



NUTRITION HANDBOOK.

Introduction

Football is a high-intensity game that requires both strength, power and endurance over prolonged periods.

An average professional football player will cover approximately 11-13km (6.8 - 7.7 miles) during a competitive match, 1000-1400m of which consists of very high intensity running (e.g. short, fast sprints for the ball).

All this leads to fatigue as the match progresses. As you get tired, you are not able to play at the intensity you did at the start of the game. Most players significantly reduce their stores of energy during a game; they literally run out of fuel. Obviously this seriously limits performance, especially during the last quarter of the game and can affect the outcome of a match.

Professional players also have to be able to play competitive matches within a few days of each other. With just 2-3 days between games, players must be aware of how to replenish energy stores and promote optimal recovery.

Therefore knowing how to restore and preserve energy stores is an essential part of a player's preparation. In addition, players lose considerable amounts of fluids during a game, so rehydration is also critical.

Your Individual Needs

Each player is different from the next. We are as different on the inside as we are on the outside. Each player needs different foods to be at their best.

Most nutritional handbooks will tell every player that they need a high carbohydrate (70%), low fat (10%) and moderate protein diet (20%). Most players are told that they should eat lots of pasta, rice, potatoes, bread, fruits and vegetables with some low fat proteins such as chicken and fish. This approach may work well for some players, but may not be the best for others.

An Example (based on Premiership players):

Player 1 needs a high protein (40%), high fat (30%) and lower carbohydrate (30%) diet to be at their best. They also need foods that will make their cells become more alkaline, because they are currently too acidic.

Player 2 needs a high carbohydrate (60%), moderate protein (25%) and low fat (15%) diet to train at their best and recover well. They need foods that will make their cells more acidic, because they are currently too alkaline.

Player 3 needs a very well balanced diet, based on 35% carbohydrate, 40% protein and 25% fat. They need a balance of foods that have both an acid and alkaline effect to keep them in a neutral balance.

As you can see, there is a big difference between the needs of different players. There are some suggestions in this handbook on how you can find out which foods you need to help you perform at your best consistently and recover more effectively after games and training sessions.

How To Find The Best Foods For You.

There are several ways to find out what the best foods are for you.

- ❖ You can experiment with different types of food to find out how your body reacts to them.

Try different types of meals and discover how you feel approximately 2 hours after eating them.

For example:

High Carbohydrate

Baked potato with coleslaw and salad. Follow this with fruit.

High Protein

Lean steak and eggs with mushrooms and tomatoes. Follow this with nuts if needed.

High Fat

Salmon steak with cheese, avocado, and salad. Follow this with olives and / or nuts if needed.

Balanced Meal

Pork loin stir fry (beansprouts, peppers, onions, mushrooms), cooked in olive oil and served on a bed of rice. Follow this with a few handfuls of nuts.

It is advisable to try these on days off. If a certain meal is not right for you, it will probably leave you feeling a little lethargic and sluggish. If you find yourself yawning about 2 hours after you've eaten, or you suffer from an energy slump, or lack of concentration, it is a good sign that it was not the best meal for you.

Some Pointers

Generally do you feel...?

2 hours after eating do you...?

- | | |
|---|---|
| <ul style="list-style-type: none">• Feel energised• Feel more alert / awake• Have improved sense of well-being• Better able to concentrate• Feel satisfied / not hungry anymore | <ul style="list-style-type: none">• Have sweet cravings• Feel physically full but need something else to eat• Feel either too hyper or a bit lethargic / drowsy• Feel mentally slow / sluggish• Get flat spots• Get hungry quickly |
|---|---|

It is also a good idea to try each type of meal more than once, to see whether your body reacts the same way each time. Sometimes you feel tired anyway (because of heavy training or lack of sleep), so this tends to effect how you feel after your meal.

- ❖ If you feel good with the high carbohydrate meals, it may be best to adopt a high carbohydrate diet, with moderate protein and low fat.
- ❖ If you feel best from the balanced meals, then try to eat meals that are approximately 40% carbohydrate, 40% protein and about 20% fats.
- ❖ If you feel best with the high protein or high fat meals, then you are most likely to perform and recover best with approximately 40% protein, about 30% fats and maybe only 30% carbohydrate.

