

Performance**Nutrition**

FOR CLUB RUGBY PLAYERS



SCOTTISH
RUGBY



Baxters

OFFICIAL TRAINING PARTNER
OF SCOTTISH RUGBY

Baxters



Maximising Performance

Practising quality sports nutrition principles is fundamental to the achievement of training and competition goals. As a rugby player the high physical demands you face on and off the pitch must be supported by the correct nutrients to ensure maximal strength and power output and aerobic fitness to compete.

Sports Nutrition is more than just eating healthily. It is about promoting and supporting your physical hard work and effort on the field and in the weights room, allowing for body adaptations to occur, aiding recovery and allowing you to do it all again and achieve your personal training goals.

As a member of a squad, you will have team goals and very individual training and nutrition goals depending on your field position, body composition and level of play. And as a club player you will have personal work, study, family and general life responsibilities that can add further complications to meeting your nutritional goals.

Therefore it is important you become aware of and understand nutritional recommendations that can help you meet your performance goals, promote team success and your general health while maintaining training and life balance.

Frank Hadden





Maximising Performance

About the Author

**Lorraine Cullen, Sports Nutritionist,
BSc, MSc, ASD, SRD**

Lorraine Cullen is a Sport Science honours graduate of Strathclyde and Queen Margaret universities, specializing in MSc Dietetics and Sports Nutrition. After having held the position of Sports Nutritionist at the Australian Institute of Sport in 2003, Lorraine became the Lead Sports Dietician at the Scottish Institute of Sport until 2006. She has been involved with Scottish Rugby since 2003 when she began a case study with Edinburgh Rugby. Lorraine is the current Sports Dietician for Scottish Rugby, working predominantly with the national men's squad. She also has duties with the Scotland Sevens, Academy and Women's squads, as well as the Edinburgh and Glasgow pro-teams. Lorraine combines these duties with working as a sports massage therapist, increasing her knowledge of maximising sports performance. Lorraine is herself an athlete, competing in swimming, running and the occasional triathlon.

Baxters Food Group

Baxters is the official training partner of Scottish Rugby, providing good tasting, nutritious food as part of the elite players' training programme. Baxters is working closely with Scottish Rugby using our knowledge and expertise in producing hearty soups to play an important part in the national team's diet. The focus is on the day to day training process, enabling Scotland's top players to perform at peak performance.

Baxters believe that preparation is the key to sporting success, and the new range of soups will give you the energy to tackle your active life. The nutritionally balanced Baxters Healthy Choice range has been designed to ensure each portion provides at least one portion of vegetables, and a source of protein and fibre, with no artificial additives, preservatives, colourings or flavours.

Your Nutritional Needs

The recommendations in this handbook are for information and guidance to help you maximise your performance. It is up to you to take them on board and find what works for you. 'One size does not fit all' and you may need further guidance to help meet your personal needs and objectives.

A qualified Sports Nutritionist can help provide individual support.

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Good nutrition is an integral part of everything you push your body to do; physically, emotionally and mentally.

Performance nutrition can help:

- Provide the correct nutrients and energy to enable maximum work output in training and match play
- Delay the onset of fatigue and help prevent injury
- Improve the rate of recovery between sessions and maximise training adaptations
- Attain the optimal body composition for your field position

The principles of high performance nutrition

1. Eat a wide variety of nutritious foods from all food groups
2. Meet energy needs of training:
 - a. Carbohydrate foods for fuel
 - b. Protein for repair, growth and maintenance
 - c. Moderation of fat and alcohol (to make enough room for carbohydrates and protein!)
3. Avoid dehydration
4. Eat frequent meals and snacks
5. Good recovery practices help you recover from one day to the next



Moderate fat and alcohol...

Seasonal aims

Ideally, the off season is time to focus on your specific goals regarding body composition; organising and preparing yourself to meet personal nutrition goals, and to help avoid 'player fatigue' in the heavy training and competition plan ahead.

To peak for the start of the season, you should aim to:

1. Reach, and be able to maintain an ideal body weight (optimal power to weight ratio). It is important not to be putting too much focus on body fat loss during the season as this may compromise your performance
2. Ensure that your body energy stores (muscle and liver glycogen) are fuelled to capacity through adequate carbohydrate intake and refuelling
3. Ensure body fluid levels are kept adequate
4. Know exactly what, when and how much you should eat/drink in 24-48 hours prior to a match
5. Recover as quickly as possible for the next match/training session
6. Be in general good health and free from nutritional deficiencies that may lead to illness, infection or impaired recovery.



Carbohydrate is the primary fuel...

Fuel Sources

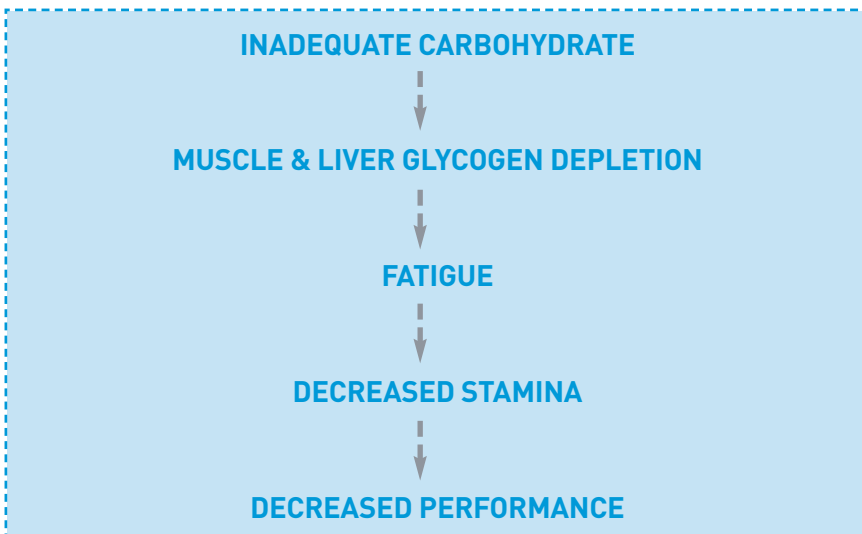
As rugby is an intermittent high intensity game you must be prepared for intermittent sprinting with recovery periods that vary. You need a high level of endurance capacity to sustain 80mins of play, covering a distance of 5 – 10 km in a game. Your position will determine the distance covered, your power output and energy needs.

Carbohydrate is the primary fuel source for exercise of higher intensities and forms part of the fuel supply for all intensities of exercise. Stores must be regularly replenished. Though fat is stored readily in the body it is not an efficient fuel source. Protein is also a very poor source of energy. It will only be transformed to energy under energy and carbohydrate restriction resulting in the loss of lean muscle.

Carbohydrates

Carbohydrates are the key to success in training, match play and recovery. If carbohydrate stores are not maintained, performance in training and competition will drop.

Carbohydrates are stored as muscle glycogen, to fuel the working muscles, and it is crucial that these stores are replenished between and after all training sessions. Larger muscles have a larger capacity to store fuel (approximately 400g of carbohydrates).



