

# Nutritional Basics

Generally a rugby players' diet should comprise of the following:

- 60-65% carbohydrates
- 20-25% fats
- 10-15% protein

Five different food groups provide the six basic nutrients needed to sustain normal life. The five food groups are cereals, fruits/vegetables, dairy products, meats and oils. Some are called macronutrients such as carbohydrates (sugars), fats (lipids), proteins (amino-acid chains), water, and others are called micronutrients such as vitamins and minerals.

## Carbohydrates

Remember, to meet the energy demands for training and competing, you need food that can be broken down into energy and used by your body. Carbohydrates are the most suitable sources of fuel for rugby players, and should make up the bulk of their caloric intake.

When you eat carbohydrates, they are broken down into simple sugars by the digestive system and carried out of the small intestine through the blood. Some of these sugars are used immediately, and some are stored as glycogen to be used later when energy is needed. This is known as glycogen storage.

Intensive training and playing games places heavy demands on your glycogen stores. As these stores decrease, your performance will drop and fatigue occurs. Avoiding depleted glycogen stores is therefore obviously of paramount importance for the player.

A basic guideline for ensuring you have enough glycogen stored is by basing your carbohydrate intake on your body weight and activity level.

Use the following as a guideline:

### Weekly Training

2 rugby field training sessions (90min) and 1 match  
2 rugby field training sessions (90min), 2 gym sessions,  
1 fitness session, 1 speed session and 1 match  
Off-season recovery phase, 3 light 30-40min aerobic  
sessions

### Daily Carbohydrate Intake (per kg body weight)

5-7g

8-10g

4-5g

## So where can you find carbohydrates?

The following are some foods that have a high value in carbohydrates:

- Fruits and juices such as banana, apple, grapefruit and orange.
- Bread (preferably whole grain)
- Cereals (whole bran)
- Pasta (whole grain)
- Potatoes
- Rice
- Pizza

Different types of carbohydrates vary in the rate they are absorbed, digested and therefore how they affect your blood sugar levels. Each food has a glycemic index (GI) which is used to describe that rate at which that particular food will raise blood sugar (glucose) levels. The body responds to increased blood sugar levels by releasing the hormone insulin to regulate it.

Foods are classified into three main categories according to their glycemic index, namely high GI, moderate GI and low GI.

High GI foods, such as white bread and honey, are rapidly broken down into glucose and quickly increase blood sugar levels with a resultant large production of insulin to regulate the raised sugar levels. The problem with eating too many high GI foods, and at the wrong time, is that the rapid rise in sugar levels will result in a large production of insulin. If the body does not need the extra sugar immediately it is stored for later use and body fat levels increase.

Low GI foods, such as apples and oats, are broken down into glucose more slowly and therefore result in a less

insulin production. Moderate GI foods create a response somewhere in between.

### Some examples of foods in the three different GI categories

#### High GI >85

White bread  
Watermelon  
Honey  
Sports & soft drinks  
Muesli  
Ice cream  
Croissant  
Carrots  
Raisins  
Glucose, sucrose, maltose

#### Moderate GI 60<GI<85

White rice  
Sweet potatoes  
Sweet corn  
Pita bread  
Orange  
All Bran cereals  
Mango, grapes  
Bananas, papaya  
Popcorn  
Basmati rice

#### Low GI <60

Apples  
Beans  
Grapefruit  
Fructose  
Spaghetti  
Lentils  
Yoghurt  
Tomato  
Peanuts  
Pears, peaches

Low GI index foods are more suitable for fuelling training and competition and reduce the likelihood of increasing body fat. High GI foods are more beneficial to be taken immediately after exercise as the blood sugar is quickly returned to normal levels and most sugar taken in is used immediately, decreasing the chances of storage and body fat increases.

### General Guidelines for Carbohydrate Intake

- Use the guideline given to balance your carbohydrate intake with your body weight and training demand.
- Prioritise to eat low GI, carbohydrate rich food as the bulk of your normal diet.
- Get the timing of eating high GI foods right. That is mostly immediately after exercise.
- Rather eat smaller more frequent meals to encourage blood sugar stability and steady energy levels.
- Try to eat complex carbohydrates about three hours before a hard training session to boost glycogen levels.
- Limit the intake of refined simple sugars, such as white bread and sugar.

### Proteins

Proteins are a chemical chain of smaller substances called amino-acids. Of the 20 known types of amino-acids, 9 are essential for body development. They cannot be produced by the body and must come from outside sources, your food.

The 9 essential amino-acids are leucine, isoleucine, lysine, methionine, threonine, phenylalanine, tryptophan, valine and histidine. Of these the 3 essential for energy production are: valine, isoleucine and leucine.

The major functions of these proteins is to:

- Help muscle grow, repair and maintain muscle fibre integrity.
- Help regulate body metabolism
- Provide energy as a back up to carbohydrate and fat.

Rugby players need higher levels of protein intake than the average person due to their increased needs of muscle repair and growth from weight training and the contact nature of the game.

There is a tendency for players to take in too much protein in the belief that more is better and large doses of protein will result in better muscle and strength gains. However if too much protein is ingested, some will be metabolised as fat and stored, the rest will be metabolised in urea and other toxic by-products and eliminated from the body. If this occurs in excess the kidneys will be overused and dehydration can occur.

### So how much protein should you be taking?

Like with carbohydrates, protein intake should be regulated according to your body weight and volumes of strength, power and contact training. The general recommended amount of protein to be taken by players is in the range of 1.5 to 2.0 grams of protein per kg of body weight.

Players who want to increase or maintain muscle mass could need up to 2.2 g/kg of body weight in their diet each day if they are training at high intensities, specifically in the gym.

## Sources of protein

The two sources of protein are animal and vegetable.

Some good animal protein includes:

- Lean beef
- Chicken
- Turkey
- Fish (Salmon and Tuna)
- Milk
- Eggs
- Cottage cheese

Some good vegetable protein includes:

- Beans
- Lentils
- Corn
- Peanuts
- Tofu

## General Guidelines for Protein Intake

- Try to include protein in most of your meals.
- Vary the source of protein such as, eggs, fish, chicken, etc.
- Monitor the fat content of your protein intake.
- Use the given guideline of daily taking in 1.5-2.2grams of protein per kg of body weight to ensure you are getting enough protein.
- Use a protein shake to supplement deficiencies if needed.