

FOOD FOR SPORT



The Irish Nutrition and Dietetic Institute

The Irish Nutrition and Dietetic Institute (INDI) is the professional organisation for Clinical Nutritionist/Dietitians in Ireland. A clinical nutritionist/dietitian applies knowledge of food, and the science of nutrition, to promote health, prevent disease, and manage certain medical conditions. The INDI promotes healthy eating to enhance the performance of all people whatever their level of physical activity.

The Sports Nutrition Interest Group (SNIG) of the INDI is a group of Dietitians with a specific interest in the field of sports nutrition. An Accredited Sports Dietitian has an additional recognised qualification in Sports Nutrition.

Good nutrition is essential to perform at your best. It can help delay fatigue, improve skill and concentration, and prevent injury and illness. A good diet will not turn an average athlete into a superstar, but a poor diet will prevent you from achieving your potential.

WHAT SHOULD A SPORTSPERSON EAT?

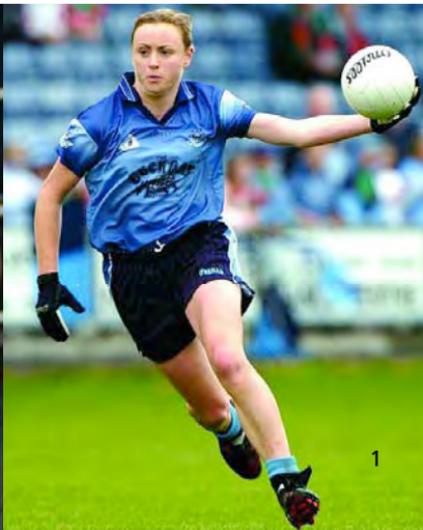
Both athletes and non athletes need the same nutrients... carbohydrate, protein, fat, vitamins, mineral and water, but they need to consume them in different quantities and proportions.

Carbohydrate, protein and fat (along with alcohol) provide energy.

1g of carbohydrate	= 4 kcal (calories)
1g of protein	= 4 kcal
1g of fat	= 9 kcal
1g of alcohol	= 7 kcal

Vitamins and minerals do not provide energy, but are needed in very small amounts to enable the body to perform efficiently and effectively.

It is essential that the food you eat provides sufficient energy to fuel your sport. It is also important that you obtain this energy from the correct food choices, to avoid gaining excess body fat, and to ensure you meet requirements for vitamins and minerals. This booklet will advise you how to get the balance right.



FUELS FOR EXERCISE

Carbohydrate and fat are the 2 main fuels for exercising muscles. The proportion of carbohydrate to fat used during exercise depends on the type, duration, and intensity of your exercise, as well your fitness level and nutritional status.

Even the leanest athletes have ample stores of fat, however, carbohydrate stores are limited.

CARBOHYDRATE – THE MAINSTAY OF AN ATHLETE’S DIET

Carbohydrates are chains of glucose/sugar units. Simple chain structures are known as sugars while more complicated chains are called starches. Starches are broken down into their constituent sugars units in our mouths and intestines. The sugar units are then absorbed by the intestine into the blood stream.

Carbohydrate is stored in the body as glycogen in both the liver and muscles. During exercise glycogen is broken down into glucose to supply the working muscles with energy. An inadequate intake of carbohydrate rich foods leads to incomplete muscle glycogen stores. This will cause early fatigue, and will affect your daily training and performance.

HOW MUCH CARBOHYDRATE?

SITUATION	RECOMMENDED CARBOHYDRATE INTAKE
Light Activity (3-5 hours a week)	4-5g per kg body weight / day
Daily refuelling needs for training programs less than 60-90 min per day or low intensity exercise, for example out of season training	5-7 g per kg body weight / day
Daily refuelling for training programs greater than 90-120 min per day	7-10 g per kg body weight / day
My weight is _____ kg	My carbohydrate requirement is _____ g

CARBOHYDRATE AND GLYCAEMIC INDEX

The glycaemic index (GI) is a rating given to individual carbohydrate foods according to how fast they cause blood sugar to rise after consumption. Foods are rated on a scale of 0 to 100. High GI foods will rapidly boost blood glucose levels (e.g. bread, sports drinks, breakfast bars, biscuits, jelly sweets), and low GI foods will take longer to peak (e.g. yoghurt, porridge, lentils, apples, nuts).