If stores become depleted during a session or over the course of a training week, fatigue will occur, limiting speed and power output resulting in the feeling of 'heavy legs'.

The liver stores a smaller amount of carbohydrate (80 – 100g), which fuels the brain and central nervous system. This store must be refuelled during a game to optimise concentration, co ordination and reaction time and to help prevent injury. The energy store in the liver keeps the body fuelled throughout sleep therefore breakfast is vital to refuel for the day ahead. Active individuals should consume some carbohydrates in the evening to help avoid low energy stores in the morning, especially if undertaking early morning training.



Carbohydrates

How much carbohydrate is needed per day?

Training up to five times a week will require 6-7 grams of carbohydrates per kg of your body weight per day to train 100% effectively.

Requirements are based on body weight however needs will also vary on field position, body composition, age and activity levels outside training.

Body mass	Carbohydrates required/day (6-7g/kg)
75kg	450-525g
80kg	480-560g
85kg	510-595g
90kg	540-630g
95kg	570-665g
100kg	600-700g
105kg	630-735g
110kg	660-770g
115kg	690-805g
120kg	720-840g

It is very important that these needs are met.

Your body metabolism may change if your carbohydrate intake is reduced to a critical level. This may result in muscle breakdown, loss and fatigue.

It is important to train the body to use the correct fuel efficiently. If restricted, the body will use other fuels. This may lead to an increase in body fat levels. Fat is not an efficient energy source for rugby performance.

Carbohydrates are anabolic, stimulating a release of insulin. This is fundamental to protein synthesis and building lean muscle tissue. Carbohydrates also help reduce levels of stress hormones such as cortisol that are produced during high intensity exercise. High cortisol levels may result in poor recovery and reduced immunity.



Carbohydrates

Carbohydrates also help stimulate a positive mood, releasing the hormone serotonin, helping to win over pre match nerves, or to get 'psyched up' prior to a game.

Fibre is found in many carbohydrate foods. This is vital for good bowel health, lowering cholesterol levels and controlling body fat levels. Good sources of fibre include Baxters Healthy Choice Italian Bean and Pasta soup and Baxters Healthy Choice Chunky Country Vegetable soup.

Are you meeting your requirements?

Base your meals and snacks around grains, cereals, pulses, breads, fruit and vegetables. These also contain protein, vitamins, minerals and fibre - all key to maximising health and performance.

The following contain 50g carbohydrate:

FRUIT;

2 large bananas

1.5 cup fruit salad

3 medium pieces of fruit

FLUIDS;

750ml isotonic sports drink

500ml diluting squash (added sugar)

300ml fruit smoothie

VEGETABLES;

2 large potatoes

1 large sweet potato

3 small corn cobs

GRAINS;

1.5 cups cooked pasta

170g cooked rice (1 medium serve)

100g cooked cous cous

CEREALS;

1 cup cooked porridge & milk

50-60g breakfast cereal & milk

3 wheat biscuits

BISCUITS;

5 jaffa cakes

6 digestives / rich tea biscuits

2-3 cereal bars

Carbohydrates

BREADS;

1 bagel or English muffin with jam

3 slices of bread

2/3 of average panini or baguette

CONFECTIONARY/SNACKS;

50g packet jellybeans or jelly sweets

70g pastilles

55g boiled sweets

DAIRY BASE;

200g pot low fat rice dessert

2x200g tubs low fat flavoured yoghurt

500ml low fat flavoured milk

OTHER;

5 tbsp Baxters jam

5 tbsp Baxters marmalade

4 tbsp sugar

SOUPS;

500g Baxters Tomato & Brown Lentil

500g Baxters Autumn Vegetable

PULSES;

250g chick peas

350g baked beans

2.5 cups lentils

Your carbohydrate needs may change throughout the season in line with a training plan and match demands, therefore it is important to review your carbohydrate needs regularly throughout the year. Injury will also affect your needs, and you may wish to reduce your intake to help avoid unwanted gains in body fat.



The Glycemic Index (GI)

The Glycemic Index (GI) and performance

The GI is a measure of how quickly the consumption of a single carbohydrate food affects blood sugar levels.

High GI foods enter the blood stream quickly as the sugars are broken down and absorbed soon after the food has been consumed, giving a quick burst of energy. Low GI foods enter the blood stream more slowly giving a steady and prolonged release of energy. When protein and fat is consumed with a carbohydrate food the digestion is slowed down, lowering its GI. Therefore the GI is only useful when considering consuming carbohydrates alone.

Many low GI foods are important for optimal good health. Try to increase these in your daily diet. Low GI foods can increase satiety and help aid body fat loss.

However not all low GI foods are a healthy option, as some are high in fat and are not suitable for an athlete. Use them only as part of a nutrition plan in combination with the principle of healthy eating.

You will be unable to meet your training nutrient and energy requirements by consuming low GI foods alone. Low GI foods may be high in fibre and very gaseous – so practice in training and increase them slowly, to avoid gastric upsets (or warn your team mates!).

To optimise performance:

Consume a low GI breakfast daily. Examples include:

- Porridge with semi-skimmed milk and honey
- Muesli, semi-skimmed milk and natural yoghurt
- Scrambled eggs on granary toast
- Beans on granary bread

Low GI foods 2-4 hrs pre exercise can help performance by providing slow release energy. Examples include:

- Baxters Healthy Choice Tomato & Brown Lentil soup & white roll
- Baked sweet potato and beans
- Chicken/veggie stir-fry and basmati rice
- Bulgur wheat and lentil salad



Low GI slow energy release ...

The Glycemic Index (GI)

During exercise high GI foods will promote performance as energy is quickly absorbed. Examples include:

- Sports drinks – isotonic (6-8% carbohydrate), hypotonic (4% carbohydrate)
- Diluted squash
- Dried fruit
- Energy bars
- Energy gels

High GI foods (as above) can help top up fuel stores within 1hr pre exercise

Occasionally this can cause a drop in blood glucose, which is not ideal before a match or training! If you are worried about this it is important to do some high intensity sprints in the warm up and to continue to use carbohydrate throughout the match/training. As your body begins to exercise it stops releasing insulin so the effect of the sugars consumed will be minimised.

In a recovery situation a higher GI food enables more rapid restoration of muscle glycogen stores. Examples include:

- Protein bars
- Carbohydrate/protein mix recovery drink
- Cornflakes or Rice Crispies & semi-skimmed milk
- Bagels, fruit or malt loaf, low fat muffins
- Rice cakes & jam or honey
- Baxters Healthy Choice Chicken & Vegetable soup & a white roll

Other low-moderate GI foods to incorporate in your daily diet include:

- All pulses – chick peas, butter & kidney beans, baked beans
- Soya beans, brown or green lentils, barley, rye, oats
- Baxters Healthy Choice Chunky Carrot, Bean & Quinoa or Baxters Healthy Choice Lentil & Vegetable soups
- Sultana bran, All Bran
- Rye bread, granary bread, pitta bread
- Sweetcorn, carrots, peas, green vegetables



The Glycemic Index (GI)

- Sweet potatoes, boiled potatoes (old)
- Buckwheat, bulgar wheat, instant noodles, macaroni, spaghetti, basmati rice, quinoa
- Dried apricots, fresh fruit
- Low fat milk, natural yoghurt

Examples of other high GI foods include:

- White rice, white bread, wholemeal bread, baguette
- Bagel, croissant, puffed crispbread, water biscuits, pizza
- Parsnips, swede, mashed potato, baked potato
- Shortbread, mars bar, jam/marmalade
- All sports drinks, diluting squash





Protein

Success in rugby is dependant on muscular power and strength, varying within each field position. Carbohydrates fuel the training. Protein is fundamental for growth and the synthesis of new muscle fibres. These two nutrients work closely together.

