating more kueh
c. Specify: If you would ask me how much kueh might be healthy or when might be a better time to eat it
d. Consequence: I would feel that you care and are supporting me

STIGMATISATION OF INDIVIDUALS WITH DIABETES

- Diabetes stigma includes the **experience** of exclusion, rejection, prejudice, and blame that some people with diabetes encounter. Learn how to identify this stigma, how it can lead to worse health outcomes, and what you can do to stand up to it.

- **Stigmatisation** can be a major challenge for **those** with diabetes **and** exists everywhere, including in the family, school, workplace, and healthcare **settings.** It prevents people from seeking care and managing their physical and mental health.

WAYS TO MANAGE STIGMATISATION

- **Be kind to yourself**. Never blame yourself. You may mistakenly believe you are responsible for your condition, but internalised stigma can be just as harmful to your health as stigma from others. Educate yourself on the many causes of diabetes and connect with people who share your experiences to help you overcome self-blame.

- **Speak up** if you see stigmatising behaviour or statements being made, and try to open up a conversation with others by sharing accurate information about diabetes. Being an ally to individuals with diabetes is key.

WAYS TO MANAGE STIGMATISATION

- **Share your stories with others**. While many people may be reluctant to tell others they have diabetes, having these conversations with your friends, family, and colleagues can help humanise diabetes to those who are not familiar with the condition. Join a diabetes support group.

- **Seek help.** If you, your child or anyone you know, are being stigmatised and need assistance, please find a counsellor at a Family Service Centre (FSC) near you.

WAYS TO MANAGE STIGMATISATION

Or you can contact the following diabetes groups:

Diabetes Singapore
Email: enquiry@diabetes.org.sg
(65) 6564 9818
https://www.diabetes.org.sg/

TOUCH Diabetes Support
Email: tds@touch.org.sg
(65) 6377 0122

typeOne.sg
https://www.facebook.com/groups/typeonesg

SLEEP AND DIABETES

How diabetes can affect sleep

- Diabetes and pre-diabetes has been linked to problems sleeping well.
- Effects of lack of sleep or poor sleep quality include and are not limited to:
  - **Mental abilities:** Poor attention, concentration and memory, impaired judgment, and reaction time
  - **Emotional state:** Irritability and other mood disturbances, difficulty managing intense emotions
  - **Physical state:** Fatigue, weakened immunity, high blood pressure, weight gain

How diabetes can affect sleep

- High blood sugar (hyperglycaemia) and low blood sugar (hypoglycaemia) during the night can lead to **insomnia and next-day fatigue.**
  - When blood sugar levels are high, the kidneys overcompensate by causing you to urinate more. During the night, these frequent trips to the bathroom can disrupt sleep. High blood sugar may also cause headaches, increased thirst, and tiredness that can interfere with falling asleep.
  - In contrast, going too many hours without eating or taking the wrong balance of diabetes medication can also lead to low blood sugar levels at night. This can cause nightmares, or wake you up at night drenched in sweat, or make you feel irritated or confused when you wake up.

Dangers of nocturnal hypoglycaemia!

When blood sugar falls **below 4.0 mmol/L while sleeping** at night, the person experiences **nocturnal hypoglycaemia** or “night-time hypo”. This can be dangerous and cause sudden death.

Some ways to avoid it:

Test your blood sugar levels before bed.

Avoid skipping meals, including dinner.

Avoid physical activity at night.

Look out for warning signs: Restlessness and irritability, hot, clammy or sweaty skin, trembling or shaking, changes in breathing, nightmares, and racing heartbeat.

Consult your doctor about nocturnal hypoglycaemia.

Sleep problems in diabetes

- As with many chronic conditions, the emotional struggle of coping can contribute to depression or stress about the disease itself. These affect your stress-related hormonal cycle and disrupt your sleep cycle. You may take longer to fall asleep, be awake more than usual through the night or wake far too early in the morning.
- Insomnia happens when a person experiences sleep difficulties and related daytime symptoms, like fatigue and attention issues.
- Those with insomnia commonly feel distressed about their inability to sleep and daytime symptoms caused by sleep issues.
- The distress and frustrations of not being able to fall asleep, worries and fears from not sleeping can reinforce the sleep difficulties. Symptoms can be severe enough to affect your work or school performance, as well as social or family life.

Talk to your doctor about sleep issues. Based on your personal situation, your doctor may be able to recommend sleep aids or additional ways to get better sleep. They may even conduct a sleep study, to see if a sleep disorder is a potential contributor to your sleep problems.

Common sleep disorders in diabetes:

- Obstructive sleep apnoea
- Restless leg syndrome