

# diabetes and healthy food choices



Eating healthy food is  
an important part of  
self-managing diabetes



**diabetes**  
new zealand

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This pamphlet has been developed by New Zealand Registered Dietitian Alison Pask to provide some basic guidelines for people with diabetes. These may be adapted by your health professional to suit your individual needs. The information is general and is not designed to replace advice given to you by your own dietitian or other health professional.

# Diabetes and healthy food choices

## Healthy Eating Plan

Your blood glucose levels are affected by the amount and type of starchy and sweet food you eat or drink. Your risk of having a heart attack is affected by the amount and type of fat you eat. Eating more energy than your body needs leads to weight gain. Energy comes from carbohydrates, fats, protein and alcohol. Energy in food is called calories or kilojoules.

Simple changes to your diet will help. Make these changes part of your everyday life.

**People with diabetes do not need to buy special food or cook separate meals. The whole family can eat the same healthy food.**

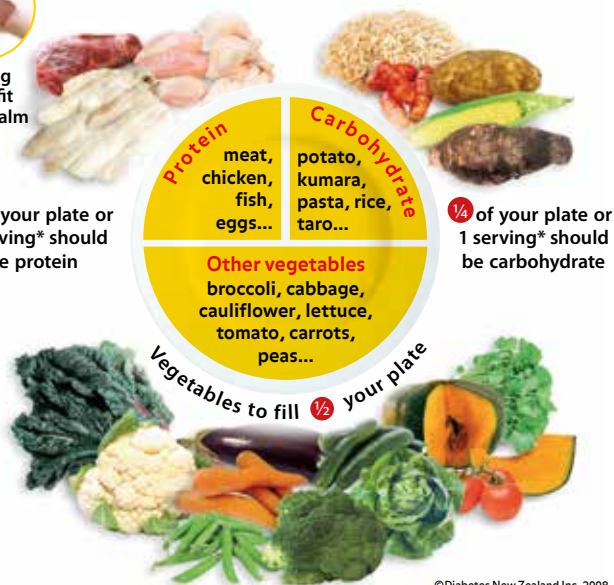
- Drink plenty of water. Avoid drinking fruit juice and other sweet drinks.
- Eat breakfast, lunch and dinner every day.
- Base your meals around the Diabetes New Zealand Healthy Plate model.
- Eat some carbohydrate food at each meal, but not too much.
- Choose low sugar, low saturated fat, low salt, and high fibre food.



1 serving should fit in the palm of your hand

$\frac{1}{4}$  of your plate or 1 serving\* should be protein

### Diabetes New Zealand Healthy Plate



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Use the traffic lights to help you make healthy food choices



**Avoid eating** these foods

**Eat some but not too much** of these foods

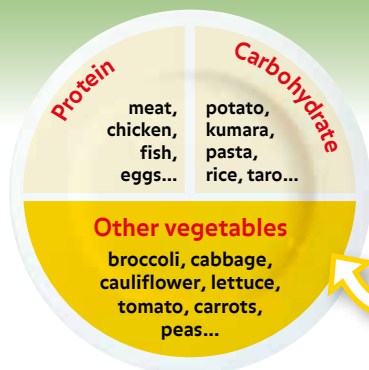
**Eat lots** of these foods

# Non-starchy vegetables



**Eat lots**

Eat at least 3-4 servings of non-starchy vegetables each day. These vegetables are less likely to raise your blood glucose levels.



- Choose a selection of different coloured vegetables each day
- Raw, cooked, frozen, canned and dried vegetables all count
- Leave the skin on wherever possible.

$\frac{1}{2}$  of your plate should contain non-starchy vegetables

## Two examples: 4 servings of vegetables



$\frac{1}{2}$  cup cooked mixed vegetables



1 cup salad



1 tomato



1 carrot



$\frac{1}{2}$  cup frozen beans



$\frac{1}{2}$  cup cooked broccoli



1 cup coleslaw



1 wedge pumpkin

**Be aware**

Avocado contains heart-friendly fats. Try not to eat too much, especially if you are trying to lose weight.





# Non-starchy vegetables

These vegetables are less likely to raise your blood glucose levels.



Asparagus



Bean sprouts



Beetroot



Bok choy



Broccoli



Capsicum



Carrots



Cauliflower



Celery



Chinese cabbage



Cucumber



Eggplant



Green beans



Leeks



Lettuce



Mushrooms



Onions



Peas



Puha



Pumpkin



Silver beet



Swede



Taro leaves



Tomatoes



Turnip



Watercress



Zucchini

# Carbohydrate



**Eat some  
but not  
too much**

Eat some but not too much carbohydrate food. Include some carbohydrate at each meal. Foods high in carbohydrate include both starchy and sweet foods. They break down into glucose in the body. Eating too much carbohydrate will increase your blood glucose above recommended levels.

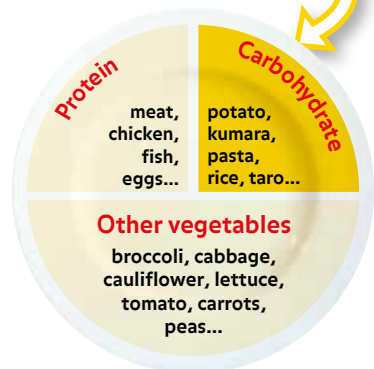
Carbohydrate foods include:

- Breads, cereals, chapati, roti
- Pasta, rice, couscous
- Legumes e.g. chickpeas, lentils, baked beans
- Starchy vegetables e.g. potato
- Fruit
- Milk and milk products
- Sugar and sweet foods.

**Healthy  
choices**

- Eat a similar amount of carbohydrate at each meal, each day.

$\frac{1}{4}$  of your plate should contain carbohydrate



# Carbohydrate – General tips



- A breakfast cereal with low fat milk or low fat, unsweetened yoghurt is a great start to the day.
- Choose a cereal low in sugar, low in fat and high in fibre such as Weetbix or porridge.

- A homemade soup makes a substantial meal if split peas, lentils or barley and plenty of non-starchy vegetables are added.



**Healthy choices**



- Look for breads and cereals high in fibre such as barley, bran, oats and oat bran, rye, seeds, wheat germ, wholegrain and whole wheat products.
- Tomato and vegetable-based sauces are great on rice or pasta.
- Include plenty of salad or vegetables with your pasta or rice.

**Be aware**

- Some breads and cereals such as croissants, garlic bread, cheese breads, Danish pastries and toasted muesli can be high in fat.
- Pasta sauces and soups containing butter, cream, cheese or coconut cream can be too high in fat and should be avoided.
- Many instant noodles are high in fat that is bad for our hearts. Some instant noodles contain palm oil. Fried rice can also be high in fat.
- Limit these foods.

# Carbohydrate – Fruit



Eat at least 3-4 servings of fruit, spread throughout the day. These also count towards your total carbohydrate intake for each meal.



- Raw, canned, frozen and dried fruit all count.
- Choose canned fruit in natural fruit juice or artificially sweetened water.



- Spread the fruit you eat over the day
- Eat 1 serving only at each meal or snack
- Eat only a small amount of dried fruit  
e.g. 1 tablespoon of sultanas or 3 prunes.



## Two examples: 4 servings of fruit



1 orange  
(1 serving)



1 small or ½  
large banana  
(1 serving)



1 cup of  
berries  
(1 serving)



½ cup canned  
peaches in  
natural juice



½ cup canned  
pears in natural  
juice



1 medium apple



15 grapes



2 kiwifruit

## Carbohydrate – Milk and yoghurt



**Eat 2–3 servings each day. These also count towards your total carbohydrate intake for each meal.**

- Milk contains carbohydrates as milk sugars (lactose). Drinking large quantities will increase blood glucose above recommended levels.
- Milk and yoghurt are also good sources of protein and calcium.
- Flavoured milk is not recommended.



- Low fat or reduced fat milk or soy products
- Low fat, low sugar yoghurt e.g. diet, lite or unsweetened.

**Example: 2 servings**

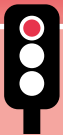


1 cup low fat  
milk



1 pottle low fat,  
low sugar yoghurt

## Carbohydrate – Sugar



**Sweet foods such as cakes, biscuits, lollies and sweet drinks will raise your blood glucose levels.**

- All sugars will raise your blood glucose levels.  
These include: Brown sugar – Caster sugar – Corn syrup – Dextrose – Disaccharides – Fructose – Glucose – Golden syrup – Honey – Icing sugar – Lactose – Malt extract – Maltodextrin – Maltose – Molasses – Monosaccharides – Raw sugar
- You can include small amounts of sugar e.g. 1 teaspoon, as part of a high fibre, low fat meal.

# Carbohydrate

## Examples of carbohydrate servings

### Starchy vegetables



1 small  
potato



½ small  
kumara



½ a green  
banana



½ cup of  
taro



½ cup  
of corn  
kernels



½ cup of  
yams

### Breads and cereals



3 Ryvita  
crackers



1 ½  
Weetbix



¼ cup of  
raw oats



1 small  
roti



1 medium  
slice of  
wholegrain  
bread



½ a  
wholemeal  
bun

### Grains and legumes



⅓ cup  
of rice



⅓ cup  
of pasta



⅔ cup of  
baked  
beans



1 cup of  
canned  
red kidney  
beans



⅓ cup of  
cooked  
couscous



1 cup of  
cooked  
dhal

Your dietitian will be able to give you a more detailed list of carbohydrate portions.