- During training and heavy contact in match play, muscle proteins are broken down and rebuilt continuously. Protein needs must be met to ensure complete recovery.
- A phase of heavy strength or endurance training may require higher levels of protein.

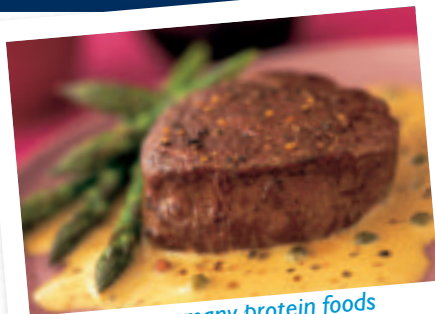
How much protein is needed per day?

- Optimal requirements for rugby players are 1.6-1.8g per kg of body weight of protein per day. Protein intakes above 2g/kg body weight have shown to have no anabolic effect.

Body Mass	Protein Required/day (1.6-1.8g/kg)
75kg	120-135g
80kg	128-144g
85kg	136-153g
90kg	144-162g
95kg	152-171g
100kg	160-180g
105kg	168-189g
110kg	176-198g
115kg	184-207g
120kg	192-216g

When consumed sensibly, protein foods can increase satiety and may be used as a valuable tool when aiming for a negative energy balance and a reduction in body fat. Protein foods provide a variety of amino acids and many other important vitamins and minerals needed by an athlete.

Protein



Beware many protein foods are high in fat...

A varied diet allows protein needs to be met, although carbohydrate foods also contain some protein.

An intake of protein of more than 3g/kg body weight may lead to long-term negative health effects such as kidney damage and arteriosclerosis.

An excessive protein intake may result in dehydration, as the kidneys must produce more urine to flush out the toxins produced. Very high protein intakes can displace other important nutrients in the diet and prevent you from meeting your nutritional goals.

An excess protein intake may also lead to a positive energy balance (when a greater number of calories are consumed than are expended). This may lead to an increased level of body fat. Be aware – many protein foods are high in fat! Ensure cuts of meat are lean and dairy products are low in fat. Try to consume a source of protein at every meal and snack.

Protein Rich Foods

The following animal foods contain 10g of protein:

- 35g cooked lean beef, lamb or pork
- 40g cooked lean chicken or turkey
- 50g grilled fish, canned salmon or tuna
- 35g game meat (venison)
- 2 small eggs
- 70g cottage cheese
- 30g (1.5 slices) cheese
- 200g low fat yoghurt
- 300ml low fat milk
- 150g light fromage frais

The following vegetable foods contain 10g of protein:

- 4 slices wholemeal bread
- 3 cups (90g) wheat cereal
- 1 cup (100g) muesli
- 2 cups (300g) cooked pasta/noodles
- 3 cups (400g) cooked brown rice
- 150g cooked lentils or kidney beans
- 1 can Baxters Healthy Choice Chunky Smoked Bacon & Three Bean soup
- 1 can Baxters Healthy Choice Puy Lentil & Tomato soup
- 200g baked beans
- 100g soy meat/120g tofu
- 60g nuts and seeds



Protein

Combining different sources of protein allows all the essential amino acids to be provided more effectively. Examples include:

Beans on toast

Quinoa porridge and milk

Scrambled egg and salmon on seeded bread

Tips for Maximising Carbohydrate and Protein Intake

- *Get organised and start eating early in the day*
- *Have a carbohydrate packed breakfast*
- *Eat regularly – small, frequent meals and snacks*
- *Consume a carbohydrate source in every meal and snack*
- *Make up larger meals and freeze mini portions that can be heated in the microwave at short notice*
- *Have a supply of snacks and fluids in the car and kit bag for training*
- *Have a snack and drink pre and post every training session*
- *Make use of other fluids – not just water (e.g. milk based drinks, juices, sports drinks)*
- *Throughout training try to consume sports drinks or home made sports juices during high intensity and field based skill training*
- *If tolerated consume drinks containing carbohydrates and protein during strength training such as meal replacement products*

Recovery Tip

To maximise recovery after all exercise, training & matches, consume: 1g/kg body weight of carbohydrate & 10g protein within 30 minutes.

Homemade Strawberry Smoothie:

250ml skimmed milk

100g low fat yoghurt

2 tbsp dried skimmed milk

1/2 cup of strawberries

Blend together and chill

Protein=28g Carbs=78g Fat=2g Energy=420kcal



Fat is an important part of the diet in order to obtain essential fatty acids and the fat soluble vitamins A, D, E, & K.

Polyunsaturated fatty acids such as omega 3 and omega 6 are essential for your health and cannot be manufactured in the body so must be consumed in the diet.

They play an important part in brain function, decision making and in inflammation and repair and help support normal immune function. They have also been found to enhance aerobic capacity and increase energy levels and stamina.

Omega 3 fatty acids are found in oily fish – salmon, trout, mackerel, herring and fresh tuna, linseed (flax seeds), pumpkin seeds, walnuts, rapeseed oil, soybeans, dark green leafy vegetables, avocados and olives. Omega 6 is found in vegetable oils, safflower oil and polyunsaturated margarines.

Fat provides a poor source of energy for high intensity exercise. Excess amounts, or fat consumed at the wrong time can disrupt recovery, displace other important nutrients and contribute to unwanted body fat. Fat should make up less than 25% of your total energy intake.

Try and limit sources of saturated fat and increase unsaturated fats:

- Choose lean cuts of meat
- Remove all visible fat and skin from raw meat before cooking, or from cooked meat
- Use spray oil or a small amount of oil for cooking
- Use a non-stick pan, grill plate or steamer to reduce the fat in cooking
- Choose low fat dairy products
- Avoid fast and fried foods
- Consume healthy snacks and reduce your intake of crisps, biscuits and chocolate
- Consume oily fish twice a week
- Check labels and choose foods containing less than 10g fat per 100g weight



Use a non stick pan to reduce the fat in cooking ...



Reduce intake of crisps, biscuits and chocolate ...

A varied well balanced diet should provide all vitamin and mineral requirements. Training and playing rugby will increase your body's needs. However as you increase your food intake to meet your energy requirements it is likely that your vitamin and mineral needs will be met naturally.

IRON

Iron is essential for transporting oxygen around the blood, from the lungs to the muscles. Body contact will cause a loss of iron when blood vessels are damaged or bleeding occurs. Iron rich foods will help recovery and repair.

