EXAMPLE OF CARBOHYDRATE PER DAY

A 55-60kg athlete (e.g. female endurance or sprinter, male endurance) training 2-4 hours per day would need to eat foods containing around 350-550g of carbohydrate per day.

For example:		grams
BREAKFAST	60g cereal with 200ml semi-skimmed milk	60
	2 slices of bread and 2 teaspoons of jam	45
	200ml orange juice	20
POST TRAINING	Scone and a low fat fruit yoghurt	35
	Medium piece of fruit (e.g. pear, orange, apple)	15
	500ml isotonic sports drink	30
LUNCH	4 slices of bread	60
	Banana (large)	35
EVENING MEAL	Pasta (300g cooked weight)	100
	Broccoli and tomato based pasta sauce	20
	Apple (large)	20
TOTAL CARBOHYDRATE		440

NOTE: This selection is not designed to be a complete and balanced diet. It is meant simply to demonstrate the quantities of food providing sufficient carbohydrate. Only foods containing carbohydrate are listed. Carbohydrate values are rounded to the nearest 5 grams.

EXAMPLE OF CARBOHYDRATE PER DAY

A 75-80kg athlete (e.g. male 400m and middle distance runners) training 2-4 hours per day would need to eat foods containing around 450-650g of carbohydrate per day.

For example:		grams
BREAKFAST	60g cereal with 200ml semi-skimmed milk	60
	2 slices of bread and 2 teaspoons of jam	45
	200ml orange juice	20
POST TRAINING 1	Scone and a low fat fruit yoghurt	35
	Medium piece of fruit (e.g. pear, orange, apple)	15
	500ml isotonic sports drink	30
LUNCH	4 slices of bread or 1 baked potato	60
	Banana (large)	35
POST TRAINING 2	Bagel with honey	50
	Banana (large) or 50g raisins	35
	500ml isotonic sports drink	30
EVENING MEAL	Pasta (300g cooked weight)	100
	Broccoli and tomato based pasta sauce	20
	Apple (large)	20
TOTAL CARBOHYDRATE		555

NOTE: This selection is not designed to be a complete and balanced diet. It is meant simply to demonstrate the quantities of food providing sufficient carbohydrate. Only foods containing carbohydrate are listed. Carbohydrate values are rounded to the nearest 5 grams.

EXAMPLE OF CARBOHYDRATE PER DAY

An 85-90kg athlete (e.g. male sprinter or jumper) training 2-4 hours per day would need to eat foods containing around 500-700g of carbohydrate per day.

For example:		grams
BREAKFAST	60g cereal with 200ml semi-skimmed milk	60
	2 slices of bread and 2 teaspoons of jam	45
	200ml orange juice	20
POST TRAINING 1	Scone with jam or 2 scotch pancakes and a low fat yoghurt	45
	Medium piece of fruit (e.g. pear, orange, apple)	15
	500ml isotonic sports drink	30
LUNCH	4 slices of bread or 1 baked potato	60
	Banana (large) and 250ml flavoured milk	60
POST TRAINING 2	Bagel with honey	50
	Banana (large) or 50g raisins	35
	500ml isotonic sports drink	30
EVENING MEAL	Pasta (300g cooked weight)	100
	Broccoli and tomato based pasta sauce	20
	Apple (large)	20
	A tin of low fat rice pudding (425g)	60
TOTAL CARBOHYDRATE		650

NOTE: This selection is not designed to be a complete and balanced diet. It is meant simply to demonstrate the quantities of food providing sufficient carbohydrate. Only foods containing carbohydrate are listed. Carbohydrate values are rounded to the nearest 5 grams.