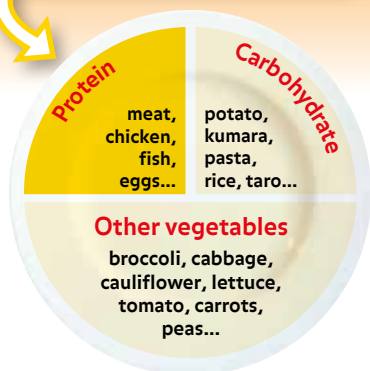


# Protein – meat, chicken, fish, eggs and cheese



Eat 1–2 servings of meat or meat alternatives each day.

¼ of your plate should contain protein



## Healthy choices

- Eat 1-2 fish meals each week.
- Eat at least 4-5 serves of legumes each week.
- Use plain or flavoured cottage cheese, ricotta, quark or a small amount of parmesan cheese.

## Examples of servings of protein



⅓ cup of cottage cheese



1 egg



½ cup of tuna in water



2 small fish fillets



1 cup of mussels



1 small chicken breast



½ cup of lean mince



120g of roast lamb (2 slices)

## Be aware

- Skim the fat off the top of stew, casseroles, mince and boil ups.
- Avoid eating fatty or salty meats e.g. battered fish and hot dogs.
- Limit the amount of cheddar, cream cheese and some soft cheeses as they are high in fat.

# Fats and oils



Eating too many calories or kilojoules from any source will lead to weight gain. Fat is particularly high in calories / kilojoules and it is easy to eat too much.

Saturated fat can raise blood cholesterol levels and increase the risk of heart disease.

**Healthy choice**

- We need some but not too much heart friendly fat and oil in our diet.
- Peanut butter or raw nuts with no added salt can be a good source of fat.
- Eat up to 30g each day. This is equal to one dessertspoon of peanut butter or a small handful of nuts. For weight control one serve of nuts replaces other oils and spreads.
- Use a lite coconut milk or use coconut flavoured light evaporated milk instead of coconut milk or cream.

## Eat some but not too much of these fats and oils (or spreads made from these oils)

### Polyunsaturated

- Corn oil
- Grape seed oil
- Linseed or flax oil
- Safflower oil
- Sesame oil
- Soybean oil
- Sunflower oil
- Walnut oil
- Wheat germ oil

### Monounsaturated

- Almond oil
- Avocado oil
- Canola oil (rapeseed)
- Olive oil
- Peanut oil
- Rice bran oil

Polyunsaturated and monounsaturated oils help lower blood cholesterol and protect against heart disease. They are called heart friendly fats.

## Avoid eating these saturated fats and trans fats

- Beef tallow
- Butter
- Chefade
- Chicken skin and fat
- Chocolate
- Cocoa butter
- Coconut oil, coconut cream
- Copha
- Cream
- Ghee, clarified butter
- Hydrogenated oils
- Kremelta
- Lard, suet, dripping
- Milk solids
- Palm oil
- Shortening
- White fat visible on meat

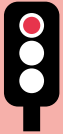
## Fats and oils

**Be  
aware**

- All fats and oils are high in calories/kilojoules.
- Cholesterol free doesn't mean fat free.
- Lite or light may only mean lighter in colour or flavour, not low in fat.



## Salt (sodium)



**A high salt intake is linked to high blood pressure in some people. This may lead to a stroke, heart attack or kidney disease.**

All types of salt contain sodium including: table salt, rock salt, vegetable salt, sea salt, monosodium glutamate (MSG) and any ingredient beginning with sodium e.g. sodium bicarbonate.

- Three quarters of our salt/sodium intake comes from manufactured foods. Check the label reading guidelines on sodium content on page 22 of this resource.
- Gradually decrease the amount of salt you use. Allow your taste to adjust slowly.
- Add flavour to meals with herbs, spices, garlic and lemon juice.
- If using salty foods like ham, bacon, stock, soy sauce, olives, anchovies or cheese, don't add extra salt.
- Use salt-reduced stocks, low salt soy sauce and tomato sauce.
- If you do use a small amount of salt, make sure it is iodised.



# Drinks



**Aim for at least 6–8 cups of fluid each day.**

## Tap water is the best drink.

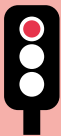
For variety, choose from:

- Tea or coffee
- Diet or zero soft (fizzy) drink
- Artificially sweetened cordials, powdered drinks or chocolate drink powders
- Unflavoured mineral or soda water
- Diet or low energy drinks



**Be  
aware**

- Low fat milk is a good choice but it does contain carbohydrate from the natural milk sugar lactose. Go to page 9 for more information.
- Use sweetened drink powder such as Milo or Bournvita in small quantities only e.g. 1 teaspoon per cup.



## Avoid drinking

- Drinks with more than 2.5g of carbohydrate per 100 ml
- Fruit juice including squeezed fruit juice and fruit juice with no added sugar
- Soft drinks and tonic water
- Sport drinks
- Flavoured water
- Flavoured milk
- Energy drinks
- Cordials

# Sweeteners

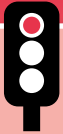


- For a sweet taste, you may wish to use liquid, tablet or powder artificial sweeteners in place of sugar in your drinks and food
- Use a variety of different sweeteners rather than just one type. Aim to reduce the amount of sweetener you use over time.



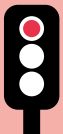
Foods containing sweeteners may be high in fat and calories or kilojoules e.g sugar-free chocolate.

# Alcohol



**Alcohol is high in calories or kilojoules and may lead to weight gain.**

- Ask your doctor if you should drink alcohol
- Limit alcohol to 3 drinks or fewer each day for men; 2 drinks or fewer each day for women
- Check out the size of your glass: one standard drink is 100ml wine, 30ml spirits or 300ml beer
- Aim to have 2 or more alcohol free days each week.



## Avoid drinking

- Ready to drink pre-mixes
- Sweet or dessert wines
- Port and liqueurs.

## One standard drink



100ml wine



300ml beer



30ml spirits

# Foods to avoid



Foods listed below are high in total fat, saturated fat and/or sugar. They can lead to high blood glucose levels, a higher risk of heart disease and weight gain.

Foods high in total and saturated fat	Foods high in sugar	Foods high in fat and sugar
<ul style="list-style-type: none"> <li>• Chippies</li> <li>• Coconut cream</li> <li>• Corn chips</li> <li>• Cream</li> <li>• Fish and chips and other fried takeaways</li> <li>• Fried foods</li> <li>• Hot chips</li> <li>• Pies and pastries</li> <li>• Reduced cream and sour cream dips</li> <li>• Regular mayonnaise</li> <li>• Sausages, salami, luncheon sausage and other processed meat</li> <li>• Vegetable chips</li> </ul>	<ul style="list-style-type: none"> <li>• Condensed milk</li> <li>• Cordial</li> <li>• Honey</li> <li>• Jam</li> <li>• Lollies</li> <li>• Puddings</li> <li>• Roll-ups</li> <li>• Soft drinks</li> <li>• Syrups</li> <li>• Sweetened tinned food</li> </ul>	<ul style="list-style-type: none"> <li>• Biscuits</li> <li>• Cakes</li> <li>• Chocolate</li> <li>• Chocolate spreads</li> <li>• Donuts</li> <li>• Muesli bars</li> <li>• Regular ice cream</li> </ul>

Low fat ice cream and frozen yoghurt can be high in sugar – limit to one scoop occasionally.



Avoid eating food and drink high in total fat, saturated fat and sugar.





# Biscuits, crackers and cakes



Most biscuits, crackers and cakes are high in carbohydrate, fat and calories/kilojoules. Some crackers can also be high in salt. Only eat on special occasions.

## Better choices for a special occasion

- Low fat, high fibre crackers
- Biscuits made with wholemeal flour, bran, oats and dried fruit
- Eat no more than one or two biscuits at a time.

**Be aware**

- Some crackers have as much fat as chippies
- Go easy on high fat toppings e.g. margarine and cheese
- Sugar-free biscuits may contain a lot of fat and energy.

# Jams, spreads, dressings, dips, sauces and pickles

## Better choices:

- Reduced fat, reduced salt, low calorie or low kilojoule items
- Yoghurt based dips and dressings
- Small amounts of pickles eaten with savoury foods add extra variety and flavour.



**Be aware**

- Chocolate or nut spreads can be high in fat and sugar
- Fruit-only jams, sugar-reduced jams and honey still contain carbohydrate so use small quantities
- It is okay to include a scraping of standard jam or honey on one slice of wholegrain bread
- The small amount of sugar in savoury foods such as tomato sauce is okay for most people provided you eat small amounts only
- Hummus varies in fat content. Select low fat varieties.

# Snacks



**Morning and afternoon tea snacks are often not necessary.  
Ask your dietitian or other health professional if you need them.**

If you are having a snack, choose one of these examples:

- 1 medium sized raw fruit
- 1 slice of wholegrain bread
- 1 glass of low fat milk
- 1 pottle of low fat lite or diet yoghurt
- 2–3 low fat wholegrain crackers
- A handful of plain popcorn
- 1 slice of high fibre fruit bread



## Ideas for taking a plate



- Fresh fruit platter
- Fruit kebabs
- Vegetable platter with tomato salsa or low fat hummus
- Wholegrain club sandwiches with a variety of low fat fillings
- Asparagus rolls
- Mini low fat muffins
- Wholegrain crackers with low fat toppings



# Sample meals

## Two examples of an ideal breakfast

### 1 cup of porridge + one bobby banana + ¼ cup of yoghurt

- Use low fat, low sugar yoghurt and raw or unsweetened fruit.
- Use Weetbix or other recommended cereals for variety.



### 2/3 cup of baked beans with 1 slice of wholemeal bread + tomato

- Use a scraping of margarine on bread.
- Add spinach or mushrooms for variety.



## Two examples of an ideal lunch

### Chicken and salad wholegrain roll with fruit

- Use a scraping of margarine.
- Use tinned fish, beef or reduced cheese for variety.