Rich iron sources include offal, red meats, fortified breakfast cereals, wholemeal bread and green leafy vegetables. Add vitamin C to your meals to aid iron absorption e.g. fresh fruit juice with cereals, green salad with meat. Tea and coffee tend to reduce iron absorption.

CALCIUM

Calcium is essential for developing and maintaining strong bones. Try to consume 3 portions of dairy products a day. One portion = 1 small glass of milk, 1 slice of cheese or 1 tub of yoghurt. If you are recovering from a broken bone, add an extra serving.

ANTIOXIDANTS

High intensity exercise, smoking and a polluted environment are 3 factors known to increase the levels of 'free radicals' in the body. These can be responsible for some cancers, the effects of ageing and other damaging effects in our body.

Antioxidants are found in a range of foods that interact with free radicals to reduce their damaging effects. These include the vitamins A, C and E.

High training demands will increase the body's requirements for antioxidants. Sources include brightly coloured fruit and vegetables, tea, red wine (in moderation!), nuts and seeds, wholegrain cereals and pulses.



Iron-rich green salad with meat ...



Antioxidants in rich coloured fruit and vegetables ...

OMEGA 3

As already mentioned these are essential to the body. Omega 3 has been found to be a common deficiency in rugby players. Try to include two portions of oily fish a week.

VITAMIN & MINERAL SUPPLEMENTATION

Supplements will not replace naturally found vitamins and should only be added to an already varied and well-balanced diet. However if you are concerned you are lacking a specific vitamin or mineral it may be appropriate to take a basic 100% RDA 'one a day' multi vitamin and mineral supplement together with making appropriate diet changes. This may also be useful if you are travelling and your food supply is more restricted.

Top Tips to Maximise Immune Function

- *Ensure energy, carbohydrate and fluid needs are met*
- *Consume carbohydrate and fluid during training to limit the release of stress hormones*
- *Follow a sound recovery strategy*
- *Consume warm foods and drinks after cold or wet outdoor sessions, i.e. Baxters Healthy Choice Chunky Chicken & Vegetable Casserole soup*
- *Consume a variety of fruit and vegetables*
- *Maximise antioxidant intake*

Consume warm foods and drinks after cold or wet outdoor sessions ...



Adequate hydration is critical to performance.

Your ability to exercise will be impaired if you are dehydrated by any degree. Dehydration occurs after a loss of body water, reducing blood volume and the ability to control body temperature through sweating. Dehydration results in an increased heart rate for a given level of exercise, making your body work harder, causing a rise in body temperature. Dehydration can negatively impact concentration and reaction times.

Fluid loss can accumulate over the training week. It is important to recover losses between, during and after every training session to help avoid any negative affects. Physical and mental effects can be felt when dehydrated by as little as 2% of body weight, with fluid losses greater than 5% causing an inability to train and compete.

Hydration monitoring

- Individual sweat losses can be calculated:

Measure body weight before and after a match or training session, taking into account any fluid consumed during the session.

$$\begin{array}{|c|} \hline \text{Weight Before} \\ \hline \text{Session (kg)} \\ \hline \end{array}
 -
 \begin{array}{|c|} \hline \text{Weight After} \\ \hline \text{Session (kg)} \\ \hline \end{array}
 +
 \begin{array}{|c|} \hline \text{Fluid consumed} \\ \hline \text{in the session (kg)} \\ \hline \end{array}
 =
 \begin{array}{|c|} \hline \text{Weight lost (kg)} \\ \hline \text{(1kg=1 litre fluid)} \\ \hline \end{array}$$

2% loss of body weight:

Pre exercise body weight

Weight loss after exercise

70kg	1.4kg
75kg	1.5kg
80kg	1.6kg
85kg	1.7kg
90kg	1.8kg
95kg	1.9kg
100kg	2.0kg
105kg	2.1kg
110kg	2.2kg



Hydration

Once you have calculated your average loss, aim to replace 50% of your sweat losses during the session.

Individual sweat losses will vary depending on the environmental conditions and the intensity of the training session. In winter, in Scotland, sweat rates for rugby players range between 600-1100ml per hour of exercise, depending on body size and field position.

Sodium is fundamental in the absorption of fluid from the kidneys. The average amount of sodium lost in sweat is 1.2g per litre. This is equivalent to 3g of salt.

Hypotonic sports drinks contain a carbohydrate concentration less than 6g per 100ml. Isotonic drinks contain slightly more energy with a carbohydrate concentration of 6 to 8g per 100ml. Both drinks contain electrolytes such as sodium and potassium and stimulate water absorption. Sodium activates the thirst mechanism, making you drink more.

Hypertonic solutions contain a carbohydrate concentration greater than 8g per 100ml. These provide a higher level of energy however they slow down stomach emptying and slow down the speed of fluid replacement. Hypotonic and isotonic can be consumed before, during and after exercise whereas hypertonic drinks are more suitable for after training.

Personal recovery plan

For optimal rehydration after a session it is recommended that 150% of the fluid lost during the session is consumed.

Monitor your urine colour and output – aim for it to be clear to straw colour, with a regular copious output: the darker the colour, the greater the level of dehydration.

Monitor thirst – If you are thirsty you are already dehydrated.

Over drinking

Drinking too much plain water can be detrimental, resulting in a dilution of the body salts required for optimal physiological functions. To help avoid this try to mix fluid sources, do not drink more than 4 litres of plain water a day, and remember to replace body salts lost in sweat.

Top tips to Optimise Hydration

- *Drink a minimum of 3 litres of fluids per day plus own personal fluid losses*
- *Drink little and often throughout the day*
- *Always carry a water bottle with you*
- *Start the day with a large glass of water, either hot or cold*
- *Drink with each meal and snack*
- *Drink water and a variety of other drinks*
- *Use fluids to help meet energy and carbohydrate needs such as fresh fruit juice, normal diluting juice, milk shakes, smoothies and sports drinks*
- *Find something you enjoy the taste of and keep fluids cool*
- *Avoid too many carbonated drinks and avoid tea, coffee and alcohol as these can act as a diuretic, increasing fluid losses*
- *Aim to consume approximately 200ml of fluid per 15 minutes during high intensity exercise. Practice drinking fluid in training*
- *Fluid absorption can be optimised with sodium and glucose found in sports drinks. Try a home made version; mix 200ml fruit squash, 800ml water, 1/4 tsp salt*
- *Remember to think about salt losses – you will consume salt naturally in food, however at specific times when sweat losses are high it may be appropriate to add some salt to foods, or drink specific homemade or bought sports drinks*



Use fluids like fresh fruit juices to meet energy levels ...