rapidly absorbed carbohydrate ⟶ slower absorbed carbohydrate			
	High GI	Moderate GI	Low GI
SUGARS	glucose	sucrose honey	fructose lactose jam
FRUIT	watermelon lychee	banana pineapple apricot paw paw	peach apple pear orange grape plum
VEGETABLES	parsnip pumpkin broad bean	sweetcorn beetroot	carrot pea baked beans
BREADS	french baguette bagel white bread brown bread wholemeal bread	pitta bread crumpet muffin (e.g. bran, blueberry)	fruit loaf rye bread granary bread
CEREALS	weetabix cornflakes bran flakes coco pops	frosties porridge	muesli all bran
STARCHES	baked potato mashed potato	white or brown basmati rice cous cous sweet potato boiled & new potato	pasta lentils yam
SNACKS	dried dates pretzels jelly beans popcorn rice cakes	raisins sultanas mars bar	dried apricots peanuts cashew nuts fruit & sponge cake chocolate
DRINKS	sports drink	soft drinks squash	milk & yoghurt apple juice orange juice

NOTE: Foods have been categorized according to their average GI value. Several foods cross two categories, e.g. most fruit values are between 40-60. GI differs between brands and also countries of origin. For example, some muesli and some rye bread will be moderate GI.

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SNACKS PROVIDING 50G (APPROX.) CARBOHYDRATE

135g baked beans plus 2 medium slices of toast
500ml isotonic sports drink and pot of low fat custard
200ml orange juice and 2 slices of currant bread
30g corn flakes, 1 large kiwi and 200ml of low fat milk
250ml hot chocolate and a wholemeal scone
35g jelly sweets and 150ml glass of orange juice
150ml carrot juice, 3 rye crisp breads (cottage cheese to taste) plus 100g fresh pineapple and a small apple
2 medium slices of toast, 2 teaspoons jam and 200ml skimmed/ semi-skimmed milk
100g melon, 2 teaspoons honey, 150g pot low fat plain yogurt and 150ml apple juice
100g grapes, 2 fig rolls and 150ml orange juice
Lean ham and salad sandwich (2 slices of brown bread) and 200ml glass of apple juice
175g baked potato (with filling e.g. salad and prawns)
120g sorbet and 200ml orange juice
200g drinking yogurt and a fruit scone
150g pot low fat plain yogurt, 1 digestive biscuit and 200ml apple juice
1 crumpet and a teaspoon of jam plus 500ml isotonic sports drink
250g home-made fruit salad (with equal proportions of banana, orange, apple, pear and grapes) plus 150g low fat plain yogurt
1 toasted currant bun plus 200ml pineapple juice
Prawn and salad sandwich on 2 slices of light rye bread, plus 2 small tangerines and 200ml flavoured low fat milk

EXAMPLE OF PROTEIN PER DAY

A 50kg person undertaking regular activity would need to eat foods containing 50-60g of protein per day.

For example:		grams
BREAKFAST	30g cereal with 100ml milk	5
LUNCH	Quarter tin of tuna in brine (50g)	12
	2 slices of bread	6
EVENING MEAL	50g chicken breast (grilled meat only)	16
	Pasta (200g cooked weight)	13
	Broccoli and tomato based pasta sauce	6
	Apple (large)	1
TOTAL PROTEIN		59

NOTE: This selection is not designed to be a complete and balanced diet and it may not contain enough carbohydrate to cover training. It is meant simply to demonstrate the quantities of food providing sufficient protein. Only foods containing protein have been listed. Protein values are rounded to the nearest gram.

EXAMPLE OF PROTEIN PER DAY

A 75-80kg athlete (e.g. male middle distance runners) would need to eat foods containing 90-105g of protein.

For example:		grams
BREAKFAST	40g cereal with 100ml milk	7
	1 slice of bread	3
POST TRAINING	Scone and a low fat fruit yogurt	9
LUNCH	Half tin of tuna in brine (100g)	24
	2 slices of bread	6
	Banana (large)	2
EVENING MEAL	75g chicken breast (grilled meat only)	24
	Pasta (200g cooked weight)	13
	Broccoli and tomato based pasta sauce	8
	Apple (large)	1
TOTAL PROTEIN		97

NOTE: This selection is not designed to be a complete and balanced diet and it may not contain enough carbohydrate to cover training. It is meant simply to demonstrate the quantities of food providing sufficient protein. Only foods containing protein have been listed. Protein values are rounded to the nearest gram.