### 1 cup of salmon rice salad + 1 pottle of diet yoghurt

- Use a small amount of heart-friendly dressing
- Use shredded chicken, slices of cold meat or hard-boiled egg for variety.



## Two examples of an ideal dinner

### Roast beef with kumara and vegetables (½ cup roasted kumara, 1 small potato, ½ cup of pumpkin and broccoli/cauliflower)

- Use chicken, lamb, pork or fish for variety.
- Remove fat from meat.
- Eat half a plate of non-starchy vegetables.



### 1 cup of rice with 1 cup of chickpea, pumpkin and spinach curry

- A roti bread can replace the rice.
- Lentil dhal, chicken or meat based curries add variety.



# Food guidelines summary

These guidelines are a general guide for people with diabetes and heart disease. Your food needs to match your weight, medications, medical conditions and activity levels.

The information is not designed to replace advice given by your dietitian or other health professional.

Food	Healthy Servings	How much is one serving?
 <b>Non-starchy vegetables</b> Pages 4 & 5	At least 3–4 servings each day	<ul style="list-style-type: none"> <li>• ½ cup cooked vegetables</li> <li>• 1 cup raw green vegetables or salad</li> <li>• 1 tomato or carrot</li> </ul>
<b>Drinks</b> Page 14	6–8 drinks per day	<ul style="list-style-type: none"> <li>• 1 glass water (250ml)</li> <li>• 1 cup diet soft drink (180ml)</li> <li>• 1 glass trim or low fat milk (250ml)</li> <li>• 1 cup tea or coffee</li> </ul>
 <b>Starchy vegetables, breads, cereals, rice, pasta &amp; legumes</b> Pages 6, 7 & 10	<ul style="list-style-type: none"> <li>• At least 6 servings each day</li> <li>• Choose a variety of grains – at least half of your breads and cereals should be wholegrain</li> <li>• At least 4–5 servings weekly of legumes</li> </ul>	<ul style="list-style-type: none"> <li>• 1 medium slice of whole grain bread or ½ bread roll</li> <li>• 1 small pita bread, naan, roti or wrap</li> <li>• ½ cup bran cereal or cooked porridge</li> <li>• ⅓ cup cooked pasta</li> <li>• ⅓ cup cooked rice</li> <li>• 1 small potato</li> <li>• ½ kumara or parsnip</li> <li>• ½ cup corn</li> <li>• 1 small round of taro</li> <li>• 1 cup cooked dried beans, chickpeas, lentils or dhal</li> <li>• ½ cup tofu or tempeh</li> </ul>
<b>Fruit</b> Page 8	At least 3–4 servings each day	<ul style="list-style-type: none"> <li>• 1 medium apple, pear or orange</li> <li>• 10–15 grapes or strawberries</li> <li>• 3 prunes</li> <li>• 1 tablespoon raisins or sultanas</li> <li>• ½ cup stewed, frozen or canned fruit in natural or lite juice</li> <li>• ½ banana</li> </ul>



Food	Healthy Servings	How much is one serving?
<b>Milk, yoghurt, cheese, other milk products</b> Pages 9 & 11	<ul style="list-style-type: none"><li>• 2–3 servings each day</li><li>• Replace with soy products if preferred</li></ul>	<ul style="list-style-type: none"><li>• 1 glass low fat milk (250ml)</li><li>• 1 pottle low fat, diet or lite yoghurt</li><li>• 1/3 cup low fat cottage cheese</li><li>• 2 tbsps grated Parmesan cheese</li><li>• 3cm cube Edam cheese</li></ul>
<b>Meat, chicken</b> Page 11	Limit to 1–2 servings each day	<ul style="list-style-type: none"><li>• 2 slices trimmed meat or chicken (100–120g)</li><li>• 1/2 cup lean mince or casserole (125g)</li><li>• 1 small lean steak (100g)</li><li>• 1 small chicken breast (120g)</li></ul>
<b>Eggs</b> Page 11	3 eggs weekly	<ul style="list-style-type: none"><li>• 1 egg</li></ul>
<b>Fish, seafood</b> Page 11	1–2 servings weekly	<ul style="list-style-type: none"><li>• 2 small or 1 large fillet fish</li><li>• 1/2 cup tuna</li><li>• 1 cup mussels</li></ul>
<b>Nuts, seeds</b> Page 12	2–3 servings each day	<ul style="list-style-type: none"><li>• 1 dessertspoon nuts or seeds</li><li>• 1 dessertspoon peanut butter</li></ul>
<b>Fats, oils</b> Page 12 & 13	Up to 3 servings each day	<ul style="list-style-type: none"><li>• 1 teaspoon soft table margarine or oil</li><li>• 2 teaspoons low fat mayonnaise or vinaigrette</li><li>• 1 tablespoon avocado</li></ul>
<b>Sugar</b> Page 9	Up to 1 serving each day as part of a meal	<ul style="list-style-type: none"><li>• 1 tablespoon sugar, jam, syrup or honey</li><li>• Small scoop reduced fat ice cream or frozen yoghurt</li></ul>
<b>Salt</b> Page 13	<ul style="list-style-type: none"><li>• Limit high salt seasonings to 1 each day</li><li>• Limit high salt foods</li></ul>	<ul style="list-style-type: none"><li>• 1/6 stock cube</li><li>• 1/3 teaspoon gravy mix</li><li>• 30g lean ham or pastrami</li><li>• 1 teaspoon Marmite or Vegemite</li><li>• 1 teaspoon soy sauce</li></ul>
<b>Alcohol</b> Page 15	<ul style="list-style-type: none"><li>• Limit: 3 drinks or fewer each day for men; 2 drinks or fewer each day for women</li><li>• Use diet drinks as mixers</li></ul>	<ul style="list-style-type: none"><li>• 1 glass ordinary strength beer (300ml)</li><li>• 1 glass table wine (100ml)</li><li>• 1 pub measure spirits – whisky, gin, vodka (30ml)</li></ul>



# Food labels

All food packaging is required to have a nutrition information panel.

Label information can be used to compare similar foods and select the healthier items.

## Fat & Saturated Fat:

Fat is high in calories/kilojoules. Consuming too many calories/kilojoules will lead to weight gain. Saturated fat can increase blood cholesterol levels and risk of heart disease.

**Tip**

- Choose foods with less than 10g total fat per 100g.
- Choose foods with less than 2g saturated fat per 100g.
- Low fat yoghurt has less than 2g total fat per 100g.
- Low fat milk has less than 1g total fat per 100g.

## Carbohydrate & Sugar:

Carbohydrates provide calories/kilojoules and will increase blood glucose levels. It is important to eat some carbohydrate but not too much. Sugars are part of the total carbohydrate in food. A small amount of sugar in food is acceptable.

**Tip**

- Choose foods with less than 10g sugar per 100g.
- Low sugar breakfast cereals and yoghurts have less than 15g sugar per 100g.
- Avoid drinks with more than 2.5g carbohydrate per 100g.

## Fibre:

Fibre is not always shown on a food label. It is found in fruits, vegetables, wholegrain breads and cereals.

**Tip**

- Choose foods with more than 6g fibre per 100g.

Breakfast	
<b>Serving Size:</b>	30g
<b>Servings per pack:</b>	33
Energy (kJ)	
(Cals)	
Protein (g)	
Fat Total (g)	
Saturated (g)	
Carbohydrate Total (g)	
Sugars (g)	
Dietary fibre (g)	
Sodium (mg)	
<b>Ingredients:</b>	
Wholegrain wheat, sugar, vitamins, minerals	

## Sodium (salt):

Aim for less than 2300mg sodium per day.

**Tip**

- Food with low sodium content has less than 120mg per 100g.
- Food with high sodium content has more than 600mg per 100g.



Cereal Example		
(2 biscuits)		
	Per Serve	Per 100g
	444 106	1480 354
	3.6	12.0
	0.4 0.1	1.3 0.3
	20 0.8	67 2.8
	3.3	11
	84	280
salt, barley malt extract,		

### List of ingredients:

Ingredients in a product are provided on a label but may not always be part of the nutrition information panel.

Ingredients are listed in order of quantity from largest to smallest.

### Serving Size and Per Serve:

Use the per serve column to find out the amount of carbohydrate in a serving. For example, one serve of this breakfast cereal is 30g (2 biscuits) and contains 20g of carbohydrate.

Check the serving size and servings per pack first. A 600ml drink bottle may contain three serves but if you are thirsty you may drink the whole bottle.

### Per 100g:

The 100g column is the most frequently used information.

Use the 100g column to compare similar products or to select foods based on specific guidelines.

For example, to find a breakfast cereal with the highest fibre content, compare the fibre per 100g of different cereals.

### Glycaemic Index (GI):

- GI is rarely shown on food labels.
- It gives an idea of how quickly different foods containing the same amount of carbohydrate raise blood glucose levels.
- Low GI foods are more slowly digested so help maintain a more even blood glucose level.
- The total amount of carbohydrate eaten is more important than the GI of a food.
- Visit [www.glycemicindex.com](http://www.glycemicindex.com) for more information.

***Diabetes and healthy food choices* is produced by Diabetes New Zealand.**

**To learn more about diabetes:**

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**Diabetes New Zealand Inc.**

PO Box 12441, Wellington 6144



**diabetes**  
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# Diabetes and insulin



A pamphlet for adults  
who need insulin for either  
type 1 or type 2 diabetes



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## Who this pamphlet is for?

This pamphlet is for adults who are starting insulin for type 1 or type 2 diabetes. The pamphlet contains information about:

- type 1 and type 2 diabetes
- using insulin to treat diabetes
- managing diabetes
- monitoring your blood glucose levels using self-testing
- staying well by eating well, doing physical activity, and making the most of appointments with your diabetes team.