TOP TIPS TO OPTIMISE HYDRATION AT MATCHES:

Pre match;

- *Limit caffeinated and carbonated drinks*
- *Drink during the day as with normal guidelines*
- *Drink at least 500ml of sports drink 2 hours before kick off, either prepared or homemade*
- *Sip further sports drink up until kick off*
- *Record your body weight pre game*

During match & half time;

- *Continue to drink fluid at every opportunity*
- *The water carrier should target the heavy sweaters and poor hydrators*
- *Have specific drinks tailored to your requirements*
- *Rely on fluids for energy throughout the match*

Post match;

- *Record your body weight once returned to the changing room*
- *Aim to recover between 50-80% personal fluid loss before leaving the changing room*
- *Rely on sports drinks as well as recovery drinks to rehydrate and aid energy replacement*
- *Weigh yourself again before leaving the changing rooms and ensure your weight is increasing*
- *Continue to drink fluids at your post match dinner and throughout the evening*
- *Consume soup as a starter e.g. Baxters Healthy Choice Autumn Vegetable or Baxters Healthy Choice Chicken and Vegetable soups*
- *Aim to recover 150% of your weight loss to ensure full recovery*
- *Ensure proper recovery before drinking alcohol*

Alcohol can prolong the time it takes for an injury to repair. It dilates the blood vessels, increasing blood flow to the injured area, counteracting injury management techniques such as icing and elevation. Alcohol should be avoided a few days after an injury. Excessive intakes of alcohol during the recovery period can also affect the refuelling and recovery processes. The intoxicated athlete may undertake high-risk behaviour increasing a risk of accidents/injury.

Alcohol and some mixers are energy dense and may contribute to unwanted body fat. High fat foods are more likely to be consumed whilst under the influence of alcohol.

Alcohol is also a diuretic, actually contributing to dehydration. Hangovers play havoc with recovery days, upsetting sleep patterns, increasing dehydration, influencing appropriate food choices resulting in inadequate nutritional choices and encouraging poor preparation for the training week ahead.

Alcoholic & calorie content of drinks;

<i>Drink equivalent to 1 unit</i>	<i>% alcohol by volume</i>	<i>Calories</i>
<i>½ pint ordinary beer/lager</i>	<i>3.0-3.5</i>	<i>90</i>
<i>1 measure spirits</i>	<i>38</i>	<i>50</i>
<i>1 measure vermouth/apertif</i>	<i>18</i>	<i>60-80</i>
<i>125ml glass of wine</i>	<i>11</i>	<i>75-100</i>
<i>1 measure sherry</i>	<i>16</i>	<i>55-70</i>
<i>1 measure liqueur</i>	<i>40</i>	<i>75-100</i>



Recovery

A sound recovery strategy is fundamental to perform at a consistent level. It is vital for the body to receive the correct nutrients and rest to allow optimal repair and adaptation. This will help avoid muscle soreness, stiffness after training, injury, and fatigue.

Maximise recovery from endurance or 'quality' sessions

Pre-exercise – to promote successful completion of quality session

- Ensure adequate fuel; carbohydrate-rich foods or drinks should be consumed within 4 hours prior to the session, up to one hour before. Aim to consume at least 1g of carbohydrates per kg body weight.
- Optimise hydration before commencing exercise with approximately 500ml of fluid.

During exercise – to promote successful completion of the session

- Fluid, carbohydrates and electrolytes should be consumed during the session especially when there is no opportunity for fuelling before the workout. [Examples include sports drinks, gels and energy bars.](#)

Post-exercise recovery

- Effective refuelling begins only after a substantial amount of carbohydrate has been consumed.
- Consume a meal or high GI snack within 30 minutes of completing each session until normal meal pattern is resumed. Aim for at least 1g carbohydrate per kg body weight.
- Consume a protein source providing between 6-12g essential amino acids, equivalent to 10-20g of protein from a high quality source.
[Examples include; breakfast cereal and milk, flavoured milk drinks and specially-formulated sports bars and liquid meal supplements](#)

When carbohydrate needs are high, and appetite is suppressed or gastric comfort is a problem, focus on compact forms of carbohydrates, including low fibre choices, sugar-rich foods and sports supplements. Examples include: sports drinks, soft drinks, fruit juices, commercial liquid meal supplements, milk shakes and fruit smoothies.



Recovery

Low glycemic index (GI) carbohydrate foods such as lentils and pulses are less suitable for speedy recovery. Small, frequent meals will assist in achieving high carbohydrate intakes without the discomfort of overeating.

Nutritious carbohydrate foods and drinks contain other nutrients including vitamins and minerals that may be important for post-exercise recovery. Drinks should be consumed to restore fluid balance.

When the total fluid deficit incurred by the workout exceeds 2% of the athletes body mass, special attention should be focussed on rehydration.

Maximise recovery from key strength sessions

Pre-exercise recovery strategies

- Consume between 6-12g essential amino acids, equivalent to 10-20g of a high quality protein up to 60 mins prior to the session to allow digestion to take place. Carbohydrate consumed at the same time will enhance the protein response: an intake of at least 1 g carbohydrate per kg body mass is recommended. **Examples include: Liquid meal supplement, carb/protein shake or fruit smoothies. Sports bars provide a more compact alternative.**

During exercise

- Fluid and carbohydrate should be consumed during the session especially when there is no opportunity for fuelling before the workout. **Examples include: Sports drinks, gels, energy bars**

Post-exercise recovery strategies

- Consume a source of amino acids within an hour after the session. Aim for 10-20 g of high quality protein consumed with 1g carbohydrate per kg body mass.
- Strength training sessions are prolonged, or undertaken in conjunction with an aerobic session so increase your carbohydrate intake.
- Avoid excessive amounts of alcohol during the hours following a strength workout, since there is evidence that alcohol impairs protein synthesis.

The daily diet should provide adequate energy and protein intake to meet goals for gains of muscle mass.

Recovery options

The following provide 100g carbohydrates & more than 10g of protein

- 300ml fruit smoothie & 2 bananas
- 300ml fruit smoothie, 200g fruit yoghurt & 1 cereal bar
- 500ml flavoured milk & 1 large muffin
- 2 energy bars & 500ml isotonic drink
- Chicken sandwich & 500ml isotonic drink
- 1 large baked potato & tuna & beans & 500ml fluid
- 1 meal replacement & 500ml fluid
- 1 can Baxters Healthy Choice Italian Bean & Pasta soup & 1 large granary roll & 300ml fresh orange juice

Work towards replacing 150% fluid lost during the session or match



Body composition changes

Changing body composition may help maximise your playing ability on the field. Individual goals should be made in line with your fitness coach and/or your doctor. Changes should be undertaken progressively over a period of time and may require a specific dietary program, over the pre season.

Body weight (on the scales) is a combination of fat, muscle, bone, water and body organs. It is easy to lose between 1-2kg in a training session due to water loss and you will regain it once you adequately rehydrate. When you change your body composition your body weight may not actually change. You may lose 1kg in fat yet increase your muscle mass through your strength training and eating regime. The assessment of body composition (e.g. skinfold callipers and girths) can help to identify the changes.

If you are making dietary changes and increasing the number of your training sessions, keep a check that your body is coping and not compromising your training aims and health.

Health signals to monitor:

- Morning resting heart rate: if increased you have not adequately recovered.
- Sleep, anxiety levels, mood, and vigour.
- Motivation for training and concentration levels
- Strength gain or losses.
- Speed and performance on the field.
- Perceived exertion levels.