EXAMPLE OF PROTEIN PER DAY

An 85-90kg athlete (e.g. male sprinter or jumper) would need to eat foods containing 100-155g of protein.

For example:		grams
BREAKFAST	80g cereal with 200ml milk	13
	3 slices of bread	9
POST TRAINING	Scone and a low fat fruit yogurt	9
LUNCH	Half tin of tuna in brine (100g)	24
	4 slices of bread	12
	Banana (large)	2
	250ml flavoured milk	9
EVENING MEAL	100g chicken breast (grilled meat only)	32
	Pasta (300g cooked weight)	20
	Broccoli and tomato based pasta sauce	8
	Apple (large)	1
SUPPER	80g cereal with 200ml milk	13
TOTAL PROTEIN		152

NOTE: This selection is not designed to be a complete and balanced diet and it may not contain enough carbohydrate to cover training. It is meant simply to demonstrate the quantities of food providing sufficient protein. Only foods containing protein have been listed. Protein values are rounded to the nearest gram.

BEFORE EXERCISE	• Always start every exercise session well hydrated • Drinking 400-600ml of water, sports drinks or other fluids in the 2 hours before exercise will help hydrate the body • Before long or endurance events, drinking 300-500ml of fluid in the 10-15 minutes prior to the start may help the body to absorb fluid more effectively • Avoid over-hydrating. For example, by using glycerol prior to exercise (in healthy individuals the kidneys will excrete the excess fluid before exercise begins)
DURING EXERCISE	• Aim to drink enough to limit fluid lost as sweat • Try not to lose more than 1-2%, especially in endurance events in the heat • This is calculated by taking body weight before and after exercise (see Table 9) • Every athlete should develop their own strategy for drinking during sport where it is necessary • For exercise that lasts over an hour, a guide might be to aim to drink 150-250ml every 15 minutes throughout exercise to offset fluid losses • Drinking smaller volumes more frequently minimizes stomach discomfort • Those undertaking prolonged exercise should be careful about the amount of fluid drunk. For example, running the average marathon will need 2-4 litres of fluid – that's about 250ml every 2 miles. Those taking a long time to complete an event should not drink large amounts frequently, so as to avoid over-hydration • Don't drink so much that you actually gain weight during exercise
AFTER EXERCISE	• How much fluid you need depends on how much you have lost • Drink 1.2-1.5 litres of fluid for every kg of weight lost during exercise

WATER	When sweat losses are small, water is fine. Under these conditions, salt can be obtained from meals and snacks eaten around training.
HYPOTONIC	These have a lower concentration than blood and so diluted soft drinks and sports drinks containing a small amount (under 4%, i.e. less than 4g per 100ml) of carbohydrate fall into this category. Hypotonic drinks will generally provide fewer calories per 100ml than isotonic and hypertonic drinks. Some athletes (e.g. those practising high intensity exercise) find these easier to tolerate and experience less stomach discomfort than when they use isotonic drinks.
ISOTONIC	Many commercial sports drinks are 'isotonic'. They usually contain 4%-8% (4-8g/100ml) carbohydrate and some salt. They can be useful when exercise is prolonged and can be drunk before, during and after sport. Sports drinks provide a source of carbohydrate, salt and fluid.
HYPERTONIC	These contain over 8% (greater than 8g per 100ml) carbohydrate and are less quickly absorbed than isotonic and hypotonic drinks. Useful when energy and carbohydrate needs are high and sweat rates are lower, and also for refuelling after heavy exercise. Fruit juice, energy drinks and sugary carbonated drinks fall into this category, but they generally don't contain salt and are not ideal to use to hydrate during exercise lasting longer than 1-2 hours.