# What is diabetes?

A person with diabetes produces insufficient insulin to control glucose (sugar) levels in their blood. Everyone needs some glucose in their blood, but the level of glucose should not be too high. High glucose levels can damage your body over time.

Glucose in the bloodstream comes from carbohydrate foods, which are changed into glucose after you have eaten them. Your liver also makes some glucose.

Insulin is a hormone produced by the pancreas. If you have diabetes, your body does not produce enough insulin to keep your blood glucose levels in the normal range. This happens because:

- your pancreas can't produce enough insulin; or
- your body has become insulin resistant (insensitive to insulin) and the pancreas can't produce enough insulin.

## The two main types of diabetes

### Type 1 diabetes

If you have type 1 diabetes, your body does not produce any insulin (or it produces very little). Type 1 diabetes is most commonly diagnosed in children and adolescents; however, it can occur at any age.

This type of diabetes cannot be prevented, but can be managed through a combination of healthy food choices, exercise and medication.

### Type 2 diabetes

If you have type 2 diabetes, your body produces too little insulin to process glucose. The risk of developing type 2 diabetes increases with age, but it can develop at any age. By following a healthy lifestyle, you can reduce your chances of developing type 2 diabetes.

## Diagnosis of diabetes

Type 1 and type 2 diabetes are diagnosed by blood tests.

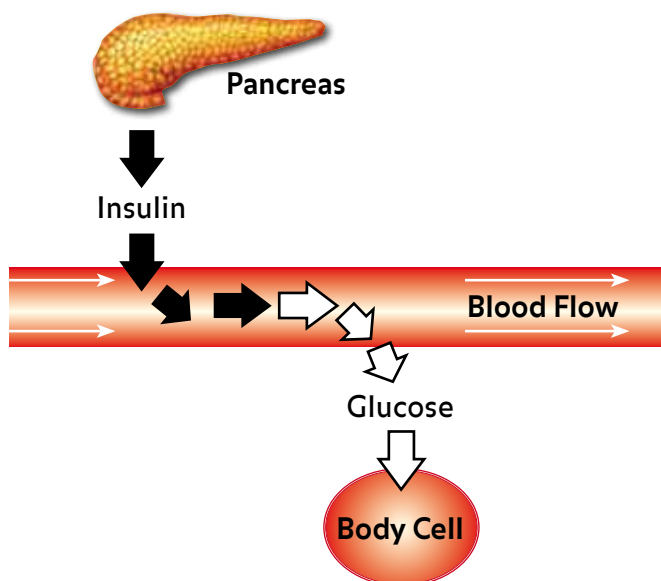
People with undiagnosed type 1 diabetes can become very ill, with high glucose and ketone levels (ketones build up when your body can no longer use glucose and switches to burning fat cells as an energy source). This can result in dehydration and possible coma. This is called 'diabetic ketoacidosis' and needs urgent medical attention. (See more on page 7.)

# What is insulin?

Insulin is a naturally occurring hormone produced by the pancreas. It needs to circulate in your bloodstream to work properly.

Insulin has two jobs in the body.

1. Insulin moves glucose from the blood into fat and muscle cells.
2. Insulin stops the liver producing glucose when the level of glucose in the blood is at the right level.



## Using insulin

Insulin is injected underneath the skin into fatty tissue where it is absorbed into the bloodstream over time. Insulin is injected by syringe, insulin pen, or insulin pump. Discuss with your diabetes team what method is best for you.

The Diabetes New Zealand website – [www.diabetes.org.nz](http://www.diabetes.org.nz) – has further information about insulin and equipment for treating diabetes. Companies that produce insulin and insulin equipment also publish instructions and useful tips.



## **Different types of insulin**

There are different types of insulin – short-acting and ultra-short-acting insulin, and intermediate and long-acting insulin. Insulin also comes in premixed combinations. Your diabetes team will discuss the best type for you.

Your diabetes team will prescribe the dose and combination of insulin you will need. The dose will be adjusted until your blood glucose levels are within the recommended range.

As time goes on, you will learn how to safely adjust your insulin dose to fit in with your daily routine and with any illness or changes to your lifestyle.

## **Injection sites for insulin**

The stomach (abdomen) is the best place to inject, as insulin is absorbed more evenly and quickly there. Insulin can also be injected into the thighs or buttocks. It's important to change the place that you inject (your 'injection site') from time to time. If you always inject in the same place, your skin can become lumpy at that site.



Sometimes short-acting insulin is injected into the stomach, and the night-time, long-acting insulin is injected into the thigh. Your diabetes team will help you decide on the best injection places for you.

# Managing your diabetes with insulin

The aim of insulin therapy is to keep your blood glucose level as close to normal as possible (4–8 mmol/L). This reduces your risk of long-term damage and complications to your body, and increases your chances of living a long and healthy life.

Using insulin is only part of the treatment. Healthy eating and physical activity will also help you stay well. It is important that you and your family get support from members of a healthcare team who can help you manage your diabetes.

## Insulin for type 1 diabetes

If you have type 1 diabetes, you will have to manage your blood glucose levels with insulin.

When you start on insulin, your pancreas is able to rest and there may be a small window of recovery when it will produce insulin. This is called the 'honeymoon period' and less insulin is required at this time. Not everyone experiences a honeymoon period.

Over time (weeks to months), your pancreas will become unable to produce insulin and all your body's needs will have to be met by insulin injections.

## Insulin for type 2 diabetes

Some people with type 2 diabetes will need insulin treatment to help them manage their blood glucose levels.

You may have had type 2 diabetes for some years and gone through all the treatment steps, including following a healthy lifestyle (for example, eating healthily and being physically active) and taking diabetes tablets, but at some stage your doctor may still recommend insulin as an additional treatment. You might need to keep taking some or all of your diabetes tablets.

In type 2 diabetes, tablets are often used to reduce insulin resistance or to stimulate the pancreas to produce more insulin (or to do both). These tablets do not contain insulin, but other ingredients that stimulate insulin production. Other tablets may also be prescribed to help control your blood pressure and to reduce your cholesterol level.

For more information on type 2 diabetes, please see the Diabetes New Zealand pamphlet *Staying Well with Type 2 Diabetes*.



### **Taking insulin is just another step in your treatment**

It is normal to feel some anxiety at the thought of needing insulin and having to self-inject. It is important to know that insulin is just another step in the treatment of diabetes. Often people say they feel much more energetic on insulin and hadn't realised how tired they were. They also say it is much easier than they had expected and not painful to inject.

Most people take insulin by injection. Some people use an insulin pump. You cannot take insulin in tablet form because the acid in your stomach would destroy it. Researchers are still looking for alternative ways to give insulin.

Your GP will refer you to the most appropriate person in your area to learn everything you need to know about starting insulin. You will need to test your blood glucose levels more often for a while until your levels stabilise. The type of insulin, dose, and number of injections per day vary from person to person; your diabetes team will work this out with you.



# Monitoring your blood glucose levels

## Self-testing

Self-testing your blood glucose levels is an important part of your diabetes management. Self-testing means you can:

- monitor your blood glucose, and control and make adjustments to your insulin doses
- detect highs and lows in your blood glucose and treat them appropriately
- adjust your insulin when you are doing physical activity or when you are unwell.

Most people self-test blood glucose levels using a finger-pricker needle (a device with a small disposable needle used to draw blood from the finger), testing strips, and a blood glucose meter.

**For most people, your blood glucose should be between 4 and 8 mmol/L.**

Your diabetes team will help you choose the best meter for your needs. They will also show you how to use it and how to record your results.

## When to test

When you first start on insulin you need to test your blood glucose levels at least three or four times a day – before meals, two hours after meals, and at bedtime. It can be useful to test your blood glucose levels occasionally overnight to make sure your evening dose of insulin is appropriate.

Write the results down in a logbook so you can track your progress and pick up any patterns. Ask a member of your diabetes team for a logbook.

There may be certain times of the day when your blood glucose level is higher or lower than usual. You may need to correct your insulin dose. Discuss this with members of your diabetes team. Once you and they have found an insulin dose that suits you, you can test less often.

## How to test

Always wash your hands before testing, as any traces of glucose on your fingers (such as after eating food) will give a falsely high reading.

Change your finger-pricker needle regularly.

When you start a new batch of testing strips, you will need to standardise the strips to match your meter (this is called 'calibrating' the strips). The instructions on the packet will show you how to calibrate your strips.

You may be able to download the information on your meter to a computer software programme so you can analyse it with your diabetes team.



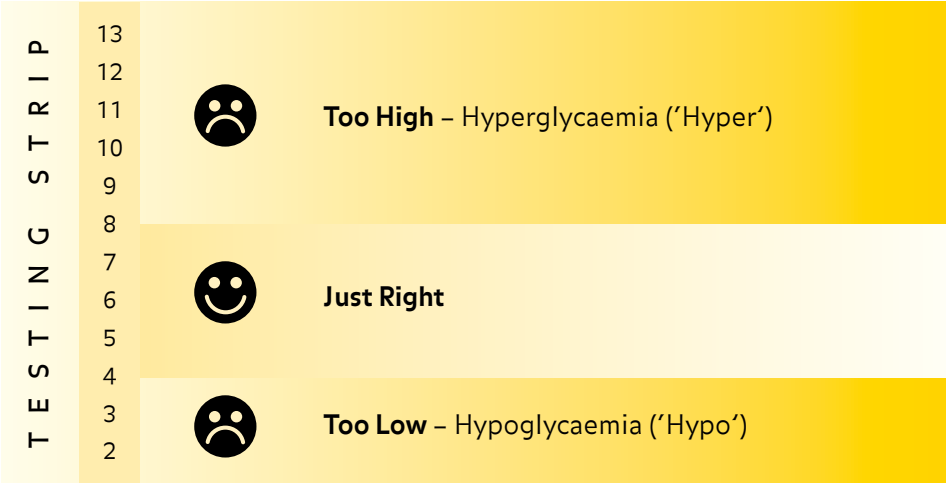
## What are ketones and ketoacidosis?