Reducing Body fat

Tips to help you to reduce your body fat include:

- Set realistic goals – no more than 0.5kg loss per week.
- Reduce your calorie intake by 500 kcal per day – and increase aerobic exercise.



*Body composition may help
maximise your
playing ability ...*



BodyComposition

- Do not go on a drastic diet. This may lead to chronic fatigue and compromise your ability to train.
- Do not compromise carbohydrate requirements.
- Consume foods of high nutrient quality and increase your portions of low GI options of carbohydrates and vegetables. Add plenty of salad, vegetables and fruit to meals to increase fullness, with quality, lean protein sources at each meal.
- Focus on reducing your fat intake: use low-fat spreads, semi or skimmed milk, low-fat dairy products, reduce your cheese intake, lean cuts of meat/skinless chicken. Reduce frequency of crisps, chocolate, pastries, rich cakes, biscuits and replace with healthy low fat snacks i.e. fruit, cereal bars.
- Beware of extra calories in fizzy drinks and concentrated fruit juice.
- When cooking, use non-stick pans and grill plates to limit the amount of oil used .
- Watch high protein intakes – try not to exceed 3g of protein per kg body mass.
- Get organised with meals and snacks – do not rely on ‘quick and easy’ take-away, prepared meals, pastries or fried foods.
- Eat regularly & get in tune with your appetite – do not go for long periods without eating, as this will make you feel ravenous and more likely to loss control.
- Recognise when you are hungry and full, and then set your food quantities around this and spot boredom and comfort eating.
- Do not stack your energy intake in the evening – aim to eat your main meal before 8pm.
- Eat slower to limit bloating after meals and reduce quantities.
- Do not drink isotonic sports drinks outside of training -use them only as part of your fuelling plan during high intensity sessions.

**Do not compromise your performance
on the field or in the gym**



BodyComposition

A healthy amount of body fat can help protect your muscles and skeletal system in heavy contact and blows. Players who are too lean are more prone to injury therefore it is important to set appropriate body composition goals for optimal performance in your position and not just to 'look good'.

Increasing lean muscle mass

Gaining muscle mass requires a well-designed strength training programme, good genetics and an increased energy intake. A positive energy balance is fundamental to increasing lean muscle mass, not just an increase in protein intake. This may be daunting especially as you will already have high energy requirements due to body size and training needs.

Set realistic goals for yourself in conjunction with your coaches – gains usually occur relatively quickly at the start of a training program and slow down as your body adjusts. Support your training with a high energy diet that provides adequate protein. An increase of approx 500kcal per day is required.

Get organised and eat & drink frequently – aim to have some food or energy containing fluid every 2 hours. Avoid periods of 4-5 hours between eating. Do not miss any meals or snacks.

Make use of fluid intake. Increase your intake of energy-containing drinks by adding a couple of low fat milk shakes or smoothies to your normal daily intake. Include some energy rich snacks in your day, such as dried fruit & nuts, malt loaf, fruit cake & flap jacks, honey, jam, and raisins.

Add up to 2 tablespoon of skimmed milk powder to your milk, increasing the calorie and protein value:

[2 tbsp skim milk powder = 15g cho & 18g protein]

Continue to drink a carbohydrate/protein mix shake throughout resistance training if tolerated.

Fuel yourself well for training and get your recovery programme in place so the efforts of every training session are maximised.

Tips for the injured player

Whilst in the recovery stages of an injury it is important to adjust eating habits to correspond with the level of activity that can be undertaken. This will help avoid an increase in body fat that may affect the rehab phase. The quality of food consumed at this time will also have an active role in assisting the healing process.

1. A reduction in training reduces your energy requirements. Cut down on high energy sugary & fatty foods, and portion sizes at meals
2. Remove the recovery snacks and replace them with fruit
3. Alcohol may reduce the process of repair, and is high in energy – be sensible
4. Ensure a good intake of fruit, vegetables and dairy products to maximise your vitamin & mineral intake
5. Protein is important to injury healing – try to consume quality lean protein at all meals
6. Do not miss meals – this may slow down recovery
7. Monitor body weight – a weight gain will occur naturally at first (~2kg) but to ensure this levels off adjust the diet accordingly
8. Avoid all energy or sports drinks – stick to water or low calorie drinks to maintain fluid requirements
9. Aim to come back stronger & use this time to get into sound eating habits

*Ensure a good intake
of fruit ...*



Training and Match Nutrition goals

The following tips can assist you to develop a routine around training and match preparation.

Training and nutrition goals

1. Correct fuelling beforehand
2. Feel comfortable – no gastric upsets, stomach cramps/stitch
3. Concentration – ensure blood glucose is kept even
4. Limit dehydration
5. Optimal recovery especially if undertaking back to back sessions or daily double sessions

2 days before a match nutrition goals

1. Fill muscle glycogen stores
2. Maintain hydration

Ensure carbohydrate needs are being met and a sound fluid strategy is in place

Day before a match nutrition goals

1. Top up muscle glycogen stores
2. Maintain hydration
3. Focus on high carbohydrate meals (mix of low and high GI foods) with moderate lean protein
4. Avoid high fat foods and high fibre foods
5. Eat familiar foods only
6. Eat regularly as if it was a normal training day
7. Drink regularly and aim for 3-4 litres (mix of fluids)
8. Drink an isotonic or hypotonic drink in the evening to ensure adequate hydration
9. Do not over drink and upset sleep
10. Monitor urine colour and output



Follow training and match nutrition goals ...

Match day nutrition goals

1. Top up liver glycogen stores
2. Ensure adequate hydration
3. Achieve gut comfort
4. Achieve stable blood glucose levels
5. Feel confident and comfortable
6. The match day food should be planned and practiced – it will have a fundamental effect on your match performance

2-4 hours before kick-off nutrition goals

1. Top up liver glycogen stores
2. Maintain hydration
3. Consume a low GI meal, high carbohydrate, low fat and low protein and fibre
4. Consume 500ml fluid
5. Liquid meal supplements (carbohydrate/protein drinks) can be consumed if you are nervous or short of time

Examples of suitable pre-match meals include:

- Porridge
- Baxters Healthy Choice soups
- Pasta with chicken and a tomato based sauce
- Baked beans on toast

1 hour before kick-off nutrition goals

1. Maintain blood sugar
2. Maintain hydration
3. Consume a sports drink or light snack that is easy to digest
4. Sip fluid frequently up until kick-off



Half time

Nutrition goals

1. Hydration
2. Maintain blood glucose

Post match recovery

Nutrition goals

1. Replenish muscle and liver glycogen
2. Repair muscle
3. Replace fluids
4. Consume 1g/kg body weight of carbohydrate and 20g high quality protein
5. Poor appetite and or gastric discomfort may limit desire for solid food - be patient
6. Try to consume high GI foods together with a protein source

Examples include: sports recovery drink, sandwiches, muffins, energy bars, dried and fresh fruit

Snack on appropriate options until the post match meal. If your appetite is still upset have another liquid meal supplement and snack on high GI snacks until your normal meal pattern can be resumed.

