



**Artificial sweeteners** – saccharin, cyclamates, aspartame. (Mannitol, dextrose, sorbitol, lactose, fructose and maltose provide similar calories to sugar, and are therefore not recommended)

Olives, nuts

Margarine, butter, vegetable oils, cream, mayonnaise



## **BASIC CHO COUNTING**



Good glycaemic control prevents and delays diabetes complications; carbohydrate counting has been shown to be effective in achieving good glycaemic control. The balance between carbohydrate and available insulin determines your post-meal blood glucose response. Carbohydrate counting focuses on the total amount of carbohydrate consumed, and allows for greater flexibility of food choices

**Carbohydrate** is the main nutrient that raises blood glucose levels. It raises blood glucose the most and the quickest after meals. Protein and fat raise blood glucose levels minimally. Focusing on the nutrient that most impacts blood glucose levels can help you achieve blood glucose control. All foods containing carbohydrate raise blood glucose to about the same degree in about the same amount of time.

What foods do you think contain carbohydrate?

Carbohydrate foods are amongst the healthiest to eat, and contain good sources of essential vitamins and minerals.

Sucrose and sucrose-containing foods can be worked into your meal plan safely and occasionally, but are to be eaten in moderation due



## CHO-FREE OR MINIMAL CHO FOODS

These foods need not be counted as part of your carbohydrate distribution as they contain no or very little carbohydrate. This does not mean they can be eaten in excess – they are to be had as part of a healthy diet!

**Meat** – Lean meat, mince, stew, beef, lamb, pork, ham, liver, kidney, cooked or tinned meats, vienna. (Do read the labels of processed meats as if eaten in excess will contribute to CHO intake).

**Poultry** – Chicken (not crumbed), turkey (not crumbed)

**Fish** (not crumbed) – fresh, frozen, tinned, smoked, shellfish

**Eggs**

**Cheese**

**Soya** – ½ cup soya beans,

**Drinks** – Black coffee, black tea, Diet fizzy drinks, Lipton's lite iced tea, sugar-free squash, soda water, lite mineral water, clear soups (no noodles and thickening), Bovril, Oxo, Marmite, stock cubes, soy sauce, 1 Flavouring straw, e.g. Sipahh!

**Vegetables** – baby marrow, cucumber, tomato, lettuce, ≤5 baby carrots, French and runner beans, cabbage, cauliflower, brussel sprouts, broccoli, spinach, celery, marrow, mushrooms, onions, swede, leeks, 1 cup mixed salad (lettuce, tomato, cucumber), ½ cup coleslaw, tomato & onion mix

**Condiments** - Tomato sauce (10ml), 1 heaped tsp chutney, all spices, curry powder, salt, pepper, mustard, vinegar, parsley, bottled essences e.g. vanilla, mustard

Avocado (½)



Nesquick	15g	2 heaped tsp	1	12
Milo	20g	4 heaped tsp	1	15
Energade, Powerade	500ml	1 bottle	2	35
xFruit squash, diluted	250ml	1 cup	1	15
xLucozade	100ml		1	18
xCola, regular	150ml		1	15
xFanta	145ml		1	15
xIce Tea (Lipton)		1 can	2	30
Chocolate flavoured milk (e.g. Super M, Steri Stumpi)	350ml		2	30
Other flavoured milk (e.g. Super M, Steri Stumpi)	350ml		1 ½	23
Ready mixed nesquick with low fat milk	250ml	1	1 ½	24
Yogisip	300ml	1	3	45
Cappuccino				
Frappe Latte	300ml	1	1	13
Freezolino				

X – avoid as much as possible, can be used in illness, if ketones present.



not only to the amount of sugar and energy, but they typically contain varying amounts of fat, saturated fat and cholesterol.

1 serving of carbohydrate (starch/fruit/milk) = 15g CHO

**Protein and fat:** These nutrients have far less impact on blood glucose levels than carbohydrate, but their impact on nutrient intake and calories is clearly important – NB healthy eating principles!

### STARCH

In general 1 starch exchange =

- ½ grain cereal, grain, pasta or starchy vegetable
- 30g bread product, such as 1 slice of bread
- 30g of most food snacks

Most starch choices are good sources of B Vitamins.

Choose wholegrain or high fibre choices, made with little fat as often as you can.

Most of the serving sizes are measured after cooking.

Check nutrition information on label.