NUTRIENT RICH FOOD SOURCES OF KEY VITAMINS

MICRONUTRIENT	What does it do?	Good food sources
VITAMIN A (RETINOL)	Antioxidant function. Cell division and growth. Healthy skin and hair. Night vision.	Liver & offal, oily fish, eggs, whole milk, cheese, butter, margarine, spinach, broccoli, carrots, red peppers, tomatoes, dark green and orange vegetables.
VITAMIN B1 (THIAMIN)	Involved in the release of energy from food. Essential for nervous system.	Pork, liver & offal, lean beef, yeast extracts, red kidney beans, potatoes, fortified breakfast cereals, nuts, pulses and whole grains.
VITAMIN B2 (RIBOFLAVIN)	Metabolism of carbohydrates and fats.	Liver & offal, yeast extracts, green leafy vegetables, dairy products, fortified breakfast cereals and bread.
VITAMIN B3 (NIACIN)	Involved in the release of energy from food.	Meat, fish, wholegrain and fortified breakfast cereals, yeast extracts and coffee.
VITAMIN B6 (PYRIDOXINE)	Metabolism of carbohydrate, protein and fats. Important for immune function, formation of red blood cells and maintenance of healthy nervous system.	Fortified breakfast cereals, avocado, meat, liver, poultry, fish, eggs, nuts, bananas and soya beans.
FOLATE (FOLIC ACID)	Required for cell division and formation of proteins in the body. Extra in pregnancy protects against neural tube defects.	Green leafy vegetables, brussel sprouts, broccoli, spinach, lentils, oranges, fortified breakfast cereals, liver, yeast extracts, wholemeal bread, black eye beans and baked beans.

NUTRIENT RICH FOOD SOURCES OF KEY VITAMINS

MICRONUTRIENT	What does it do?	Good food sources
PANTOTHENIC ACID	Involved in the release of energy from food.	Yeast, offal, peanuts, meat, eggs and green vegetables.
BIOTIN	Involved in metabolism of carbohydrates and fats.	Liver & offal, yeast, nuts, pulses, wholegrain cereals and eggs.
VITAMIN B12 (CYANOCOBALAMIN)	Essential for production of red blood cells and to prevent some forms of anaemia. Needed for a healthy nervous system. Used in carbohydrate, protein and fat metabolism.	Foods of animal origin e.g. meat, fish, poultry, eggs, dairy and fortified breakfast cereals.
VITAMIN C (ASCORBIC ACID)	Antioxidant. Healthy skin, gums, blood vessels. Haemoglobin and red blood cell production. Helps absorption of iron from plant foods.	Citrus fruits, berries & currants e.g. strawberries & blackcurrants; kiwi, broccoli, green peppers, cabbage, spring greens and potatoes.
VITAMIN D (CHOLECALCIFEROL)	Absorption of calcium and regulation of calcium metabolism; healthy bones.	Action of sunlight on skin. Oily fish, fortified margarines and breakfast cereals.
VITAMIN E (TOCOPHEROLS)	Antioxidant. Promotes normal growth and development.	Vegetable oils, wheatgerm, nuts, seeds, margarine, egg yolk and avocado.
VITAMIN K (PHYLLOQUINONE)	Essential in formation of certain proteins and normal blood clotting.	Green leafy vegetables e.g. spinach, broccoli, green cabbage and brussel sprouts.