When your body has too little insulin available, it can no longer use glucose for energy and it switches to burning fat cells as an energy source. The by-product of burning these fat cells are ketones, which begin to build up in the body. This build-up can lead to ketoacidosis, a life-threatening condition that needs urgent medical attention. Your doctor may prescribe ketone sticks so that when you have high blood glucose levels you can test your urine for the presence of ketones.

If you have high blood glucose levels, your kidneys try to get rid of the extra glucose through your urine. This is why you may go to the toilet more often. You lose more water and can become dehydrated.

# What are hyperglycaemia and hypoglycaemia?

## Blood glucose levels, for most people



## Hyperglycaemia ('Hyper')

Hyperglycaemia is when your blood glucose levels are too high.

<b>What are the warning signs of a hyper?</b> <ul style="list-style-type: none"><li>• Feeling thirsty</li><li>• Needing to pass urine often</li><li>• Tiredness, loss of energy</li><li>• Getting infections</li><li>• Having blurred eyesight</li><li>• Having a dry mouth</li></ul>	<b>What causes high blood glucose levels?</b> <ul style="list-style-type: none"><li>• Eating too much food</li><li>• Eating the wrong type of food</li><li>• Not doing enough physical activity</li><li>• Not taking your medication</li><li>• Getting sick</li><li>• Being emotionally stressed</li><li>• Not taking enough insulin</li></ul>
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Beware – if your blood glucose has increased slowly over time you may not have any symptoms of hyperglycaemia. Your body can get used to having high blood glucose levels, and this can result in long-term complications, such as eye, kidney, and nerve damage.

## Hypoglycaemia ('Hypo')

Hypoglycaemia is when your blood glucose level is too low (this is known as 'having a hypo'). All people on insulin are at risk of having a hypo.

Hypos can happen suddenly – make sure people around you know the signs and how to help you.

### What are the warning signs of a hypo?

- Feeling hungry
- Feeling light-headed or dizzy
- Having sweaty skin
- Having blurred eyesight
- Being confused, anxious or irritable
- Having a headache
- Having trembling or weak hands and knees
- Having pins and needles around the lips and tongue
- Having a thumping heart

### What causes low blood glucose levels?

- Missing a meal or snack
- Not eating enough carbohydrate
- Doing more physical activity than usual
- Taking too many diabetes pills or too much insulin
- Drinking too much alcohol

**Treat hypos immediately. See next page on how to treat a hypo.**



## How to treat a hypo

If possible, check your blood glucose on your meter. It may be something else making you feel unwell.

If in doubt, or if you are feeling very unwell, treat your low blood glucose anyway. Remember, 'if in doubt, treat'.

### STEP ONE

Eat or drink one serving of a quick-acting carbohydrate. Choose one serving from the list opposite.

### STEP TWO

After 10 minutes, test your blood glucose level again. If it is still less than 4mmol/L eat another serving of quick-acting carbohydrate.

### STEP THREE

Once your blood sugar is above 4mmol/L, follow up with more substantial carbohydrate food.

If it is your mealtime, eat your meal. Otherwise have a snack such as:

- 1 glass (250ml) of low fat milk,
- 1 medium raw fruit
- 1 small tub of low fat, 'diet' yoghurt
- 3-4 crackers
- 1 slice of wholegrain bread as a small sandwich

### Quick-acting carbohydrate

4-5 Dextro Energy tablets



4-5 Glucotabs



7-8 jelly beans



3 teaspoons of glucose powder or sugar in water



A small glass of fruit juice or sugar-sweetened soft drink, not diet (100-150mls)



3 teaspoons of honey or jam



Make sure your family and friends know the signs of a hypo and how to help you. When you have treated your hypo, ask yourself why it happened and what you need to do to stop it happening again.

**You should not have any more than a couple of hypos a week.  
If you can't find a cause or they keep happening, see your healthcare team.**



# Staying well

## Preventing complications

You can reduce the risks of long-term damage from diabetes by:

- achieving and maintaining control of your blood glucose levels
- controlling high blood pressure and high blood cholesterol
- keeping all appointments with your diabetes team and general practitioner
- talking over any concerns about your health with your diabetes team
- following a healthy lifestyle

Your diabetes team will give you a check-up every year to make sure you aren't developing complications. At the check-up, your doctor will test your:

- blood pressure
- HbA1c (glycosylated haemoglobin) levels
- blood cholesterol levels
- kidneys
- eyes
- feet

Learn as much as you can about your diabetes. Talk to members of your family and friends, and ask for their support. Join your local diabetes organisation for further information and support.



## Healthy food choices

Your blood glucose levels are affected by the amount and type of carbohydrate you eat or drink. Carbohydrate is found in starchy food and sugar. The amount of insulin given at each meal will need to match the amount of carbohydrate in your meal. Members of your diabetes team will teach you how to do this.

**People with diabetes do not need to buy special food or cook separate meals. The whole family can eat the same healthy food.**

To stay well and keep your blood glucose at a healthy level:

- Drink plenty of water. Avoid drinking fruit juice and other sweet drinks.
- Eat breakfast, lunch and dinner every day.
- Eat some carbohydrate food at each meal, but not too much.
- Choose food low in sugar, saturated fat and calories or kilojoules.
- Base your meals around the Diabetes New Zealand Healthy Plate model.

## The timing of your meals and snacks

Eating meals and snacks in similar quantities and at the same time each day helps keep your blood glucose levels within the normal range. Plan to have your main meals no more than four to five hours apart.

You may not need to have snacks. The best times to eat will vary depending on the type of insulin you are on. Some allow greater flexibility with food than others. Check with your doctor or other health professional.

Your diabetes team can help you work out the best times to eat. For an ideal eating plan, ask your diabetes team to refer you to a New Zealand registered dietitian.

## Diabetes New Zealand Healthy Plate



\*  
1 serving  
should fit  
in the palm  
of your hand

$\frac{1}{4}$  of your plate or  
1 serving\* should  
be protein

### Protein

meat,  
chicken,  
fish,  
eggs...

### Carbohydrate

potato,  
kumara,  
pasta,  
rice, taro...

$\frac{1}{4}$  of your plate or  
1 serving\* should  
be carbohydrate

### Other vegetables

broccoli, cabbage,  
cauliflower, lettuce,  
tomato, carrots,  
peas...

Vegetables to fill  $\frac{1}{2}$  your plate

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See the Diabetes New Zealand pamphlet  
*Diabetes and Health Food Choices* or visit  
the Diabetes New Zealand website  
[www.diabetes.org.nz](http://www.diabetes.org.nz) for more  
information.



## Physical activity

Various types of physical activity– aerobic exercise, stretching, and weight resistant exercise – are a key part of managing diabetes. Undertaken regularly, and with advice from your diabetes team, physical activity can assist with weight management and help decrease insulin resistance.

You may need to adjust your insulin if you are going to do vigorous or prolonged activity. Exercising muscles ‘burn up’ more glucose than resting muscles.

Physical activity can affect the absorption of insulin. Inject insulin into your stomach before activity so that muscle activity doesn’t affect the speed of action of the insulin.

It’s useful to test your blood glucose levels before starting exercise so you know if you need extra carbohydrate before or during the exercise. You need to test your blood glucose after activity as well, as sometimes you can have a delayed hypo some hours afterwards. Just talk to your diabetes team or your general practitioner.

The most important step is getting started. If you have not been doing any physical activity, find an activity that you enjoy and are physically able to do. It’s okay to start slowly and then build a routine little by little.

When you’re doing physical activity, always carry some quick-acting carbohydrate with you to treat a hypo. See page 10 for a list of quick-acting carbohydrates.



It is a good idea to see your doctor before you start a routine of physical activity. You should certainly check with your doctor if you have complications related to your diabetes.

Physical activity is a prescription for good health. It is one of the best things you can do for your diabetes and your overall health. It is underestimated and underused as a treatment and management tool for diabetes.

For more information on physical activity for people with diabetes, please see the Diabetes New Zealand pamphlet *Diabetes and Physical Activity*.



# Your diabetes team

Make the most of appointments with those in your diabetes team. Always take your blood glucose logbook and a list of questions or concerns. You may like to take a support person to your appointments.

The team is there to help you self-manage your diabetes. They will work with you to set goals that are right for you.

Because diabetes affects many parts of your body and your life, you will be receiving care from a number of different health professionals. Depending on your health, you may need to see the following team members.

Specialist	Name	Phone
Doctor (GP)	Name	Phone
Practice Nurse	Name	Phone
Diabetes Nurse	Name	Phone
Dietitian	Name	Phone
Podiatrist	Name	Phone
Eye specialist	Name	Phone
Dentist	Name	Phone
Diabetes NZ Branch	Name	Phone
Pharmacy	Name	Phone
Other	Name	Phone

Your local Diabetes New Zealand branch can provide support, resources, and information on useful services available in your area. Phone Diabetes New Zealand 0800 342 238 to find the contact person for your local branch.

