CHAPTER 6: Diet and Nutrition

Questions - text book page 77

1) Define the term 'a balanced diet'.

Answer:

- *A balanced diet contains the correct proportions of carbohydrates, fats, proteins, minerals, vitamins, water and roughage needed to maintain good health.*

2) Define the term 'energy balance'.

Answer:

- *Energy balance occurs when energy intake is equal to energy expenditure.*

3) How can an understanding of the food classifications, illustrated in figure 6.3, assist in the maintenance an optimal weight for a sports performer?

Answer:

- *Figure 6.3 – known as the food pyramid, illustrates the principles of good nutrition with carbohydrates, fruits and vegetables on the bottom representing the bulk of a healthy diet and fats and oils at the top.*
- *Optimal weight depends on the demands of the sport.*
- *And so diet must be manipulated accordingly.*
- *The best fuel food for muscle is carbohydrates (CHO and at the base of the food pyramid) in the form of cereal, beans, pasta, bread etc.*
- *And so should form the bulk of food eaten by sports performers.*

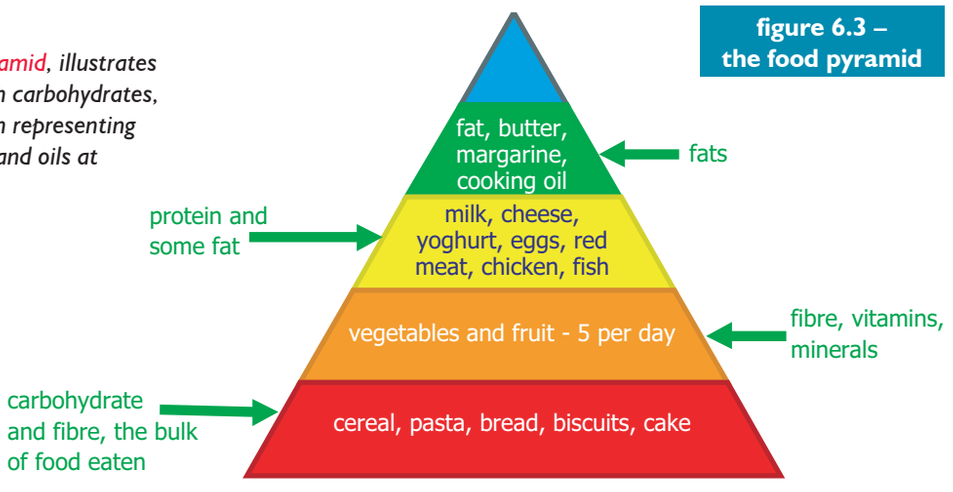


figure 6.3 – the food pyramid

- *When CHO intake is too low, the sports performer will experience decreased athletic performance, muscle loss and weight as protein is used for energy, fatigue, nutrient deficiencyand irritability.*

- *Vitamins, minerals and fibre sourced from fruit and vegetables – 5 per day, are needed for essential functions such as metabolic regulation, bone tissue growth, repair and gastrointestinal functioning respectively.*

- *Protein, sourced from dairy, meat, fish and pulses etc.*
- *Proteins are needed for tissue maintenance and repair following intense exercise.*
- *Excess protein is broken down and used as an energy supply.*
- *In strength and power-based activities, additional protein intake is recommended to maintain muscle bulk and therefore optimal weight.*

- *Fat intake, sourced from butter, cooking oil and fatty meat should be restricted as fats are stored as triglycerides in adipose tissue.*
- *And are only converted to glucose later on during aerobic exercise.*
- *Excess adipose tissue is undesirable for most sports performers.*
- *Optimal body fat for trained athletes is between 7 and 18% of total body mass.*
- *However, some sports do require additional weight – for example sumo wrestlers and so would increase fat intake to achieve this goal.*

4) How can energy balance assist in controlling obesity?

Answer:

- *Since energy balance = energy output a neutral energy balance is achieved.*
- *And as a result a person's weight remains constant.*

Questions - text book page 79

1) What are the three main groups of food?