If you keep relating the food that you're eating and your energy levels, sweet cravings, mental clarity and signs of fatigue, you will slowly become aware which foods suit your body best.

Essential Nutrients

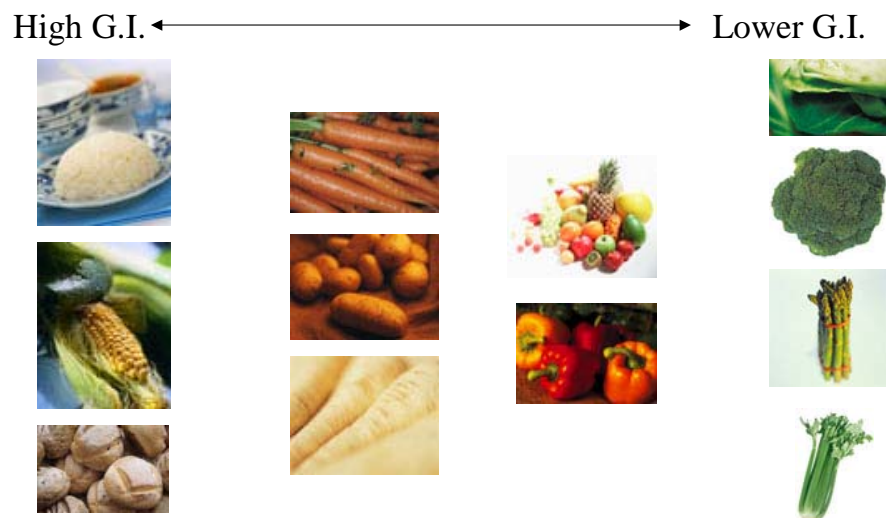
Carbohydrate

1g of carbohydrate provides 4Kcal of energy.

Good sources of carbohydrate are: fruits, rice, vegetables, porridge, potatoes and some cereals (such as rye, oats and corn).

There are many types of food that are classed as carbohydrates. Each of them affects your blood sugar levels slightly differently. Some foods will cause your blood sugar levels to rise a lot, whilst others have a smaller impact. The Glycemic Index (G.I.) shows the effect that the foods have on our blood sugar. High G.I. foods have a bigger impact.

The G.I.



For some people, those that do well on high carbohydrate meals, High G.I. foods are good. For those who do better on protein and fats, Lower G.I. foods are usually better.

Carbohydrate provides an important source of energy during a match. It is the fuel that helps us to produce high-intensity exercise (such as sprints, jumps and high speed runs). It is therefore important for all players to have good quality (and slightly higher G.I.) carbohydrates in the lead up to a game.

It is well accepted that endurance exercise performance is enhanced by increasing carbohydrate (glycogen) availability before and during strenuous exercise. There is also increasing evidence that increased carbohydrate availability will enhance high intensity exercise performance as well.

Fats

1g of dietary fat provides 9Kcal of energy (more than double the energy of carbohydrates).

Good sources of fat include oils, butter, meat, whole milk, avocados, oily fish (such as salmon, mackerel, sardines, kippers, etc), olives and nuts.

Fat provides a concentrated source of food energy (which you use for the low intensity work) and is essential for body function. Fat contains some vital vitamins such as A, D, E and K. Fats are also form the building blocks for essential bio-chemical structures such as hormones, enzymes and prostoglandins (which all do vital jobs in the body). They also work with proteins to help boost the immune system and provide essential fuel to power the heart muscle and the brain. In fact, fats are vital in helping your nervous system (brain and nerves) recover after intensive exercise.

However, we must be careful to eat a balance of the different types of natural fats and AVOID processed fats (e.g. margarine, low fat spreads, poly unsaturated fat, hydrogenated vegetable oils and many cooking oils). Think of fats in terms of white fats (which you get on meats, dairy products, cheese and the fats in eggs etc) and oils (from fish, olives, nuts, avocados, coconut milk, and seeds etc). A good balance of these types of fat is the ideal combination.