TIP

Topping up low or empty glycogen stores after prolonged or high intensity exercise is essential to guarantee adequate stores for your next session. This can be achieved by consuming a high glycaemic index snack (providing 1g of carbohydrate per kg body weight) within 2 hours, or within 30 minutes if you plan to exercise again within 8 hours.

HOW TO INCREASE YOUR CARBOHYDATE INTAKE...

- Base every meal around a carbohydrate rich food, such as: bread, breakfast cereal, potatoes, rice, and pasta.
- Consume a high carbohydrate snack between meals, such as: fruit, wholemeal scone, low-fat yoghurt, dried fruit, cereal bar, fruit bread, fruit smoothie.
- Use thicker slices of bread.
- Choose deep pan rather than thin based pizzas.
- Add potato to soups and salads.
- Eat boiled/ mashed/ baked potatoes instead of chipped or roasted.
- Try boiled rice/pasta with stews and curries for variety.
- Pasta and rice mixed with beans/peas/sweetcorn or raisins make tasty salads.
- Add fresh or dried fruit to breakfast cereals and desserts.
- Make your own "high carbohydrate" smoothie with fresh or tinned fruit, low-fat yoghurt and honey or sugar.

TIP

Prepare dinners in large quantities and put leftovers in single portion microwavable containers. These can be kept in the freezer for weeks and reheated at times when you have no time to cook from scratch.

Note: food should only be reheated once.

**EAT LARGE AMOUNTS OF
NUTRITIOUS CARBOHYDRATE
RICH FOODS**

Breakfast cereals, porridge,
Bread – all types, wholemeal scones,
Potatoes, pasta, rice, cous cous,
noodles,
Pizza bases, pitta bread, oatcakes
Sweet potato, root vegetables,
sweetcorn,
Beans (e.g. kidney, butter), peas, lentils
Fruit – fresh, dried, stewed, tinned,
Fruit juice, low fat smoothies,
Low fat yoghurt, cereal bars, popcorn

**EAT SMALLER AMOUNTS OF LESS
NUTRITIOUS CARBOHYDRATE
RICH FOODS**

Jam, honey, marmalade,
Boiled sweets, jellies,
Fizzy drinks, fruit squash,
*Desserts (meringues, ice cream, jelly)
*Cakes, fruit scones, jam sponge,
Crackers, crispbreads,
*Biscuits, low-fat muffins,
Sports gels, energy bars, sports drinks

** Take care with fat content*

TIP

To prevent tooth decay when following a high carbohydrate diet it is important that you brush your teeth regularly.

PROTEIN

Protein is necessary for growth, maintenance, and repair of body tissue. Athletes taking part in strength and endurance sports have higher protein requirements than non-athletes. However, most athletes can meet this increased requirement through a varied balanced diet, which meets their energy needs. It is generally not necessary to take specialised protein powders / bars / supplements.

GOOD SOURCES OF PROTEIN

Lean meat
Chicken/turkey
Fish
Eggs
Low fat/skimmed milk

** high in fat*

Low fat yoghurt
Pulses (peas, beans, lentils)
* Cheese (choose lower fat varieties)
* Nuts

Vegetarians and vegans will need to take special care to ensure their diet is properly balanced (see your sports dietitian if you have any questions)

TIP

Beware of protein powders, and food supplements, which claim to stimulate muscle growth. These products can contain, or may be contaminated with, banned substances – always consult your coach or a sports dietitian.

PROTEIN POST TRAINING

Current research suggests that after a heavy / strenuous training session most athletes will benefit from taking a small amount of extra protein along with their post training Fluid and Carbohydrate snack.

The requirement of protein post training varies depending on your body weight (approx 0.2g / kg body weight is recommended). See table below to calculate your snack.

- 1 slice turkey / ham / chicken = 7g protein
- 1 Natural yoghurt (125ml pot) = 6g Protein
- 1 small tin tuna (100g tin) = 19g Protein
- 2 low fat fruit yoghurts (125 ml) = 11g Protein
- 1 Egg = 7g Protein
- 25g Skimmed milk powder (5 heaped tsp) = 9g protein
- 330mls Low fat milk (1/2 pt) = 11g Protein
- 500ml Lucozade Recovery = 18g Protein
- 40g Peanuts = 10g Protein
- 30g Low fat Cheddar Cheese = 10g protein
- 50g Cashew Nuts = 10g Protein
- 40g Edam Cheese = 10g Protein
- 60g Feta Cheese = 10g Protein

My weight is _____ kg

My post training protein requirement is _____ g*

**weight in kg x 0.2*

FAT

Small amounts of fat in your diet are necessary. However, for athletes a high fat intake is generally not recommended as it increases the risk of excessive gains in body fat, and results in lower carbohydrate intakes.