NUTRIENT RICH FOOD SOURCES OF KEY MINERALS

MICRONUTRIENT	What does it do?	Good food sources
CALCIUM	Strong bones and teeth. Muscle contraction, blood clotting and transmission of nerve impulses.	Milk and dairy products e.g. cheese and yoghurt; fish containing soft bones e.g. sardines and pilchards; fortified white flour products e.g. bread and cereals; dark green leafy vegetables; pulses and seeds.
MAGNESIUM	Involved in regulation of energy metabolism. Skeletal development, protein synthesis, muscle contraction and transmission of nerve impulses.	Vegetables and potatoes, meats, dairy, pulses, bread and cereals (particularly wholegrain), beer and coffee.
POTASSIUM	Works together with sodium to control fluid and electrolyte balance in cells and tissues. Regulates blood pressure.	Many plant foods including avocados, nuts, seeds, pulses, potatoes, tomatoes, whole grains and fresh fruit e.g. bananas, oranges. Also meat, fish and dairy.
IRON	Antioxidant function. Manufacture of red blood cells. Oxygen transport and utilization. Essential component of wide range of enzymes.	Red meat, liver & offal, fortified breakfast cereals, eggs, wholegrain bread and cereals, green leafy vegetables, pulses, dried fruit, nuts and seeds.

NUTRIENT RICH FOOD SOURCES OF KEY MINERALS

MICRONUTRIENT	What does it do?	Good food sources
ZINC	Antioxidant function. Essential component of wide range of enzymes and vital for normal growth. Assists immune system and helps wound healing.	Fish and shellfish, red meat, milk and dairy, poultry and eggs, bread and cereals, green leafy vegetables and pulses.
COPPER	Antioxidant function. Essential component of wide range of enzymes.	Shellfish, liver, nuts, cocoa, meats, cereal products, vegetables and potatoes.
MANGANESE	Antioxidant function. Essential component of wide range of enzymes. Component of bone and cartilage.	Tea, bread and cereals (particularly wholegrain), brown rice, pulses and nuts.
SELENIUM	Antioxidant function. Essential component of wide range of enzymes .	Fish, meats, fats, vegetables, cereals, lentils, avocados and brazil nuts.
IODINE	Works together with thyroid hormones to control heat, protein synthesis and integrity of connective tissue.	Seafood and dried seaweed, milk and iodized salt.

EXAMPLE OF CARBOHYDRATE LOADING

A 50kg athlete would need to eat foods providing 400-500g of carbohydrate per day.

For example:		grams
BREAKFAST	30g cereal with 100ml semi-skimmed milk	30
	2 slices of bread or 2 crumpets with	45
	2 teaspoons of jam	
	150ml orange juice	15
SNACK	Medium piece of fruit e.g. pear, orange, apple	15
	500ml sports drink or squash	30
LUNCH	2 slices of bread	30
	150g low fat fruit yoghurt	10
	Banana (large) or 50g raisins	35
SNACK	Bagel with honey or jam	50
	Medium piece of fruit e.g. pear, orange, apple	15
	500ml sports drink or squash	30
EVENING MEAL	Pasta (200g cooked weight)	65
	Broccoli and tomato sauce	15
	Banana (large)	35
SNACK	50g chocolate or cereal bar	30
TOTAL CARBOHYDRATE		450

NOTE: This selection is not designed to be a complete and balanced diet. It is meant simply to demonstrate the quantities of food providing sufficient carbohydrate. Only foods containing carbohydrate are listed. Carbohydrate values are rounded to the nearest 5 grams.

EXAMPLE OF CARBOHYDRATE LOADING

A 70kg athlete would need to eat foods providing 560-700g of carbohydrate per day.

For example:		grams
BREAKFAST	60g cereal with 200ml semi-skimmed milk	60
	2 slices of bread or 2 crumpets with 2 teaspoons of jam	45
	150ml orange juice	15
SNACK	Scone with jam or medium muffin or 4 Jaffa cakes	35
	Medium piece of fruit e.g. pear, orange, apple	15
	500ml sports drink or squash	30
LUNCH	4 slices of bread or medium baked potato	60
	150g low fat fruit yoghurt	10
	Banana (large) or 50g raisins	35
SNACK	Bagel with honey or jam	50
	Medium piece of fruit e.g. pear, orange, apple	15
	500ml sports drink or squash	30
EVENING MEAL	Pasta (250g cooked weight)	80
	Broccoli and tomato sauce	20
	410g tin of fruit salad	50
	150g low fat custard or ice cream	20
	500ml squash or diluted juice	30
SNACK	50g chocolate or cereal bar	30
TOTAL CARBOHYDRATE		630

NOTE: This selection is not designed to be a complete and balanced diet. It is meant simply to demonstrate the quantities of food providing sufficient carbohydrate. Only foods containing carbohydrate are listed. Carbohydrate values are rounded to the nearest 5 grams.