Protein

1g of dietary protein provides 4Kcal of energy (the same as carbohydrate).

Good sources of protein include meat, poultry, fish, milk, dairy products, eggs and pulses.

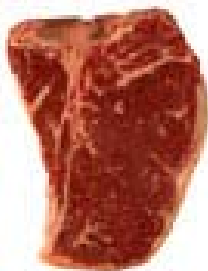
Some players will use protein (and fats) as their primary fuel source in day to day training and life. If you do better with high protein and high fat meals, this is probably you. Protein and fats both provide a long term energy supply. In football performance, they also provide the fuel for your low intensity work (which makes up about 80-90% of the game).

Amino acids (components of protein) can be turned into energy for exercise, using oxygen. During moderately intense, prolonged exercise, amino acids serve as an important auxiliary fuel source as carbohydrate availability is reduced. Players who use proteins and fats during the low intensity periods in the game will be able to save their carbohydrate stores which will help them produce the higher intensity sprints at the end of a game.

Protein is also the material that builds up and repairs muscle. Therefore, protein is important in the recovery process, especially when you have games or demanding training sessions with little rest in between.

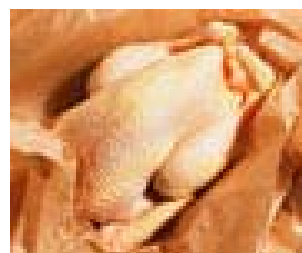
As with carbohydrates, proteins are not all the same. Some are heavy proteins (high purine - red meats) and some are lighter (low purine - white meats). Some players (those who do well on high protein and fats) will have a body that needs more of the high purine proteins. Those who have a greater need for carbohydrates will probably need lower purine proteins.

High Purine.



Red meats and dark meats

Low Purine



White meats and light meats

Vitamins & Minerals

It is not just carbohydrates, fats and proteins that are important for performance and recovery. Vitamins and minerals are essential. Your body could not function without these little nutrients because they do so many vital jobs. In terms of performance, vitamins and minerals play a large part in releasing energy from energy stores. They also help your immune system to fight harmful bacteria that can cause you to feel less than 100%.

Vitamins and minerals come from a wide variety of foods and drinks. Fresh fruits and vegetables contain very good sources of vitamins and minerals. However, an individual fruit or vegetable only has a certain amount of vitamins and minerals. It probably will not have traces of all of them. If we eat a wide variety of fruits and vegetables, we stand a good chance of getting most of the vitamins and minerals that we need. It is a good idea to use the colour code as a guide. If you eat a wide range of different coloured fruits and vegetables, you will get most of the vitamins and minerals that you need.

Other vitamins and a relatively high proportion of minerals come in meats. Our body does not need as many of the vitamins, and it does not usually need them every day, but they are still important. We do need the minerals in meats though!

Minerals also come in sources such as spring water / mineral water.

Most of the vitamins that we need are known as 'water soluble'. They usually come in fruits and vegetables. These vitamins pass through our bodies every 12-24 hours and therefore need to be replenished on a daily basis. Many people try to get their quota of vitamins by taking a daily supplement. These are not the best source of vitamins because the body cannot easily absorb them. Your body needs other substances (such as enzymes & fibres) with the vitamins, to be able to absorb them. Without these, many of the vitamins in a multivitamin supplement will pass through the body and into the toilet.

Fluids

Dehydration has been shown to severely affect both performance and recovery. Research has shown that if you are dehydrated by just 1%, your performance can decrease by 8-10%! It is very important to make sure that you drink water regularly. You should try to drink 2-3 litres of water a day! One way to make sure that you're drinking enough is to monitor the colour of your pee. If it is dark then you're dehydrated. If it is pale or clear then you are fully hydrated. Another indicator is the smell. Strong smelling pee is a sign of dehydration.

Also, try to avoid squash, coffee, tea and fizzy drinks as they inhibit the rehydration process, and can actually make you more dehydrated!!