Recovery day nutrition goals

1. Replenish carbohydrate stores
2. Repair muscle breakdown and bruising
3. Replace hydration losses

This is a very important day! Do not eat less just because you are not as active and do not let your nutrition routine slip. A quality intake of protein and carbohydrate 24 hours after muscle damage has a positive effect on muscle repair and synthesis. This day should be used to optimise preparation for the training week ahead, especially if you have a match at the end of it which will mean topping up your glycogen stores and ensure you are fully hydrated. It is important to sleep on your rest day. However try not to miss any meals.

Use the following meal plans as a guide, referring to your body weight.



Try and consume high GI foods for post match recovery ...

Use the following meal plans as a guide, referring to your body weight; and for maintenance, increasing lean body mass and reducing body fat levels.

Meal plan 1 Maintenance plan the 80-85kg player

- Providing 550g (6.5-7g/kg) carbohydrates and 175g (1.9-2g/kg) protein

	Carbohydrates	Protein
Breakfast		
1 large bowl muesli	50g	8g
2 tbsp (80g) low fat yoghurt	5g	3g
200ml skimmed milk	10g	7g
1 glass (150ml) orange juice	13g	1g
2 slices wholegrain toast	34g	7g
2 heaped tsp (14g) low fat peanut butter	4g	0.5g
Mid morning		
2 apples	24g	1g
1 carton low fat yoghurt	26g	9g
Lunch		
2 thick slices granary bread	48g	6g
Baxters Healthy Choice Chunky Carrot Bean & Quinoa soup (1 tin)	36g	9g
2 tbsp olive oil spread	0g	0g
1 small tin (100g) tuna in brine	0g	24g
1 bowl (125g) mixed salad	2g	1g
2 medium apples	20g	1g
Mid afternoon		
1 orange	14g	2g
250ml flavoured milk	17g	12g
Training		
500ml isotonic 500ml water	36g	0g
Post training		
2 bananas	46g	2g
1 low fat yoghurt (200g)	16g	12g
Dinner		
1 large portion (150g) grilled chicken	0g	45g
½ plate (125g uncooked) pasta	95g	15g
1 large portion broccoli (125g)	1g	4g
1 large portion carrots (125g)	6g	1g
1 tbsp (30g) pasta sauce/tomato	2g	1g
Evening		
1 portion (85g) red grapes	12g	0g
2 slices (80g) wholegrain toast	34g	7g
2 heaped tsp (14g) olive oil spread	0g	0g
Total	550g	175g

Meal plan 2 Plan to increase lean body mass for a 80-85kg player

- Providing 750g (8.3-8.9g/kg) carbohydrates and 210g (2.4-2.5g/kg) protein

	Carbohydrate	Protein
Breakfast		
4 slices wholegrain toast	67g	14g
4 tsp (20g) olive spread	0g	0g
4 heaped tsp honey	46g	0g
1 carton (150g) low fat fruit yoghurt	27g	6g
Pre training		
1 energy bar	20g	3g
Training		
500ml isotonic 500ml water	36g	0g
During training		
1 serving meal replacement	26g	18g
Post training		
500ml skimmed milk	24g	16g
2 apples	24g	1g
1 energy bar	20g	3g
Lunch		
Baxters Healthy Choice Tomato & Brown Lentil soup (1 can)	38g	11g
1 very large (300g) baked potato	95g	12g
Chopped cooked chicken (100g)	0g	30g
Sweetcorn (150g)	40g	4g
1 bowl (125g) salad	2g	1g
1 tbsp vinegar dressing	0g	0g
Mid afternoon		
1 wholegrain roll	25g	5g
2 tsp olive oil spread	0g	0g
1 banana	20g	2g
2 portions (200g) berries	12g	2g
1 strawberry smoothie	78g	28g
Dinner		
1 average portion (125g) grilled salmon	0g	35g
½ plate (150g uncooked) brown rice	122g	10g
1 large portion (125g) spinach	1g	3g
Evening		
1 carton low fat yoghurt	27g	6g
Total	750g	210g

Meal plan 3 Plan for 80-85kg player to reduce body fat

- Providing 585g (6.5-7g/kg) carbohydrates and 165g (1.9g/kg) protein

	Carbohydrates	Protein
Breakfast		
1 medium bowl porridge	30g	4g
2 tbsp (80g) low fat yoghurt	5g	3g
200ml skimmed milk	10g	7g
1 glass (150ml) orange juice	13g	1g
2 slices wholegrain toast	34g	7g
2 heaped tsp (14g) low fat spread	0g	0g
Mid morning		
2 apples	24g	1g
1 carton low fat yoghurt	27g	6g
Lunch		
2 average baked potatoes	111g	14g
1 small tin (100g) tuna in brine	0g	24g
1 bowl (125g) mixed salad	2g	1g
1 tbsp low fat vinegar dressing	0g	0g
2 kiwi fruit	13g	1g
Mid afternoon		
1 orange	14g	2g
250ml low fat flavoured milk	17g	12g
Training		
500ml isotonic 500ml water	36g	0g
Post training		
2 bananas	46g	2g
Dinner		
Baxters Healthy Choice Autumn Vegetable soup (1 can)	36g	8g
1 large portion (150g) grilled chicken	0g	44g
½ plate (125g uncooked) pasta	95g	14g
1 tbsp olive oil	0g	0g
1 large portion broccoli (125g)	1g	4g
1 large portion carrots (125g)	6g	1g
1 tbsp (30g) tomato salsa	2g	1g
Evening		
1 portion (85g) red grapes	12g	0g
2 slices (80g) wholegrain toast	34g	7g
2 tsp Baxters Strawberry jam	20g	0g
Total	585g	165g

Meal plan 4 Maintenance plan for 100kg player

- Providing 690g (6.6g/kg) carbohydrate and 190g (1.75g/kg) protein

	Carbohydrate	Protein
Breakfast		
4 slices wholemeal toast	67g	14g
4 tsp olive oil spread	0g	0g
2 scrambled/poached eggs	0g	14g
1 glass (150ml) orange juice	12g	1g
Mid Morning		
2 bananas	46g	2g
100g berries	6g	1g
Lunch		
Pasta salad made with;		
Pasta (175g uncooked weight)	132g	20g
2 tbsp (85g) tuna in brine	0g	20g
1 large handful chopped peppers	6g	1g
1 ½ tbsp (16g) low fat salad dressing	0g	0g
1 orange	14g	2g
Mid afternoon		
2 energy/cereal bars	40g	7g
Training		
500ml fruit juice 500ml water	44g	3g
Post training		
1 serve meal replacement	54g	18g
1 50g energy bar	34g	6g
Dinner		
Baxters Healthy Choice Carrot, Onion & Chickpea soup (1 can)	32g	16g
1 large turkey breast (baked/grilled)	0g	28g
1 large portion noodles (150g uncooked weight)	114g	18g
1 portion (85g) curly kale	1g	2g
1 portion (85g) cauliflower	2g	2g
orange juice (300ml)	26g	2g
Evening		
½ mango (150g)	21g	1g
2 weetabix & 150ml skimmed milk	37g	9g
Total	690g	190g