HOW TO CUT DOWN ON FAT

- Limit your intake of high fat foods (see list below)
- Grill, boil, steam, braise or microwave food instead of frying.
- Eat chicken, turkey and fish regularly.
- Lean red meat is a good source of iron and can be included 2-3 times a week.
- Trim visible fat from meats and skim fat from casseroles and stews.
- Use low fat, monounsaturated/polyunsaturated spread
- Use low-fat, vitamin enriched, or skimmed milk instead of full-fat.
- Choose low-fat cheeses such as "light" cheddar, Edam, Gouda, Feta, Camembert, Cottage or low-fat cheese spread.
- Substitute low-fat yoghurt/fromage fraise for cream
- Use fat-free or vinegar based dressings, mustard, or chutney instead of mayonnaise, on salads and sandwiches.

FOODS HIGH IN FAT INCLUDE

Butter, margarine, cream, full fat dairy, mayonnaise, fat on meat, processed meats, fried food, pastries, crisps, cakes, and chocolate.

TIP

Include small amounts of unsaturated or "good fats" in your diet. Sources include oily fish (e.g. salmon, tuna, sardines, and mackerel), vegetable oils (e.g. olive, sunflower, canola), nuts and avocado.

FLUIDS – Keep your cool

During exercise fluid loss from sweating can be very high, particularly in warm weather. This can lead to progressive dehydration, which will impair performance and is a potential health risk.

HOW MUCH FLUID DO I NEED?

BEFORE EXERCISE: Drink 300-600ml in the 15 minutes prior to exercise.

DURING EXERCISE: The general recommendation to athletes is to drink 150-200ml every 10-15 minutes but it is better to individually assess (see below).*

AFTER EXERCISE: Replace all fluid lost during exercise (see below).*

***To check you are drinking enough...**

Weigh yourself undressed before and after exercise. Try to keep weight loss below 0.5 kg by increasing fluid intake during exercise. After exercise you must drink 1.5 litres of fluid for each kg of weight lost.

WHAT SHOULD I DRINK?

BEFORE AND DURING EXERCISE

- Isotonic sports drinks, e.g. Club Energise Sport, Gatorade, Lucozade Sport, Powerade.
- Homemade carbohydrate-salt solutions (see next page)
- Water.

AFTER EXERCISE

- Isotonic sports drinks and homemade carbohydrate salt solutions.
- Hypertonic sports drinks, e.g. BPM, Club Energise, Lucozade Original, Lucozade Energy.
- Soft drinks.
- Water.

HOMEMADE SPORTS DRINKS

You can make your own sports drinks using these recipes:

1. 40-80g sugar or glucose powder.
1 litre water (previously boiled and cooled).
1g salt.
2. 500ml fruit juice.
500ml water (previously boiled and cooled).
1g salt.
3. 200ml fruit squash/cordial.
800ml water (previously boiled and cooled).
1g salt.

For 1 to 3 above mix all ingredients together until dissolved.

REMEMBER!

The fitter you are the more you sweat and the more fluid you need.
Thirst is a poor indicator of dehydration.

TIP

After exercise, always look after your rehydration and refuelling needs before consuming alcohol.

VITAMIN AND MINERALS

Active people need to make sure they consume adequate vitamins and minerals to meet the demands of exercise. A varied balanced diet which includes plenty of fruit and vegetables – at least 5 portions a day – will ensure that your vitamins and mineral needs are met. Some athletes have higher requirements for iron and calcium, such as female athletes and adolescents. Particular attention should be made to these nutrients.

GOOD SOURCES OF IRON:

Lean red meat
Chicken
Eggs
Legumes

Fortified breakfast cereals
Nuts
Dried fruit e.g apricots, raisins
Spinach

GOOD SOURCES OF CALCIUM:

DAIRY

Low fat milk, low fat yoghurt,
Cheese – choose low fat varieties,
Smoothies,
Custard, milk pudding

NON DAIRY

Calcium enriched soya milk,
Tinned fish (with bones),
Green leafy vegetables,
Nuts, dried figs
Calcium-enriched fruit juice

TIP

Many athletes routinely take a multivitamin/mineral supplement daily if they are unsure how balanced their diet is. However, unless advised by a doctor or dietitian, you should avoid taking large doses of any single vitamin or mineral as this may do more harm than good. Check on www.eirpharm.ie for permitted vitamins & mineral brands allowed in sport.