Sports Drinks

Sports Drinks are good immediately before training or matches (within 5-10 mins before you start), during training or at half time, or straight afterwards. They are not recommended generally throughout the day or within 2 hours of training or a game (except for the 5-10 minutes immediately before you start). Most sports drinks are very high in sugar, which is not good for the body. During training or a match, the body will be able to use some of these sugars. Outside of training it will actually make you feel tired and slow you down.

Water

Water is by far the most important fluid for your body. It is absolutely essential for almost every chemical reaction within the body, it makes up the majority of your blood plasma and it helps every single cell function properly. You also need it to help reaction times, and concentration levels. If the brain becomes dehydrated, it cannot process messages quickly or efficiently.

It is better to drink mineral water than tap water as a rule. Tap water contains chemicals such as chlorine and fluoride that are toxic to the body and kill the 'good bacteria' in your stomach.

Pure Foods v Manufactured Foods.

Your body was designed to use natural foods for its nutrients. As human beings evolved, we ate meats, poultry, fish, vegetables, fruits, eggs, nuts, berries, seeds and some grains. All of these foods are natural and have great nutrients. These are *pure* foods. When we look at them, we know exactly what they are. For example we know exactly what we're eating when we have a plate full of steak, with potatoes and vegetables.

Nowadays, we tend to eat a lot of foods that come out of factories, such as pizzas, pastries, pies, breads, cakes, pastas, biscuits, tinned foods, sauces, etc. When we look at these, we cannot tell exactly what is in them. For example, do you know exactly what they put into sausages or burgers? Most of these foods contain a lot of substances that our body cannot deal with. A lot of *manufactured* foods are high in chemicals such as preservatives, colourings, flavours, emulsifiers, stabilisers and bulking agents. These chemicals are not natural and therefore not good for our body!

Manufactured foods also tend to be high in the following substances that are also not good for the body:

- Processed sugar
- Processed salt
- Processed fats & oils (known as trans fats)
 - These are things like margarines that we mentioned earlier
- Processed wheat (e.g. flour)

It is a very good idea to look on packets of foods to find out exactly what they do have in them. You literally are what you eat, so make sure you eat really good quality nutrients.

Match Day Stages

Pre-match

Footballers should plan to have their pre-match meals at least 3-4 hours before a match. This allows the stomach to empty and blood, and insulin levels to return to normal. You should also drink 300ml of fluid.

The meal should contain a high amount of carbohydrates (in the form of potatoes or rice), and lower purine proteins (such as chicken or white fish) that are easier to digest quickly. It is also good to have a decent level of vegetables and some fruits (not too many for protein and fat eaters) during the pre-match.

Glucose based food sources (such as energy drinks) that are drunk immediately prior to exercise can help performance. It is a good way of increasing fluid intake and topping up the body's carbohydrate stores. However, when a glucose solution is taken 30-60 minutes before exercise, it has been found to reduce performance. The reason for this is that the glucose causes a rise in insulin. The insulin reduces the supply of fatty acids to the blood, and stores the majority of the glucose in the muscle, and also in the liver. When this happens we get an energy slump. When glucose is taken immediately before exercise, the insulin levels and fatty acid concentration are not affected because you have a high level of adrenaline in your blood as you exercise.

During the match

Carbohydrates should also be consumed during a match but only in small quantities. You can take on board Sports Drinks to delay fatigue. You can consume it in liquid form. It is proved that glucose sports drinks e.g. Lucozade sport improve performance, throughout prolonged exercise.

During a match a player will lose water, mainly through sweating and evaporation, therefore it is important to drink water.

Post-match

The refuelling process should start as soon as possible after competition or a training session. The best time to start consuming proteins, carbohydrate and essential fats is within the recovery period (about 30 minutes after the exercise). This is the time that nutrients are restored quickest. Eating good quality carbohydrates helps replenish stores. In addition, you need proteins to help the muscle tissues recover and fats to aid nervous system recovery. You can get a head start in your recovery by taking protein shakes 30-45 minutes after finishing the game.