Answer:

- *Carbohydrates.*
- *Proteins.*
- *Fats.*

2) Provide recommendations for carbohydrate, fat and protein intake for a cross-country skier and a ski jumper.

Answer:

- *A cross-country skier would require a diet high in carbohydrates (CHO).*
- *In excess of 60% of total diet since this is an aerobic endurance-based activity.*
- *Protein intake between 10-15%.*

- *Ski jumping is an anaerobic power-based activity and so a ski-jumper would require less CHOs (around 60%) and more protein (15-20%) to compensate for increased muscle breakdown that occurs during this activity and higher intensity training programme.*

- *Restricted fat intake (20-25%) for both sports.*
- *Preferably unsaturated fats.*

Questions - text book page 80

1) How does dehydration affect heart rate, body temperature and exercise performance?`

Answer:

- *Water loss during exercise increases because as temperature in the body increases, more water is lost with increased sweating.*
- *Excessive loss of fluid impairs performance as blood plasma volume decreases.*
- *When dehydration reaches 2% of the body weight, aerobic endurance is notably impaired.*
- *And heart rate and body temperature increase in response to dehydration.*

2) Explain the importance of hydration to an active athlete.

Answer:

- *Water balance depends on the electrolyte balance.*
- *But the need to replace lost body fluid is greater than the need to replace lost electrolytes.*
- *Because sweat is very dilute.*
- *It is important to drink water at regular intervals during prolonged aerobic exercise.*
- *To reduce the risk of dehydration.*
- *And optimise cardiovascular and thermoregulatory functions.*

3) How is body water balance maintained during prolonged aerobic exercise?

Answer:

- *The intensity of the physical activity, environmental temperature and humidity determine the amount of water loss through sweating with associated sodium loss.*
- *Water balance depends on the electrolyte balance.*
- *But the need to replace lost body fluid is greater than the need to replace lost electrolytes.*
- *Because sweat is very dilute.*
- *It is important to drink water at regular intervals during prolonged aerobic exercise.*
- *To reduce the risk of dehydration.*
- *And optimise cardiovascular and thermoregulatory functions.*
- *Drink 150ml to 300 ml of fluid about 30 minutes before exercise.*
- *Drink water at regular intervals during activity. For example, up to a litre of water per hour spread over 15 minute intervals during rcise in hot humid conditions.*

4) Distinguish between isotonic and hypertonic drinks?

Answer:

- *An isotonic sports drink consists of a dilute liquid that do not exceed 7% glucose concentration.*
- *Matching the same concentration levels of blood glucose.*
- *A hypertonic sports drink consists of much higher levels of glucose of up to 20%.*

5) What are the potential benefits of sports drinks?

Answer:

- *Sports drinks are designed to supplement energy, fluid and protein needs of the athlete.*
- *Hypotonic sports drinks are designed to quickly replace fluids lost through sweating as they are low in carbohydrates at around 4% glucose.*
- *They are very popular with athletes who need fluid without the boost of carbohydrate.*
- *Isotonic sport drinks contain concentrations of salt and glucose (between 5-7%) that match the same levels of concentration as in the blood.*
- *Both hypotonic and isotonic sports drinks are an important source of energy during exercise as they reduce the risk of dehydration.*

- *During recovery, hypertonic drinks contain much higher levels of glucose – up to 20%.*
- *This highly concentrated drink is used to replenish depleted glycogen stores.*
- *And should be drunk as soon as the exercise period has been completed.*

Questions - text book page 81

1) What is creatine?

Answer:

- *Creatine is a natural substance found in skeletal muscle.*
- *Stored as phosphocreatine (PC).*

2) What type of athlete would benefit from taking a creatine monohydrate supplement?

Answer:

- *Since energy derived PC is anaerobic and explosive, power athletes such as weight lifters, sprinters, gymnasts and throwers would benefit from taking creatine monohydrate supplement.*

3) Identify the advantages and disadvantages of using a creatine monohydrate supplementation?