# Glossary

<b>Blood glucose</b>	The amount of glucose (or sugar) circulating in the blood. Glucose is measured in millimoles per litre (mmol/L). Recommended blood glucose is 4 to 8 mmol/L for most people.
<b>Finger-pricker needle</b>	A device with a small disposable needle used to draw blood from the finger.
<b>HbA1c (Glycosylated haemoglobin)</b>	Measures how much glucose is attached to your red blood cells. Red blood cells have a life span of about six weeks and so the test gives a good indication of what your overall blood glucose levels have been through that time.
<b>Hyperglycaemia 'Hyper'</b>	Higher than recommended blood glucose levels (over 8 mmol/L).
<b>Hypoglycaemia 'Hypo'</b>	Lower than recommended blood glucose levels (under 4 mmol/L).
<b>Insulin</b>	A hormone produced by the pancreas that helps glucose enter the body cells where it is used for energy
<b>Insulin pen</b>	An insulin injection device the size of a pen. This device includes a needle and holds replaceable cartridges of insulin. It can be used instead of syringes for giving insulin injections.
<b>Insulin pump</b>	A small mechanical device about the size of a small cellphone. This device releases insulin into the tissues of the body through tubing and a needle inserted just under the skin.
<b>Insulin resistance</b>	Being insensitive to insulin. This happens when the body is not able to use insulin efficiently.
<b>Ketones</b>	A by-product of the body burning fat cells when too little insulin is available.
<b>Ketoacidosis</b>	A life-threatening condition caused by a build-up of ketones in the body.

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**To learn more about diabetes:**

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PO Box 12441, Wellington 6144



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Many people have ups and downs when starting new habits. Turn any setback around. Use it as a learning experience. Work out what stopped you, so that you stay on track next time. It's all part of planning.

Congratulate yourself. You are planning goals and working to achieving them. Through doing this you are setting a good example for your family, whanau, children and friends.

### What if I'm on insulin or tablets?

If you take insulin or some of the diabetes tablets, learn about 'hypos' or low blood sugars. When you are physically active you are more prone to having low blood sugar levels.

Don't let this put you off. Ask your doctor or diabetes nurse to help you avoid low blood sugars.

Always carry some glucose tablets and a small snack when being active. Then if your blood sugar does go low, you will be able to treat it. Carry some identification or medic alert identification stating you have diabetes and what medication you take.

To order *Diabetes and physical activity* or any of the other Diabetes New Zealand pamphlets, visit [www.diabetes.org.nz](http://www.diabetes.org.nz)

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# diabetes and physical activity



# Diabetes and physical activity



Physical activity is the cornerstone for both preventing type 2 diabetes and managing type 1 and type 2 diabetes. If you have diabetes, staying active will almost certainly help you to manage your diabetes effectively and stay well and healthy.

You can reduce your chance of getting type 2 diabetes by being physically active.

## How does physical activity help?

Physical activity can help you improve your:

- Blood sugar
- Blood pressure
- Body weight
- Mood

Regular physical activity has been proven to improve your sense of wellbeing. It can help you reduce stress levels and help you sleep better.

## What kind of physical activity is best?

Aim for at least 30 minutes of moderate physical activity on most days of the week. Brisk walking, swimming, cycling, Marae activities, dancing and mowing the lawns all count.

You can also snack on activity – you don't have to do it all at once. Three brisk walks for 10 minutes in the day may be more manageable than one of 30 minutes.

## How do I get started?

If you are not yet physically active, it's important to start slowly. If you are an older person, or you've had diabetes for more than five years, or you have any existing diabetes complications visit your doctor before you start. Your doctor will discuss the benefits of being physically active with you. If you would like

support with becoming active, ask your doctor or nurse to give you a Green Prescription, or phone 0800 ACTIVE (0800 228 483).

Whatever activity you choose, start small and build up slowly. If you choose walking, start with five minutes a day. Set a small goal each day that you can achieve. Build up your time every few days until you can manage longer walks.

Seek medical help if you have any pain, dizziness or shortness of breath when you are active. These symptoms can be a warning that something may be wrong.

## How do I stick to regular physical activity?

Find something you enjoy that fits with your lifestyle. Many people prefer activities with a purpose, such as walking to work, walking the dog or gardening.

Plan your activity at a time that works for you. If you aim to walk in the evening, but keep putting it off because you are too tired, try the morning when you are fresh.

Combine your activity with something else you enjoy. If you like being social, go to aerobics, join a kapa haka group or try a dance class. Walk with your co-workers at lunchtime or your family and whanau, or friends in the weekend. If you like to have time out alone, use physical activity to enjoy some active time alone.

Always keep in mind your goal of increasing physical activity. Use every opportunity. Use the stairs instead of the lift, walk briskly to the shop, walk the kids to school – use every opportunity, every time, to stay active.







- Reduce weight



- Be active for 30 minutes or more most days of the week



- Eat healthy food



- Check out our 'Eat Well Live Well' cookbook for delicious, affordable and healthy meals



- Achieve and maintain good control of your blood pressure and blood cholesterol



- Check out our take control toolkit on our website for more ways to keep healthy



- Get an annual heart and diabetes check from a health professional



- Find your circle of support and connect with whanau and friends to take action together



## Find Support

With support, it's possible to reduce or delay your risk of type 2 diabetes or live well with diabetes if you have it.

Friends and whanau can be a great help, making it easier for you to choose the right foods and get good exercise. It also helps to connect with others with diabetes, so you can help each other with advice and encouragement.

Diabetes NZ is a charity that represents and supports people with diabetes. We can help you find information and support you to manage your health and well-being.



Visit  
**[www.diabetes.org.nz](http://www.diabetes.org.nz)**  
to find out more or to join us.

# Diabetes

## What you need to know



- Know your risk
- Know the symptoms
- Know the difference
- Know where to find support



## What is diabetes?

Diabetes is an enduring disease that occurs when the pancreas is no longer able to make insulin, or when the body cannot make good use of the insulin it produces. Insulin is a hormone made by the pancreas that acts like a key to let glucose from the food we eat pass from the blood stream into the cells in the body to produce energy.

## There are three main types of diabetes:

**TYPE 1** **Type 1 diabetes** is usually caused by an auto-immune reaction where the body's defence system attacks the cells that produce insulin. People with type 1 diabetes produce very little or no insulin. The disease may affect people of any age, but usually develops in children or young adults. People with this form of diabetes need injections of insulin every day in order to control the levels of glucose in their blood.

**TYPE 2** **Type 2 diabetes** accounts for at least 90% of all cases of diabetes. The diagnosis of type 2 diabetes can occur at almost any age. Type 2 diabetes may remain undetected for many years and the diagnosis is often made when a complication appears or a routine blood test is done. People with type 2 diabetes can often initially manage their condition through exercise and diet. However, over time some people will require oral drugs and/or insulin.

**Gestational diabetes (GDM)** occurs when a pregnant woman has high levels of glucose in her blood. Unlike type 1 and type 2 diabetes, gestational diabetes is only temporary and usually disappears after pregnancy. However, a woman who has had gestational diabetes has an increased risk (50-60%) of developing type 2 diabetes in the future.

## Are you aware of your risk of developing diabetes?

Awareness of your level of risk of developing type 2 diabetes is a good starting point to know if you need to visit your health professional for appropriate testing. Just answer the quick questions below and you will receive a score which will help with understanding your level of risk and next steps.

LIFESTYLE	NO	YES
I am overweight for my height	0	3
I do very little physical activity	0	3
I often eat foods high in fat and sugar	0	3
FAMILY - ORIGIN	NO	YES
There is, or has been diabetes in my family	0	3
I'm of Maori, Pacific Island, South Asian or Middle Eastern descent	0	3
I have had a baby weighing more than 9lbs (4kg) or high blood glucose during pregnancy	0	6
AGE	NO	YES
I am between 35 and 64 years of age	0	1
I am over 65 years of age	0	3
TOTAL		

### Score 3-5

You are probably at low risk for having type 2 diabetes now. However, you may be at a higher risk in the future.

### Score 6 or more

You are at greater risk of having type 2 diabetes. Only your health care provider can determine if you have diabetes. Visit your doctor to find out more.

## Know the Symptoms

If you know what to look out for, you can help your medical carers to diagnose diabetes earlier. This can limit the damage the condition causes and improve your lifestyle.

The symptoms of type 1 diabetes usually start in childhood. They include thirst, passing more urine, weight loss, exhaustion, mood changes.

Type 2 diabetes usually leads to symptoms such as feeling tired and lacking energy, feeling thirsty, going to the toilet often, getting frequent infections or ones that don't heal, poor eyesight or blurred vision, often feeling hungry.

To find out more visit  
[www.diabetes.org.nz](http://www.diabetes.org.nz)





## He tauira pai Sample Meals

### Kai ata / Breakfast

2/3 cup of baked beans with 1 slice of wholemeal bread and 1 whole tomato

- Use only a scraping of margarine on bread



### Kai poutūtanga / Lunch

Chicken and salad wholegrain roll with fruit

- Use tuna, beef or low fat cheese and different types of breads for variety



### Kai ahiahi / Dinner

Roast beef, potato, kumara and vegetables

- Remove fat from meat and cook without adding extra fat or oil
- Eat half a plate of non-starchy vegetables
- Use chicken, beef or fish for variety



### Kai timotimo / Snack

- If you need a snack eat a piece of fruit, or a pottle of yoghurt, or one piece of bread

## He tauira pai anō More Sample Meals

### Kai ata / Breakfast

Weetbix, yoghurt and fruit

- Use low fat, low sugar yoghurt and raw or unsweetened fruit
- Use porridge or other low sugar cereals for variety



### Kai poutūtanga / Lunch

Salmon and rice salad

- Use cold meat, chicken or a hard-boiled egg for variety
- Only use a small amount of heart-friendly dressing



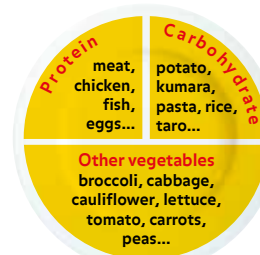
### Kai ahiahi / Dinner

Chicken and vegetable stir-fry on rice

- Remove skin and fat from meat
- Stir-fry in water or a little oil



As a guide for your evening meal use this plate model



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## He whakaaro pai Good ideas

- People with diabetes do not need special foods. The whole family can eat the same healthy food.
- Have three meals of similar size each day.
- Fill up on vegetables from Kia kaha te kai/Eat lots.
- Physical activity is very important. Aim for at least 30 minutes per day. Walking is a great activity.