Players also need to drink lots of water to help recovery. Most players need a minimum of 1 litre of water, but this depends on body size and the weather. During pre-season games, professional players can lose up to 3.5 litres of water! You can test how much water you lose by weighing yourself before and after exercise. If you lose 1kg, it's equivalent to 1 litre of water. On average adult players lose between $1\frac{1}{2}$ and $3\frac{1}{2}$ litres of fluid during a match. Obviously fluid loss is higher in bigger players and hotter or more humid conditions.

Menu Ideas.

High Carbohydrate.

DAY	MAIN MEAL
Monday	Mediterranean Chicken (tomato, onion, pepper sauce), potato and broccoli.
Tuesday	Ham / Gammon steak with pineapple and veg
Wednesday	Turkey stir fry (bean sprouts, peppers, onion etc), with rice.
Thursday	Pork steaks on a bed of spring greens, and veg.
Friday	Cod steak in tomato, onion & pepper sauce on rice.
Saturday	Chicken stir fry and rice
Sunday	White Tuna serves with aubergine, courgettes and onions.
Monday	Pork topped with apple, served with broccoli & sprouts.
Tuesday	Cod wrapped in ham, served with potato and veg.
Wednesday	Spicy Chicken (your favourites), pan fried with veg.
Thursday	Spanish Omelette, peppers, onions, tomatoes and courgette strips.
Friday	Turkey pan fried in garlic on bed of spring greens (with melted garlic butter) with mixed veg.
Saturday	Pork loin and roasted winter veg (sweet potato, potato) and sprouts.
Sunday	Oven baked cod (with herbs / spices*), with steamed veg.

High Protein / High Fat

DAY	MAIN MEAL
Monday	Chicken, bacon & avocado warm salad (with mushrooms).
Tuesday	Beef steak (as you like it), with a few sliced potatoes (lightly fried in a little butter), carrots and peas.
Wednesday	Pork topped with apple and cheese, served with cauliflower and green beans.
Thursday	Lamb steaks and roasted winter veg (carrots, winter squash & potatoes) - make sure of your proportions.
Friday	White Fish & prawns, served with a small helping of cheesy mash and peas.
Saturday	Seared salmon steaks and asparagus, served with a few potatoes or carrots.
Sunday	Marlin, Swordfish or Tuna, served with asparagus, green beans and carrots.
Monday	Trout (pan fried in butter and topped with almonds), with veg or salad leaves (e.g. spinach)
Tuesday	Home-made burgers (mince, onions, spices and herbs in the blender), served with mushrooms and carrot chips (lightly pan fried).
Wednesday	Spicy Chicken (your favourites), an fried with veg.
Thursday	Seared beef steak strips and lightly fried mushrooms served on a bed of salad leaves.
Friday	Pork stir fry (with celery, mushrooms, and bean sprouts (just this once)), with egg fried rice (good on the egg, lighter on the rice).
Saturday	Lamb cutlets and roasted carrots and potatoes.
Sunday	Oven baked cod (with herbs / spices*), with steamed veg.

Balanced.

Use a combination of the menus, to access all of the various foods that you need. As long as you keep your proportions right, you are likely to feel good on all of these meals.

Snack Ideas.

Many players can eat reasonably well when it comes to meal times, but lose it when it comes to snacking. Many players reach for the first thing that comes to hand, which is usually chocolate, crisps, biscuits, a sandwich, toast or cereals. All of these are high in processed carbohydrates and therefore not good for us!

So what can we do?

Type of Person	Recommended Snacks
High Carbohydrate	Oat based cereal bars such as Flapjack, Jordan's Organic Crunch bars, Tesco Organic Crunch Bars, Eat Natural Bars etc. Fruit Most Organic Bio-Yoghurts. Rice Cakes / Oat biscuits
High Protein & Fat	Nuts!! (most types, but un-roasted and un-salted are best) Ham Boiled Eggs Most Organic Bio-Yoghurts.
Balanced	All of the above.

FOR FURTHER INFORMATION ON SPORTS NUTRITION, GO TO WWW.SENSE-UK.COM OR EMAIL INFO@SENSE-UK.COM