



# MEAL PLANNING FOR PEOPLE WITH DIABETES (TYPE 2)

**Diabetes is a condition where blood glucose (sugar) is raised due to a lack of insulin, or when the body cells become resistant to the action of insulin. Insulin is a hormone produced by the pancreas and is needed by body cells to use blood glucose for energy. Normally, when carbohydrate (starchy foods like rice, noodles, bread and oats; fruits; milk; sweet foods e.g. sugar, honey, cake) is eaten, the level of blood glucose rises and is lowered back to normal by the action of insulin. To help regulate your blood glucose levels, your dietitian will work with you to come up with a special meal plan. This meal plan has four components:**

1. The appropriate type and amount of carbohydrate for each meal;
2. The appropriate amount of calories to maintain normal weight or to achieve weight loss if overweight. 5 – 10% of weight loss can improve insulin sensitivity;
3. The appropriate type and amount of fat, to reduce future complications of coronary heart disease;
4. Emphasis on high fibre foods, as fibre promotes satiety and aids in blood glucose control.

The topic of meal planning will be covered during your first visit to the dietitian as it is the cornerstone of diabetes management. However, for optimal blood glucose control, the following topics may also be covered by the dietitian during your follow-up visits:

- ς Carbohydrate counting / Label reading
- ς Eating Out
- ς Sugar Substitutes
- ς Exercise
- ς Weight reduction (if overweight)





## ENJOY FREELY

■ **#Vegetables:** All vegetables (except **starchy** ones like potato, sweet potato, yam, tapioca, **pumpkin** and sweetcorn. These are high in carbohydrate and are considered as carbohydrate foods to be consumed in moderation)

*# Vegetables are high in fibre and low in calories, so enjoy in unlimited amounts daily.*

■ **Beverages:** Water, clear soups, plain soda, \*mineral water, Chinese tea, black tea/coffee, unsweetened chrysanthemum tea, unsweetened barley water

■ **Seasonings & spices:** \*Soy sauce, curry or chilli powder, herbs, spices, pepper, vinegar and all others (except sweet sauces and bottled sauces like \*tomato ketchup, \*chilli sauce and salad dressings which are to be eaten in amounts not more than 2 teaspoons per day)



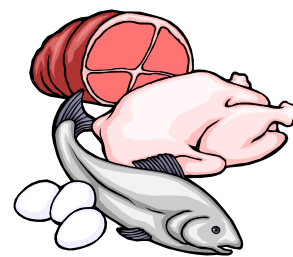
■ **Breakfast spreads:** \*Bovril, \*Marmite, \*Vegemite, small amounts of diabetic jam

*\*High in sodium. Limit if you have high blood pressure*





## ENJOY IN MODERATION



### PROTEINS AND FATS

#### Protein foods:

- These should be included at each main meal in moderate amounts: Lean meats, chicken without skin, fish and other seafood, eggs, reduced-fat cheese, taukwa, tauhu
- Limit intake of fatty meats, e.g. luncheon meat, belly pork, as they are high in saturated fat, which increases your risk of coronary heart disease (CHD).

#### Fats and oils:

- To reduce your risk of CHD, use unsaturated oils and margarine (eg. canola, olive, peanut, soya, sunflower, corn) instead of saturated fats (ghee, lard, butter, palm oil, coconut oil).
- To prevent unwanted weight gain or to facilitate weight loss, cut down on total fat intake by: using small amounts of oil in cooking, limiting intake of fried foods and choosing low-fat / non-fat products.



### CARBOHYDRATE FOODS

These are to be taken at each main meal and snack in order to regulate blood glucose levels. They include:

**Rice, bread and cereals:** Rice, noodles, @bread, chappati, thosai, idli, @cereals, oats, @crackers.

@ Choose high-fibre varieties

**Starchy Vegetables:** Potato, yam, tapioca, sweetcorn, pumpkin, sweet potato. Carrot, lotus root, turnip, water chestnut and radish also contain carbohydrates so limit to 2 – 3 tablespoons a meal.