## Kia maumahara Be mindful

There is a lot more to learn about healthy eating.

- Contact a dietitian for more advice on your own personal eating plan.
- See the Diabetes New Zealand pamphlet *Diabetes and Healthy Food Choices* or visit the Diabetes New Zealand website [www.diabetes.org.nz](http://www.diabetes.org.nz) for more information.
- To find out about joining Diabetes New Zealand phone 0800 342 238.

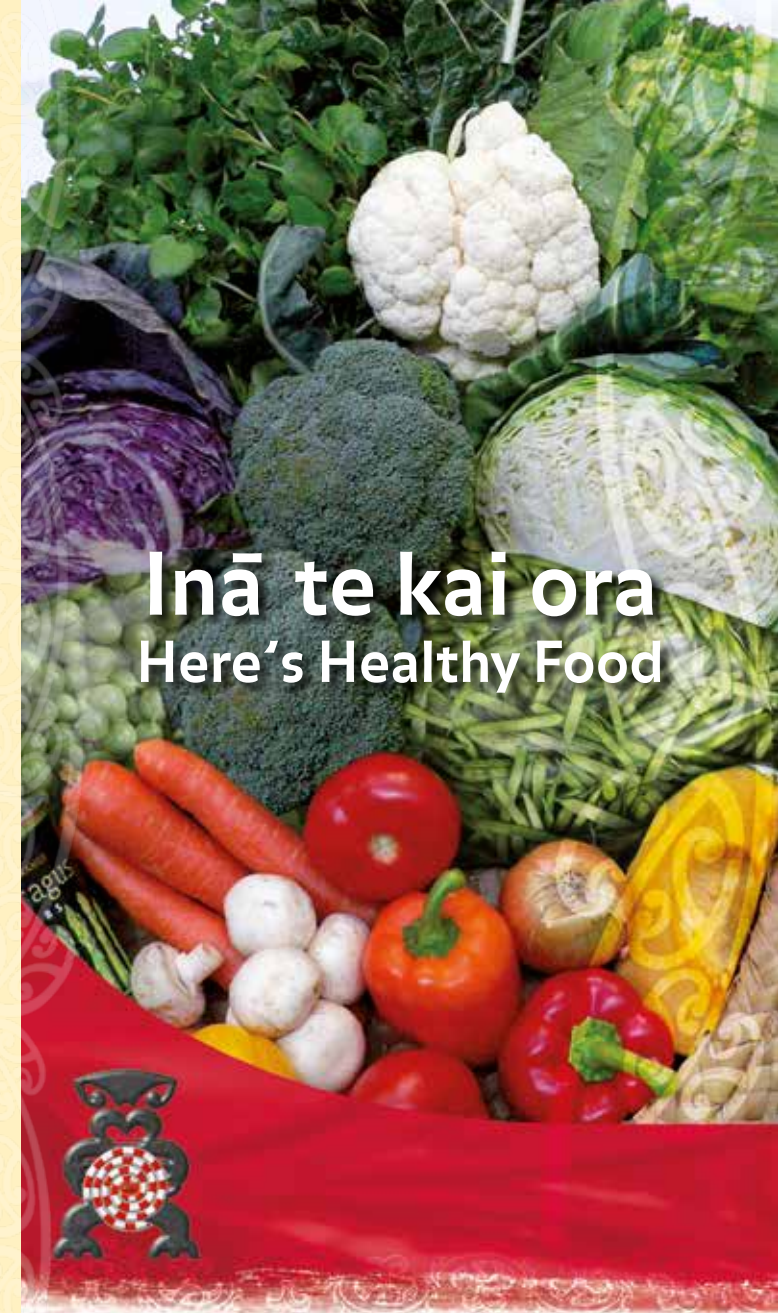
This resource was a collaborative development by Te Hotu Manawa Māori and Diabetes New Zealand.

For information and resources supporting Māori healthy lifestyles, contact [info@toitangata.co.nz](mailto:info@toitangata.co.nz)

For other pamphlets for people with diabetes visit the Diabetes New Zealand website [www.diabetes.org.nz](http://www.diabetes.org.nz)



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# Inā te kai ora

## Here's Healthy Food

This is a basic guide to the food people with diabetes and their families need to eat.

*He rourou hua tika, he kono kai ora.*



**Kaua e kai**  
**Stop**  
**Kia āta kai**  
**Eat some but not too much**  
**Kia kaha te kai**  
**Eat lots**



*Ruia Aperahama, Entertainer*

I was diagnosed in 2004 with type 2 diabetes. All of those years of touring, performing and stopping off at the takeaways, drinking fizzies, or grabbing that last minute pie or two or three after a late night gig had finally caught up with me. I realised it was time to change my lifestyle, so I started eating more vegetables and eating regularly instead of one big meal a day, which took some time getting used to. Most of all, I replaced all those fizzies with water and started walking or exercising every morning for an hour. I didn't get it right all the time, but through small consistent lifestyle changes I have lost 12 kilos and maintained that weight loss for two years.



## Kaua e kai

### Stop

Avoid food and drink high in fat, sugar and salt



Too much sugar and fat leads to weight gain. The wrong types of fat increase your chance of having a heart attack.



## Kia āta kai

### Eat some but not too much

**Carbohydrate (starchy) foods**  
Have a similar amount at each meal. Eating too much will raise your blood glucose level.



**Also include**  
Small amounts of low fat meats, seafood, dried beans, nuts, eggs, milk and milk products.



## Kia kaha te kai

### Eat lots

Choose a selection of different coloured vegetables each day. These foods add variety without raising blood glucose levels.



## He inu pai māu

### What to drink

Drink 6 to 8 cups of water each day.



# How much sugar and fat is in our food?

When you're busy it can be easy to reach for packaged foods and drinks. But you may be surprised to learn just how much sugar or fats are in your favourite foods.

Here's a general guide to common foods – and how many teaspoons or sugar or fat are in them. You may be surprised!

Wherever possible aim to choose healthier food options.

## SUGAR

- Low sugar breakfast cereal and yoghurt have less than 15g sugar per 100g
- Avoid drinks with more than 2.5g carbohydrate per 100g
- Choose other foods with less than 10g sugar per 100g

### Fizzy Drink per 355ml

APPROXIMATELY

8

teaspoons of sugar  
40g



### Flavoured Milk per 250ml

APPROXIMATELY

7.5

teaspoons of sugar  
38g



### Diet Fizzy per 355ml

APPROXIMATELY

0

teaspoons of sugar  
0g



### Fruit Juice per 250ml

APPROXIMATELY

6

teaspoons of sugar  
30g



## Sports Drink per 750ml

APPROXIMATELY

15

teaspoons of sugar  
75g



## Sachet Drink per 1 litre

APPROXIMATELY

23

teaspoons of sugar  
115g



## Energy Drink per 255ml

APPROXIMATELY

5

teaspoons of sugar  
24g



## Bottled Water

APPROXIMATELY

0

teaspoons of sugar  
0g



## FAT

- Choose foods with less than 2g saturated fat per 100g
- Low fat yoghurt has less than 2g total fat per 100g
- Low fat milk has less than 1g total fat per 100g
- As a general guide, choose other foods with less than 10g total fat per 100g

## Coconut Cream per 1 cup

APPROXIMATELY

8

teaspoons of fat  
40g



## Fried Rice per 2 cups

APPROXIMATELY

3

teaspoons of fat  
15g



## Hamburger per burger

APPROXIMATELY

6

teaspoons of fat  
32g



## Hot Chips per medium fries

APPROXIMATELY

4

teaspoons of fat  
19g





## Fried Chicken per 3 wings

APPROXIMATELY

5

teaspoons of fat  
23g



## Fried Fish per 2 pieces

APPROXIMATELY

12

teaspoons of fat  
60g



## Corned Beef per 340g can

APPROXIMATELY

18

teaspoons of fat  
92g



## Sausage Roll per 1 medium

APPROXIMATELY

3

teaspoons of fat  
17g



## Potato Chips per 150g bag

APPROXIMATELY

10

teaspoons of fat  
50g



## Meat Pie per 170g pie

APPROXIMATELY

6

teaspoons of fat  
32g



*Data courtesy of Diabetes Project Trust*

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Wear socks with your shoes. This helps stop blisters. Change your socks daily. Choose socks that are not too tight. Check that the seams don't rub and that there are no holes in them.



Make sure your doctor or nurse checks your feet when you have your diabetes check-up.



Protect your feet. Avoid going barefoot, even at home. Always wear shoes, sandals or slippers that fit well. Choose shoes that fit correctly, and with no rough seams or areas that rub. Before you put your shoes on look inside and check that there is nothing in them that could hurt your foot. Your podiatrist can give you tips on choosing the best footwear.

Looking after your feet every day helps keep them healthy. Good foot care, managing your blood glucose levels, eating healthy, keeping active and stopping smoking can all help stop foot problems and leg amputations.

Visit your podiatrist regularly and have your feet checked by your doctor or nurse at your next visit, even if you are visiting for a different reason.