	Approx. weight	Handy measure	~ CHO Exchange	CHO (g)
<b>BREAKFAST CEREALS &amp; PORRIDGE</b>				
Bran flakes, All Bran	25g	½ cup	1	16
High Bulk fibre bran	22g	¼ cup	1	16
Special K	25g	½ cup	1	18
Muesli, Just Right	25g	½ cup	1	16
Muesli, Fruitful Bran	25g	½ cup	1	16
Muesli, Honey Crunch	30g	¼ cup	1 ½	20
Muesli, Quaker Crunch	30g	¼ cup	1 ½	20
Muesli, Alpen – original, lite		2 tbsp	1	16
Muesli, Toasted All-bran	20g	½ cup	2	28
Weetbix, Oatfix, Nutrifix	19g	1	1	15
Pronutro (Wholewheat, Great Start, Original, High Energy)	25g	¼ cup	1	15
Maximize	30g	1 cup	1 ½	21
Cornflakes	20g	½ cup	1	17



Mealie Meal Porridge (Soft)	125g	½ cup	1	15
Mealie Meal Porridge (Stiff)	80g	⅓ cup	1	15
Mealie Meal Porridge (Crumbly)	45g	¼ cup	1	15
Oats (cooked)	220g	1 cup	1 ½	21
<b>Oats-so-easy</b>		<b>1 sachet</b>	<b>1 ½</b>	<b>23</b>
Bokomo Up & Go, liquid cereal	250ml	1 box	2	30
Maltabella (cooked)	200g	⅔ cup	1	18
<b>GRAINS</b>				
Pasta, durum wheat	60g	½ cup	1	15
Spaghetti, wholewheat and plain	60g	⅓ cup	1	15
<b>Spaghetti, tinned in tomato sauce</b>	<b>125g</b>	<b>½ cup</b>	<b>1</b>	<b>17</b>
Macaroni, wholewheat and plain	60g	½ cup	1	13
Macaroni Cheese	110g	1 cup	1	15
<b>Noodles, chow mien</b>		<b>½ cup</b>	<b>1</b>	<b>15</b>
Vermicelli pasta	75g	½ cup	1	16
Rice, brown	70g	½ cup	1	16
Rice, white	60g	½ cup	1	18
Sushi (with rice)	100g		2	30
Rice, basmati	65g	½ cup	1	18
<b>Rice, brown with lentils</b>	<b>50g</b>	<b>⅓ cup</b>	<b>1</b>	<b>15</b>
Rice, wild	65g	½ cup	1	15
Risotto	150g	½ cup	1 ½	21
<b>Cous cous</b>	<b>125g</b>	<b>½ cup</b>	<b>1</b>	<b>15</b>
<b>Sago</b>	<b>50g</b>	<b>⅓ cup</b>	<b>1</b>	<b>15</b>
<b>Wheat rice, uncooked</b>	<b>100g</b>	<b>⅓ cup</b>	<b>1</b>	<b>15</b>
Pearly wheat / Stampkoring	150g	1 cup	1 ½	25
Barley	85g	½ cup	1	15
<b>Oat bran</b>	<b>30g</b>		<b>1</b>	<b>15</b>
<b>Flour</b>	<b>20g</b>		<b>1</b>	<b>15</b>
Samp and Beans (1:1)	60g	¼ cup	1	15
Samp	100g	½ cup	2	27
<b>PULSES</b>				