PUTTING IT ALL INTO PRACTICE

Turning theory into practice requires organisation and planning, and can be difficult if you have a hectic work and/or training schedule. Here's some advice to make it easier for you to eat well.

KIT BAG ESSENTIALS

It is very important to take a high carbohydrate/protein snack immediately after exercise to refill your glycogen stores in preparation for your next training session.

*** HIGH CARBOHYDRATE SNACKS**

Sports drinks (e.g. *Club Energise, Gatorade, Lucozade Sport, Powerade, Isostar* or a home made solution)
Fruit juice, fruit squash
Bread / roll filled with jam or honey
Dried fruit, banana
Breakfast or cereal bar (e.g. *Nutrigrain, Fig Roll, McVities am/pm bar*)
Jellies, pastilles, marshmallows

*** HIGH CARBOHYDRATE AND PROTEIN SNACK**

Ham/tuna/turkey sandwich
Flavoured milk
Yoghurt drink
Fruit smoothie (*fruit juice, milk and yoghurt*)
Protein enriched sports drink, e.g. *Lucozade Recovery*
Sports drink enriched with skimmed milk powder
Meal replacement shake or bar

** Quantities required depend on your weight, sport and training schedule – consult a sports dietitian for further advice.*

The seemingly harmless lunch box and drinks bottle are potential breeding grounds for germs. The key recommendation is that both lunch boxes and drinks bottles should be taken home after sport, emptied and washed thoroughly in soapy warm water before reuse.

Hand washing is the single most effective means of preventing the spread of germs. The message is simple – always wash your hands before eating food.

KITCHEN ESSENTIALS

FOR THE CUPBOARD

GRAINS AND FLOUR

Pasta shapes, Spagetti,
Rice, Noodles (fat-free), Cous Cous,
Breakfast cereal, Porridge oats,
Bread – preferably wholegrain
Pitta bread, tortilla wraps,
Breakfast bars,
Low fat biscuits e.g. fig rolls, rich tea,
café noir, jaffa cakes

CANNED/PACKET/JAR FOODS

Tuna/salmon/sardines in tomato
sauce/brine
Baked, butter, kidney beans
Chick peas, lentils, sweetcorn
Tomato and vegetable based pasta sauce
Tinned fruit – in natural juice
Dried fruit
Reduced fat soup
Soya sauce, Curry powder
Low fat or fat free dressing
Mustard, Relish, chutney
Skimmed milk powder

HERBS AND SEASONINGS

Chicken/vegetable stock cubes
Olive oil
Mixed herbs, Pepper
Tube garlic paste
Tube tomato puree

FOR THE FRIDGE

Low fat or fortified milk
Fruit juices
Lean cold meat e.g. turkey, ham
Eggs
Sports drinks
Low fat yoghurt (dairy or soya) Low
fat cheese e.g. light cheddar, cottage,
feta, edam, gouda
Mono/Polyunsaturated margarines
Low fat custard
Cartons fresh soup
Low fat or fat free salad dressing

FOR THE FREEZER

Bread/bake at home rolls
Pitta bread
Lean beef/pork strips
Lean mince
Chicken fillets
Frozen vegetables
Pizza bases
Leftovers of previously cooked meals
e.g. bolognaise sauce, chicken curry
etc.
Low fat ice cream/sorbet

Nutritional needs and dietary preferences differ greatly from person to person. This booklet gives general advice to help you achieve a well balanced diet to fuel your sport. If you need more information on nutrition and athletic performance, or if you wonder whether your eating habits help or hinder your training programme, talk to a qualified, accredited sports dietitian. He/she can evaluate your diet, determine your individual nutritional needs and advice on foods for optimizing your sporting performance.

FOR MORE INFORMATION CONTACT:

The Irish Nutrition and Dietetic Institute,
Ashgrove House,
Kill Avenue,
Dun Laoghaire,
Co Dublin.

Tel: 01 2804839
Email: info@indi.ie
Web: www.indi.ie



For up to date information and advice on food and hygiene please go to www.safefoodonline.com or call **safe food** on 0800 085 1683 (NI) or 1850 404 567 (ROI).