**Fruits (fresh and dried):** Eat with skins on to increase fibre intake.

**Milk and yoghurt:** Choose non-fat or low-fat varieties.



## OTHER CARBOHYDRATES

These foods are high in carbohydrate and calories, but low in nutrients. However, they can be included in your meal plan as discussed with your dietitian.

- **All forms of sugar:** Glucose, rock sugar, gula melaka, brown sugar, raw sugar
- **Breakfast spreads:** Jam, marmalade, honey, maple syrup, kaya, chocolate spreads
- **Sweet beverages:** Milo, Ovaltine, Horlicks, cereal drinks, '3-in-1' drinks, flavoured milk drinks (e.g. chocolate, strawberry milk), yoghurt drink (e.g. Yakult, Vitagen)
- **Sweet snacks:** Cakes, nonya kueh, sweet biscuits, pastries, jelly, agar agar, ice cream, frozen and fruit yoghurt, sweet desserts (e.g. tauswan, ice kachang, pulot hitam, bobo chacha), tinned fruit
- **Confectionery:** chocolates, sweets, toffee, fruit gums, fruit pastilles



## NON-NUTRITIVE SWEETENERS

Non-nutritive sweeteners, also known as artificial sweeteners, confer sweetness to foods and drinks without providing significant amounts of calories, or affecting blood glucose levels. There are several products available in Singapore including aspartame (Equal, Palsweet, Super), sucralose (Splenda) and saccharin (Sweet 'n Low). As these sweeteners are considered as food additives, they are best consumed in moderation, and as part of a healthy and balanced diet.



Name: \_\_\_\_\_

Date: \_\_\_\_\_

**DAILY MEAL PLAN**

\_\_\_\_\_ calories / day

	<i>Amount</i>	<i>Alternatives</i>	<i>Carbohydrate</i>
<b>Breakfast (total _____ g carbohydrate)</b>			
Wholemeal bread	_____	See list A	_____
Egg * or other protein	_____	See list C	_____
Milk	_____	See list D	_____
Margarine	_____		
<b>Mid-morning (total _____ g carbohydrate)</b>			
Snack	_____	See list B	_____
Milk / Fruit / Fruit juice	_____	See list D/E/F	_____
Tea / Coffee	_____		
<b>Lunch (total _____ g carbohydrate)</b>			
Clear soup	_____		
Rice	_____	See list A	_____
Meat or fish	_____	See list C	_____
Large portion of vegetables	_____		
Fruit	_____	See list E	_____
Oil in cooking	_____		
<b>Mid-afternoon (total _____ g carbohydrate)</b>			
Snack	_____	See list B	_____
Milk / Fruit / Fruit juice	_____	See list D/E/F	_____
Tea / Coffee	_____		
<b>Dinner (total _____ g carbohydrate)</b>			
Clear soup	_____		
Rice	_____	See list A	_____
Meat or fish	_____	See list C	_____
Large portion of vegetables	_____		
Fruit	_____	See list E	_____
Oil in cooking	_____		
<b>Supper (total _____ g carbohydrate)</b>			
Snack	_____	See list B	_____
Milk / Fruit / Fruit juice	_____	See list D/E/F	_____
Tea / Coffee	_____		

If you have any queries, please contact your dietitian \_\_\_\_\_ at

Tel: 63941646, Mon-Fri, between 4-5.30pm.



## ALTERNATIVES



### LIST A – RICE, BREAD & CEREALS

#### 1 slice of bread is equivalent to (15g carbohydrate):

- 1 small chappati or idli (saucer-sized)
- ½ small thosai (saucer-sized)
- ½ medium bowl of rice porridge (*medium thickness*)
- 3 tablespoons oats (before cooking)
- 1 small bowl cornflakes or branflakes
- 3 wholewheat crackers
- ½ chee cheong fun (less sweet sauce)
- 1 soon kueh (less sweet sauce)
- 2 chwee kuay (less oil)