Slim slab	25g	1 bar	1	10
<b>ICE CREAMS &amp; FRUIT LOLLIES</b>				
<b>Ice lollie, fruit</b>		<b>1</b>	<b>1</b>	<b>15</b>
Ice cream	63g	1 ball	1	15
Lite ice cream	104g	2 balls	1	15
Dialite, fat free ice-cream	100g	2-3 balls	1	15
Sorbet, Jive	100g	½ cup	2	30
Solero, mini (6 pack)	60ml	1	1	14
Paddle pop Scribbler (10 pack)	35g	1	½	8
Paddle pop (6 pack)	40ml	1	½	6
<b>Frozen yoghurt</b>				
Mega Lite, ice cream	100g	1	2	18
<b>PUDDINGS</b>				
<b>xJelly, regular (made-up)</b>		<b>½ cup</b>	<b>1</b>	<b>15</b>
<b>Instant pudding, made with milk</b>		<b>½ cup</b>	<b>2</b>	<b>30</b>
<b>Instant pudding, sugar-free, made with milk</b>		<b>½ cup</b>	<b>1</b>	<b>15</b>
Frozen dessert, Tofu based		½ cup	1	15
Custard, using custard powder	125ml	½ cup	1 ½	22
<b>Custard, Ultra mel</b>				
<b>xCondensed milk</b>	<b>25g</b>		<b>1</b>	<b>15</b>
<b>SPREADS</b>				
<b>xJam, regular</b>		<b>1 tbsp</b>	<b>1</b>	<b>15</b>
<b>xSyrup, regular</b>		<b>1 tbsp</b>	<b>1</b>	<b>15</b>
xHoney, regular	15g	1 heaped tsp	1	13
xNutella, choc spread	20g	1 tbsp	1	12
<b>TAKE-AWAYS</b>				
<b>Popcorn (movies)</b>		<b>1 med</b>	<b>4</b>	<b>60</b>
<b>Hamburger, standard</b>		<b>1</b>	<b>2 ½</b>	<b>35</b>
<b>xMilkshake (made with syrup)</b>	<b>300ml</b>	<b>1 small</b>	<b>4</b>	<b>60</b>
Pizza, thin base		1 slice	1	15
Pizza, thick base		1 slice	2	30
<b>Pie, family size</b>		<b>1 tenth</b>	<b>1</b>	<b>15</b>
<b>Pie, single</b>		<b>1</b>	<b>4</b>	<b>60</b>
<b>DRINKS</b>				



Doughnut, glazed or with jam	60g	1 medium	2	30
Muffin	60g	1	2	30
Croissant	20g	1	2	30
<b>SNACKS</b>				
Samosa	8x8cm	1 small	½	7.5g
Samosa	15x15 cm	1 large	2	30
Crisps	30g	1 packet	1	15
Sausage roll	65g	1 small	1	15
Chelsea bun		¼	1	15
Crumpet	40g	1 ½ small	1	14
Pancakes	70g	1	1	15
Waffle	30g	½	1	14
Pretzel's	20g		1	15
<b>SWEETS AND CHOCOLATES</b>				
Fruit pastilles, gums	30g	1 roll	2	30
Marshmallow	20g	3	1	15
Super C	15g	5	1	15
Jelly tots	40g	1 small packet	2	30
Jelly babies		4	1	15
Jelly beans		15	1	15
Hard boiled sweets e.g. Sparkles	15g	5	1	15
Toffee	25g	5	1	15
Chocolate, plain	20g	4 blocks	1	13
Chocolate, bar	50g	1 bar	2	30
Black cat bar	25g	1 bar	1	15
Tex	25g	1 small	1	15
Kit kat		2 fingers	1	15
Smarties		20	1	15
Crunchie	33g	1 bar	1 ½	25
Yes No Chocolate	45g	1 bar	2	26
PS Chocolate	46g	1 bar	2	28
Chunky kit kat	45g	1 bar	2	27



Baked beans (in tomato sauce)	100g	¼ tin	1	14
Sugar beans\$	100g	½ cup	1	15
Beans, average		½ cup	1	15
Kidney beans, white	100g	½ cup	1	15
Kidney beans, red	100g	½ cup	1	15
Butter beans, cooked	100g	½ cup	1	14
Lentils, cooked	100g	½ cup	1	15
Chickpeas (cooked)	45g	½ cup	1	18
Split peas	85g	½ cup	1	13
Bean salad	100g	½ cup	1	15
<b>STARCHY VEGETABLES</b>				
Potatoes, Mashed	125g	½ cup	1	15
Potatoes, Boiled	100g	½ cup/ 1 Medium	1	15
Potatoes, Jacket	75g	½ cup/ 1 Medium	1	15
Potatoes, Chips	75g	½ cup/ ~9	1	15
Potatoes, Roast	100g	½ cup/ 1 small	1	15
Potatoes, Baby (Boiled or baked)	100g	3 small	1	18
Sweet Potato	100g	½ cup	1	15
Corn, whole kernel	95g	½ cup	1	15
Corn on cob	140g	1 medium	1	15
Corn, sweet or creamed	90g	½ cup	1	15
Peas, green	135g	½ cup	½	8
Butternut	150g	1 cup	1	15
Mixed veg (with corn, peas, pasta or potato)	200g	1 cup	1	15
Carrots, cooked	200g	1 cup	1	15
Carrots, baby				
Carrots, raw	217g	3	1	
Roti, small		1	1	15
<b>BREADS</b>				