EXAMPLE OF CARBOHYDRATE LOADING

A 90kg athlete would need to eat foods providing 720-900g of carbohydrate per day.

For example:		grams
BREAKFAST	90g cereal with 300ml semi-skimmed milk	90
	4 slices of bread or 4 crumpets with 4 teaspoons of jam	90
	250ml orange juice	25
SNACK	Scone with jam or medium muffin or 4 Jaffa cakes	35
	Banana (large) or 50g raisins	35
	500ml sports drink or squash	30
LUNCH	4 slices of bread or medium baked potato	60
	135g tin of baked beans	20
	150g low fat fruit yoghurt	10
	Medium piece of fruit e.g. pear, orange, apple	15
	500ml squash or diluted juice	30
SNACK	Bagel with honey or jam	50
	Banana (large) or 50g raisins	35
	500ml sports drink or squash	30
EVENING MEAL	Pasta or rice (300g cooked weight)	100
	Broccoli and tomato sauce	25
	410g tin of fruit salad	50
	150g low fat custard or ice cream	20
	500ml squash or diluted juice	30
SNACK	50g chocolate or cereal bar	30
TOTAL CARBOHYDRATE		810

NOTE: This selection is not designed to be a complete and balanced diet. It is meant simply to demonstrate the quantities of food providing sufficient carbohydrate. Only foods containing carbohydrate are listed. Carbohydrate values are rounded to the nearest 5 grams.

EXAMPLE OF PRE-COMPETITION MEAL

(i) A 50kg athlete would need to eat 50-200g carbohydrate. Below are seven different meals, each providing about 100g of carbohydrate:

1. 60g cereal with 200ml milk and large banana or 50g raisins
2. 3 thick slices of bread with honey or jam and 250ml fruit juice
3. Bagel, large banana and 500ml sports drink
4. Baked potato with 135g tin of baked beans and 200ml orange juice
5. 200g pasta with broccoli and tomato sauce plus a large apple
6. 100g cous cous with $^{1}/_{3}$ can of sweetcorn (100g) and 150ml fruit juice
7. 180g rice with 150g chick peas and a medium banana

(ii) A 70kg athlete would need to eat 70-280g carbohydrate. Below are seven different meals, each providing about 140g of carbohydrate:

1. 100g cereal with 300ml milk and large banana or 50g raisins
2. 4 thick slices of bread with honey or jam and 400ml fruit juice
3. 2 bagels, large banana and 500ml sports drink
4. Baked potato with 270g tin of baked beans and 400ml orange juice
5. 250g pasta with broccoli and tomato sauce plus two large apples
6. 125g cous cous with $^{2}/_{3}$ can of sweetcorn (200g) and 175ml fruit juice
7. 270g rice with 200g chick peas and a large banana

(iii) A 90kg athlete would need to eat 90-360g carbohydrate. Below are seven different meals, each providing about 180g of carbohydrate:

1. 150g cereal with 300ml milk and large banana or 50g raisins
2. 6 thick slices of bread with honey or jam and 400ml fruit juice
3. 2 bagels, 2 medium bananas and 750ml sports drink
4. 2 baked potatoes with 270g tin of baked beans and 200ml orange juice
5. 300g pasta with broccoli and tomato sauce plus large banana and apple
6. 150g cous cous with can of sweetcorn (300g) and 200ml fruit juice
7. 360g rice with 250g chick peas and a large banana

NOTE: Only foods containing carbohydrate are listed. Carbohydrate values are rounded to the nearest 5 grams.