1 small bowl (25g CHO)	/ medium bowl (45g CHO)	/ large bowl (65g CHO)	rice is equivalent to:
7	12	17	tablespoons of rice
1½	3	4½	slices of bread
1½	3	4½	small chappati or idli (saucer-sized)
1	1½	2	Small thosai (saucer-sized)
1	1½	2	medium bowl rice porridge (medium
½	1	1½	medium bowl cooked bee hoon or kway teow
½	1	1½	medium bowl cooked pasta
1½	3	4½	small potatoes (egg-sized)

### LIST B - SNACKS

#### 1 snack is equivalent to (15g carbohydrate):

- 1 slice wholemeal bread
- 3 wholewheat crackers
- 1 soon kueh (less sweet sauce)
- 2 chwee kuay (less oil)
- ½ cup cooked chickpeas
- 3 tablespoons oats (before cooking)
- 25g chocolate (4 small squares)\*\*
- 1/5 bowl ice kacang
- ½ piece kueh\*\*
- 1 fruit
- ½ slice plain cake (pandan, sponge, marble)\*\*
- ½ small carton (100g) low-fat / non-fat fruit yoghurt
- ½ steamed / boiled corn (no butter / margarine)
- 3 tablespoons red or green beans (boiled in water and sweetened with aspartame)
- 1 small sardine curry puff or ½ small potato curry puff\*\*
- 1 small carton (200g) plain or artificially-sweetened low-fat yoghurt
- 1 small chappati or idli (saucer sized)
- ½ chee cheong fun (less sweet sauce)
- 1 steamed popiah (less sweet sauce)
- ½ small meat or vegetable pau
- 1 small vadai\*\*
- 1 small bowl cornflakes or branflakes
- 1 small scoop (50g) ice cream\*\*
- 1/5 bowl tauswan
- 3 heaped teaspoon Milo / Ovaltine / Horlicks
- ½ cup (100ml) yoghurt drink

\*\* High in fat. Limit if you are overweight or have high cholesterol levels.





### LIST C – PROTEIN FOODS (0g carbohydrate)

**1 egg is equivalent to:** (\* eggs – consume not more than 2 – 3 egg yolks per week)

- 1 slice reduced-fat cheese
- 1 slice ham
- 1 sardine fish (without sauce)
- 2 tablespoons tuna (canned in brine or water)

**100g of meat or fish is equivalent to:**

- 1 palm size piece of meat, fish or chicken
- 1 chicken drumstick
- 2/3 carton (200g) tauhu + 3 tablespoons mock meat
- 1 medium fish (hand-length)
- 6 medium prawns or 1 medium sotong
- 2/3 carton (200g) tauhu + 3 tablespoons cooked pulses (beans, dahl)

**50g of meat can be substituted with:**

- ½ large cake (100g) taukwa
- 2/3 carton (200g) tauhu
- 1 piece tempeh

### LIST D - MILK

**1 cup of milk is equivalent to (15g carbohydrate):**

- 1 small carton (200g) plain or artificially-sweetened low fat yoghurt
- 1 cup (240ml) skimmed or low fat milk (if using skimmed / reduced-fat milk powder, prepare as per instructions on the tin / package)
- 1 cup high-calcium soymilk (unsweetened)

### LIST E - FRUIT

**1 piece of fruit is equivalent to (15g carbohydrate):**

- 1 medium apple, pear, orange, banana, starfruit, kiwi fruit, chiku or peach
- 1 small mango
- 4 small seeds jackfruit
- 4 small mangosteens
- 10 strawberries
- 10 small or 8 large grapes
- ¼ medium dragon fruit
- 4 small seeds (Malaysian) or 1 large seed (Thai) durian
- Dried fruit: 2 tablespoons (25g) raisins or 3 prunes
- 1 slice papaya, honeydew, watermelon or pineapple
- ½ medium grapefruit, persimmon or guava
- 4 small or 2 medium plums
- 6 lychees or rambutans or dukus
- 10 longans
- 12 cherries

### LIST F – UNSWEETENED FRUIT JUICE

**1 serve is equivalent to (15g carbohydrate):**

- 120ml or ½ cup of orange, apple, pineapple or grape juice
- 90ml or 1/3 cup of prune juice