Bread, white, brown, regular, wholewheat	30g	1 Medium slice	1	15
Bread, white, brown, regular, wholewheat	50g	1 Thick slice	1 ½	25
Seed loaf	45g	1 slice	1	16
Pumperknickel Bread	40g	1 slice	1 ½	22
Crushed wheat/ Rolled oats bread	40g	1 slice	1	15
Rye bread	30g	1 thin, small slice	1	15
Reduced energy bread, i.e. slim slice	45g	2 slices	1	15
Raisin bread	30g	1 slice	1	15
Rolls, hot dog	30g	½	1	15
Rolls, hamburger				
Rolls, cocktail		1	1	15
Bagel	30g	½	1	15
Pita Bread, 15cm	45g	½	1 ½	25
Tortilla, 15cm (wrap)	35g	1	1	15
Taco shell, 15cm	11	2	1	12
Pizza base	220g	1	5	75
English muffin	35g	½	1	15
Bran muffin	60g	1	2	30
Crumbed chicken breast		1 ½	1	15
Crumbed hake fillet		1	1	15
Crumbed fish fingers		4	1	15
Crumbed chicken burger patty		1	1	15
<b>CRACKERS , SNACKS &amp; SAUCES</b>				
Provita	20g	3	1	15
Ryvita	20g	2	1	15
Melba Toast	20g	1 small slice	1	16
Cream cracker	20g	3	1	15
Crackermates, lites	24g	3	1	17
Bran S	20g	1	1	15
Rice cakes, 10cm	20g	2	1	15



## OTHER

Choose ..... once per day.

These foods can be substituted into your diet, as part of a healthy meal plan. They do not contain as many important vitamins and minerals as the above choices, and contain added sugar or fat. Be sure to include foods from all the other food groups first, to eat a balanced meal. Always check nutrition information on the label.

	Approx. weight	Handy measure	CHO Exchange	CHO (g)
<b>CEREALS</b>				
Rice Crispies, Strawberry Pop's, Choco's, Frosties, Fruit Loops	20g	½ cup	1	15
<b>CAKES &amp; BISCUITS</b>				
Brownie, small (unfrosted)		5 cm square	1	15
Cake, plain		5 cm square	1	15
Cake, with icing		5 cm square	2	30
Swiss roll	50g	1 slice/mini	2	30
Cupcake, with icing		1 small	1	15
Rusk	25g	1	1	17
Cookie, plain		2 small	1	15
Wafers, vanilla		5	1	15
Oreo cookie				
Marie biscuit		3	1	15
Boudoir biscuit		3	1	15
Tennis biscuit		3	1	15
Lemon cream		1	1	12
Romany cream		1	1	10
Shortbread	20g	2	1	14
Doughnut, plain	45g	1 medium	1 ½	23



## MILK & YOGHURT

Try include milk or milk products on a daily basis.  
Check the food label for nutrition information, particularly yoghurt as they vary greatly between brands.

Milk and yoghurt are good sources of calcium and protein.  
Choose lower fat varieties, as the higher the fat content the greater the amount of saturated fat

	Approx. weight	Handy measure	CHO Exchange	CHO (g)
Milk, skimmed, low fat or full cream	250ml	1 cup	1	12
<b>Non-fat, milk powder (made-up)</b>	<b>60ml</b>	<b>¼ cup</b>	<b>1</b>	<b>15</b>
Yoghurt, Danone Vitalinea (6 x 100g)	100g	1	1	10
Yoghurt, Danone Nutriday	175ml	1	2	30
Yoghurt, Danone Nutriday (6 x 100g)	100g	1	1	18
Yoghurt, P 'n P choice	175ml	1	1 ½	23
Dairybelle, in-shape	100g	1	1	10
Parmalat	175ml	1	2	26
Parmalat (6x100g)	100g	1	1	15
Yoghurt, Gero, fat free, plain	150g	1	½	8g
<b>Evaporated milk</b>	<b>125ml</b>	<b>½ cup</b>	<b>1</b>	<b>15</b>
Buttermilk	250ml	1 cup	1	12
<b>Whole milk powder</b>	<b>35g</b>	<b>7 tbsp</b>	<b>1</b>	<b>15</b>
<b>Goat's milk</b>	<b>250ml</b>	<b>1 cup</b>	<b>1</b>	<b>15</b>
<b>Inkomazi (maas)</b>	<b>250ml</b>	<b>1 cup</b>	<b>1</b>	<b>15</b>
Amahewu	250ml	1 cup	1	15
<b>Amazi</b>	<b>190ml</b>	<b>¾ cup</b>	<b>1</b>	<b>15</b>
<b>Ideal Milk</b>	<b>150ml</b>		<b>1</b>	<b>15</b>