Meal plan 5 Plan for 100kg player to increase lean body mass

- Providing 800g (7.7g/kg) carbohydrate and 200g (1.9g/kg) protein

	Carbohydrates	Protein
Breakfast		
1 ½ cup porridge oats	72g	12g
500ml skimmed milk	25g	16g
2 tbsp raisins	42g	1g
1 glass (200ml) orange juice	18g	1g
Mid morning		
2 energy or cereal bars (66g)	40g	7g
Lunch		
Baxters Healthy Choice Chunky	36g	12g
Smoked Bacon & Three Bean soup (1 can)		
2 bagels (180g) with:	92g	17g
4tsp (20g) olive oil spread	0g	0g
1 carton (200g) low fat soft cheese	4g	28g
1 bowl (125g) salad	2g	1g
1 tbsp (11g) oil/vinegar dressing	0g	0g
Mid-afternoon		
2 large handful (120g) dried fruit	40g	2g
1 protein bar	30g	18g
Training		
1000ml Isotonic drink	72g	0g
Post Training		
1 recovery drink	54g	18g
4 rice cakes	29g	2g
1 carton (150g) low fat yoghurt	27g	6g
Dinner		
1 portion grilled white fish	0g	37g
2 large (450g total) sweet potato	125g	7g
1 portion (85g) carrots	4g	1g
1 portion courgettes	2g	2g
200ml skimmed milk	10g	7g
Evening		
3 scotch pancakes	38g	5g
3 tsp honey	38g	0g
Total	800g	200g

Meal plan 6 Plan for 100kg player to reduce body fat

- Providing 670g (6.5g/kg) carbohydrate and 185g (1.8g/kg) protein

	Carbohydrate	Protein
Breakfast		
1 ½ cup porridge oats	72g	12g
500ml skimmed milk	25g	16g
2 large handful (120g) dried fruit	40g	2g
1 glass (150ml) orange juice	12g	1g
Mid Morning		
2 bananas	46g	2g
100g berries	6g	1g
Lunch		
Baxters Healthy Choice Chunky	36g	8g
Country Vegetable soup (1 can)		
2 slices granary (thick)	50g	10g
2 tbsp (85g) tuna in brine	0g	20g
1 large handful chopped peppers	6g	1g
1 orange	14g	2g
Mid afternoon		
1 cereal bars	20g	4g
1 apple	10g	1g
500ml skimmed milk	25g	16g
Training		
500ml hydro-active water	20g	0g
Post training		
1 serve meal replacement	54g	18g
1 50g energy bar	34g	6g
Dinner		
1 large turkey breast (baked/grilled)	0g	28g
1 large portion noodles (150g uncooked weight)	114g	18g
1 portion (85g) curly kale	1g	2g
1 portion (85g) cauliflower	2g	2g
orange juice (300ml)	26g	2g
Evening		
½ mango (150g)	20g	1g
2 weetabix & 150ml skimmed milk	35g	9g
Total	670g	185g

Meal plan 7 Maintenance plan for 110kg – 120kg player

- Providing 790g (6.5-7g/kg) carbohydrate and 230g (1.9-2g/kg) protein

	Carbohydrate	Protein
Breakfast		
3 cups cereal	50g	9g
300ml s/s milk	14g	12g
2 slices toast	30g	8g
2 tsp Baxters jam	18g	0g
1 cup fruit juice	8g	2g
Training		
750ml sports drink	54g	0g
Post training		
1 recovery drink	54g	18g
1 carton yoghurt	32g	10g
1 cereal bar	24g	2g
Lunch		
Baxters Healthy Choice Spicy Tomato & Rice with Sweetcorn (1 can)	42g	8g
2 bread rolls & 50g chicken & salad	78g	40g
1 banana	20g	2g
1 fruit bun	34g	6g
250ml flavoured milk (low-fat)	16g	13g
Mid afternoon		
1 piece of fruit	18g	1g
1 yoghurt	32g	10g
300ml semi skimmed milk	16g	12g
Dinner		
Stir-fry with 2 cups pasta & 100g lean beef & 1 cup vegetables	100g	50g
1 cup jelly & 1 cup custard	80g	13g
Evening		
2 slices granary (thick)	50g	10g
2 tsp honey	10g	0g
200ml skimmed milk	10g	7g
Total	790g	230g

Meal plan 8 Plan for 110kg – 120kg player to increase lean muscle mass

- Providing 775g (6.4-7g/kg) carbohydrate and 215g (1.8-1.9g/kg) protein

	Carbohydrate	Protein
Breakfast		
3 cups cereal	50g	9g
tbsp raisins	42g	1g
300ml s/s milk	16g	12g
2 slices toast	30g	8g
2 tsp Baxters jam	18g	0g
1 cup fruit juice	9g	2g
Training		
750ml sports drink	54g	0g
Post training		
1 recovery drink	54g	18g
1 carton yoghurt	33g	10g
1 cereal bar	24g	2g
Lunch		
2 bread rolls & 50g chicken & salad	78g	41g
1 banana	20g	2g
1 fruit bun	34g	6g
1 tsp jam	9g	0g
250ml flavoured milk (low fat)	17g	13g
Mid afternoon		
1 large banana	20g	1g
1 yoghurt	20g	10g
Dinner		
Baxters Healthy Choice Italian	42g	8g
Bean & Pasta soup (1 cup)		
Stir-fry with 2 cups pasta & 100g lean beef & 1 cup vegetables	100g	50g
1 pot rice pudding	25g	8g
Evening		
2 slices granary (thick)	50g	10g
honey	20g	0g
200ml skimmed milk	10g	7g
Total	775g	215g

Meal plan 9 Plan for 110kg – 120kg player to lose body fat

- Providing 720g (5.9-6.4g/kg) carbohydrate and 225g (1.8-1.9g/kg) protein

	Carbohydrate	Protein
Breakfast		
1 ½ cup porridge oats	72g	12g
300ml skimmed milk	16g	12g
2 slices granary toast	30g	8g
2 tsp Baxters jam	18g	0g
1 cup fruit juice	9g	2g
Training		
750ml sports drink	54g	0g
Post training		
1 recovery drink	54g	18g
1 carton yoghurt	20g	10g
1 cereal bar	24g	2g
Lunch		
2 granary bread rolls & 50g chicken & salad	78g	42g
1 banana	20g	2g
1 fruit bun	34g	6g
250ml flavoured low fat milk	17g	13g
Mid afternoon		
1 piece fruit	18g	1g
1 low fat yoghurt	20g	10g
Dinner		
Baxters Healthy Choice Chunky Chilli Beef & Bean soup (1 can)	40g	16g
1 portion grilled white fish	0g	36g
1 large (450g total) sweet potato	70g	4g
1 portion (85g) carrots	4g	1g
1 portion courgettes	2g	2g
200g chick peas	40g	14g
Evening		
2 slices granary (thick)	50g	10g
2 tsp honey	20g	0g
200ml skimmed milk	10g	6g
Total	720g	225g