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February 2019 © Diabetes New Zealand

# diabetes and how to care for your feet



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# diabetes and how to care for your feet

High blood glucose levels can damage your blood vessels and the nerves to your feet. This can cause poor blood flow and loss of feeling (neuropathy) in your feet. This means that you don't feel pain so you don't notice when you have hurt your foot. It can lead to sores that are hard to heal and may lead to amputation.

**The good news is that many of these foot problems can be avoided by daily foot care. Follow these steps to help prevent foot problems.**



Dry your feet and don't forget between your toes. If your skin is dry, apply a moisturising cream daily, but not between the toes. This can increase chances of tinea (athlete's foot).



Be careful with heaters and hotwater bottles – if you have loss of feeling it could cause you to burn your feet and not realise. Hot water could burn your feet too – always check the temperature with your elbow before you get in a hot bath.



Wash your feet every day.



Check your feet daily. Use a mirror or ask someone to help. Look for changes to your skin. Cover any cuts or blisters and change the plaster each day. If it does not start healing or gets red or sore or smells see a doctor straight away.



Cut toenails straight across and do not make them too short. File sharp edges. Nails are easier to cut after being washed.



## How to read food labels

The following information will help you work out what all the fine print on the back of labels means and how you can use it to choose healthy food items.

While ideally our diets should be based around fresh whole foods, there are times when reaching for packaged foods is quicker or easier. Food labels provide us with a wealth of information to help us decide if a food or drink is suitable to consume or not. But it does mean spending longer in the supermarket initially to work through it all.

To save time check the labels of food you already have in the cupboard before visiting the supermarket.

Alternatively, choose one or two types of food to investigate at a time. Information on labels can be small and difficult to read. Taking reading glasses or a magnifying glass may help.

All food packages are legally required to have a nutrition information panel (NIP) and a list of ingredients. These are not always on the same section of the label. Labels may also include nutritional claims.

Knowing what's the right choice isn't always easy!

### Nutrition Information Panel

A NIP is required to provide nutrient content per serve and per 100g.

Specific nutrient information provided includes:

- > **Energy content**  
(in kilojoules and sometimes calories)
- > **Protein content**
- > **Fat and saturated fat content**
- > **Total carbohydrate**
- > **Sugar content**
- > **Sodium (salt) content**
- > **Any nutrient about which a claim has been made**  
e.g. "good source of calcium" requires calcium included in the NIP

Some products also provide information on the fibre content but are not legally required to do this.

Some foods provide nutrient information on different serving presentations such as breakfast cereals served with milk.



### ENERGY

Energy is another word for calories (kcal) or kilojoules (kJ). Calories or kilojoules come from fats, carbohydrates and protein. Energy you eat is stored as fat if it is not used by the body. A food can be low in fat or sugar and still be high in calories/kilojoules.

### FAT & SATURATED FAT

Fat is high in calories/kilojoules. Eating a lot of fat can increase calories/kilojoules intake and lead to weight gain. Saturated fat can increase unhealthy cholesterol levels and risk of heart disease.

### CARBOHYDRATE and SUGARS

Carbohydrate provides calories/kilojoules and will increase blood glucose levels. It is important to eat some carbohydrate but not too much. Sugar is part of the total carbohydrate in food. A small amount of sugar in food is acceptable.

### FIBRE

Fibre is not always shown on a food label. It is found in fruits, vegetables, legumes, whole grain breads and cereals.

### SODIUM (SALT)

Choose foods with lower sodium content especially if you have high blood pressure.

## Golden Munchies

*Your favourite breakfast cereal*

### NUTRITION INFORMATION

Servings per package: 15  
Serving size: 30g

	Per serve	Per 100g
Energy	500kj 119kcal	1670kj 379kcal
Protein	2.2g	7.4g
Fat	0.6g	1.8g
- saturated	0.3g	0.9g
Carbohydrate	26g	87g
- sugars	4.2g	14g
Dietary Fibre	2.1g	7g
Sodium	117mg	390mg
Iron	3mg	10mg
Folate	50g	167g
Ingredients	Wheatmeal, Rice Flour, Maize Flour, Sugar, Sultanas, Skim Milk Powder, Salt, Sodium Bicarbonate, Iron, Folate, Turmeric	

## Per 100g column

The 100g column is the most frequently used information. Use the 100g column to compare similar products or to select foods based on specific guidelines. For example to find a breakfast cereal with the highest fibre content, compare the fibre per 100g of different cereals.

The following guidelines will help identify healthier food items based on their nutrient content:

### FAT

- > Choose foods with less than 2g saturated fat per 100g
- > Low fat yoghurt has less than 2g total fat per 100g
- > Low fat milk has less than 1g total fat per 100g
- > As a general guide, choose other foods with less than 10g total fat per 100g

### SUGAR

- > Low sugar breakfast cereal and yoghurt have less than 15g sugar per 100g
- > Avoid drinks with more than 2.5g carbohydrate per 100g
- > Choose other foods with less than 10g sugar per 100g

### FIBRE

- > Choose foods with more than 6g fibre per 100g

### SALT/SODIUM

- > Food with low sodium content has less than 120mg per 100g
- > Food with high sodium content has more than 600mg per 100g

## Per serve column

Use the per serve column to find out the amount of carbohydrate in a serving. For example: "One serve of this breakfast cereal is 30g and contains 26g of carbohydrate".

Check the serving size and servings per pack first. A 600ml drink bottle may contain three serves but if you are thirsty you may drink the whole bottle.

## List of ingredients

All food packages include a list of ingredients but they are not always found as part of the nutrition information panel. Ingredients are listed in order of quantity from largest to smallest. Sugar, fat and salt are often listed in the ingredient list under different names.

## Compare these products yourself:

- > How many servings in the package of fruit juice?
- > How many servings in the package of fizzy drink?
- > In 100mls, how much sugar is in the:
  - Pure Orange Juice?
  - Fizzy Drink?
  - Diet fizzy drink?
- > Does 'no added sugar' mean that there will be no sugar in the product?

Pure Orange Juice <i>No added sugar</i>		
NUTRITION INFORMATION		
Servings per package: 4 Serving size: 250ml		
	Per serve	Per 100g
Energy	<b>455kj</b> <b>82kcal</b>	<b>182kj</b> <b>43kcal</b>
Fat	<b>&lt;1g</b>	<b>&lt;1g</b>
- saturated	<b>0g</b>	<b>0g</b>
Carbohydrate	<b>26.8g</b>	<b>10.7g</b>
- sugars	<b>26.8g</b>	<b>10.7g</b>
Protein	<b>&lt;1g</b>	<b>&lt;1g</b>
Dietary Fibre	<b>&lt;1g</b>	<b>&lt;1g</b>
Sodium	<b>8mg</b>	<b>3.2mg</b>
Vitamin C	<b>87mg</b>	<b>35mg</b>
Ingredients	<b>Reconstituted orange juice, flavour, vitamin C</b>	

Fizzy Drink		
NUTRITION INFORMATION		
Servings per package: 2 Serving size: 250ml		
	Per serve	Per 100ml
Energy	<b>450kj</b> <b>107kcal</b>	<b>180kj</b> <b>43kcal</b>
Fat	<b>0g</b>	<b>0g</b>
- saturated	<b>0g</b>	<b>0g</b>
Carbohydrate	<b>26.5g</b>	<b>10.6g</b>
- sugars	<b>26.5g</b>	<b>10.6g</b>
Protein	<b>0g</b>	<b>0g</b>
Dietary Fibre	<b>0g</b>	<b>0g</b>
Sodium	<b>25mg</b>	<b>10mg</b>
Ingredients	<b>Carbonated water, sugar, flavour, colour (150a)</b>	

Diet Fizzy Drink		
NUTRITION INFORMATION		
Servings per package: 2 Serving size: 250ml		
	Per serve	Per 100ml
Energy	<b>4kj</b> <b>1.0kcal</b>	<b>1.5kj</b> <b>0.4kcal</b>
Fat	<b>0g</b>	<b>0g</b>
- saturated	<b>0g</b>	<b>0g</b>
Carbohydrate	<b>0.25g</b>	<b>0.1g</b>
- sugars	<b>0g</b>	<b>0g</b>
Protein	<b>0g</b>	<b>0g</b>
Dietary Fibre	<b>0g</b>	<b>0g</b>
Sodium	<b>42mg</b>	<b>15mg</b>
Ingredients	<b>Carbonated water, flavour, colour (150a), sweetener, preservative</b>	

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# About Diabetes New Zealand

Diabetes New Zealand represents people with diabetes and provides a national support network. Diabetes is rapidly becoming one of the country's fastest growing health conditions. Over 250,000 New Zealanders have diabetes and every day around 40 more people are diagnosed.

The good news is diabetes can be managed and with the right support, people with diabetes can continue to live active and healthy lives. This is where Diabetes New Zealand comes in.

## Why join Diabetes New Zealand?

By joining Diabetes NZ, you will receive support to take charge of your health and improve your wellbeing.

## Need more information?

To join Diabetes NZ or find out more information:

- **Phone** toll free on 0800 342 238
- **Email** [admin@diabetes.org.nz](mailto:admin@diabetes.org.nz)
- **Visit** [www.diabetes.org.nz](http://www.diabetes.org.nz)



# Live well with diabetes



Achieve and maintain good control of your blood glucose, blood pressure, blood cholesterol and body weight



Take all medication as prescribed by your doctor



Eat healthy food – follow the Diabetes New Zealand Healthy Eating Plan



Do at least 30 minutes of physical activity daily



Check your feet daily



Brush your teeth twice a day and floss regularly



Make sure you have a regular health check



Have your eyes checked regularly



Be smoke-free



Ask for support from your family, whanau, friends and your local Diabetes NZ branch



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