<b>Corn thins</b>	<b>6g</b>	<b>3</b>	<b>1</b>	<b>15</b>
<b>Matzo's</b>	<b>20g</b>	<b>½</b>	<b>1</b>	<b>15</b>
Popcorn	20g	Sandwich packet	1	15
<b>Biscuits, Digestive or wholemeal</b>	<b>24g</b>	<b>2</b>	<b>1</b>	<b>15</b>
Granola biscuits		2	1	16
Muesli biscuits		2	1	14
All Bran bar		1 bar	1	15
Jungle Energy bar		1 bar	1 ½	20
Jungle Energy Munch breakfast biscuit		1	1 ½	21
Granola Bar (single)		1 bar	1	15
Special K Bar		1	1	15
Bokomo Breakfast Bar		1 bar	1 ½	23
Bokomo Quick Break bar	30g	1 bar	1 ½	21
Nutty Crunch Cereal bar	35g	1 bar	1	19
Banana loaf	50g	1 slice	2	27
Fruit loaf	40g	1 slice	1 ½	21
Tomato soup	250ml	1 cup	1	15
Instant gravy				
Chutney	40g	1 heaped dessert sp	1	14
Mint Jelly				



## FRUIT

Fresh, canned, frozen and dried fruits, and fruit juices are on this list

In general, 1 exchange =

- 1 medium fruit
- ½ cup of canned or fresh fruit
- ¼ cup dried fruit

Fresh, frozen and dried fruit have more fibre and are therefore a better choice.

Fruit juice is high in natural sugar and contains very little fibre. Whole fruit is more filling than fruit juice, and is a better choice!

Fruit should be eaten on a daily basis, at least 2 portions.

Portion sizes for the canned fruits are for the fruit and a small amount of juice.

	Approx. weight	Handy measure	CHO Exchange	CHO (g)
<b>FRESH FRUIT</b>				
Apple, unpeeled	115g	1 small	1	15
Apricots, whole	155g	4	1	15
Banana, small	75g	1	1	15
Cherries	85g	12	1	15
Figs, medium	90g	2	1	15
Fruit salad	140g	⅔ cup	1	15
Gooseberry	255g	1 ½ cup	1	15
Grapefruit, large	310g	1/2	1	15
Grapes	100g	17	1	15
Granadilla, medium	120g	4	1	15
Guava, medium	190g	2	1	15
Kiwi, small	110g	2	1	15
Litchi	90g	11	1	15
Mango	100g	½	1	15
Melon	180g	1 slice	1	15
Minneola	185g	1	1	15
Naartjie	230g	2	1	15
Nectarine, small	140g	1	1	15
Orange, medium	180g	1	1	15



Paw paw/Papino	150g	1 cup	1	15
Peach, medium	170g	1	1	15
Pear, large	115g	½	1	15
Pineapple	125g	¾ cup	1	15
Plums	140g	2	1	15
Prickly pear	180g	2	1	15
Strawberries	300g	1 ½ cup	1	15
Watermelon	200g	1 slice	1	15

### DRIED FRUIT

Apples	20g	5 rings	1	15
Apricots	18g	6 halves	1	15
Dates	20g	3	1	15
Figs	25g	2	1	15
Peach	25g	2 halves	1	15
Prunes	25g	3	1	16
Raisins	20g	1 ½ tbsp	1	15
Pears		2 halves	1	15
Fruit salad	35g	¼ cup	1 ½	20
Trufruit bar		1 bar	1 ½	23
Safari Fruit bar		1 bar	1 ½	23

### CANNED FRUIT (natural juice, not syrup)

Applesauce, sweetened	145g	½ cup	1	15
Apricots	140g	½ cup	1	15
Blueberries	100g	¾ cup	1	15
Cherries	100g	½ cup	1	15
Fruit salad	140g	½ cup	1 ½	23
Grapefruit sections	200g	¾ cup	1	15
Mandarin oranges	200g	¾ cup	1	15
Peaches	125g	½ cup	1	15
Pears	125g	½ cup/ 2 halves	1	15
Pineapple	100g	½ cup	1	15
Plums	100g	½ cup	1	15

### FRUIT JUICE

Fruit juice, all flavours	125ml	½ cup	1	15
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