Answer:

Advantages:

- *Increase in PC stores, thereby delaying alactic/lactic threshold.*
- *Which means that athlete can apply maximum power for longer.*

Disadvantages:

- *Associated muscle cramps.*
- *Weight gain.*
- *Heat-related symptoms such as dehydration.*
- *Renal stress.*

Questions - text book page 83

1) Figure 6.12 shows the influence of dietary carbohydrate on muscle glycogen stores. Give examples of types of food that are high and in carbohydrates.

Answer:

- *Cereal, potatoes, bread, pasta, biscuits, cake.*

2) What is meant by the terms depletion and repletion within the concept of carbo-loading?

Answer:

- *Depletion occurs when the diet and exercise is manipulated to reduce levels of liver and muscle glycogen stores.*
- *Achieved by athlete reducing CHO intake and increasing exercise programme.*

- *Following depletion, repletion occurs when athlete consumes a high CHO diet, with light exercise or rest.*
- *In terms of carbo-loading, the body reacts to glycogen depletion by vigorously increasing muscle and liver glycogen content to above normal levels.*

3) What are the benefits of taking a sports drink immediately after exercise?

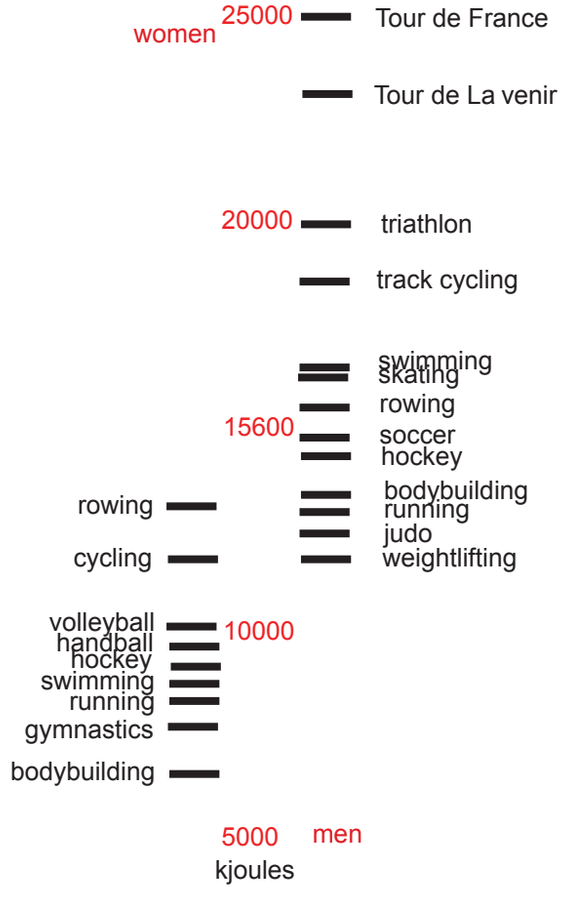
Answer:

- *Replenishment of body fluids.*
- *Replenishment of blood glucose and muscle and liver glycogen stores.*
- *Replenishes sodium levels.*

Exam style questions - text book pages 85 - 86

1) Figure 6.13 shows the daily energy intake (kCal) of elite male and female endurance, strength and team sport athletes.

figure 6.13 – daily energy intake for elite athletes



a) Account for the differences in the daily intake for males and females ranged between 2900 and 5900 kCal. 3 marks

Answer:

- *The difference between males and females can be accounted for by size difference.*
- *And so values per kg of body mass would be similar.*
- *Females have lower basal metabolic rate of when compared with males, because they have less fat-free tissue.*

b) Give reasons why cyclists competing in the Tour de France require a daily intake of up to 25000 kjoules. 3 marks

Answer:

- *The Tour de France is a gruelling endurance cycling race, organised over three weeks.*
- *This race includes mountain and flat stages, and time trials.*
- *Each stage taking several hours to complete.*
- *Hence the daily energy expenditure of each competitor is very high.*

c) Why do female body builders have the lowest daily energy intake? 2 marks

Answer:

- *Bodybuilding is the use of progressive resistance exercise to control and develop one's physique of extreme muscle hypertrophy.*
- *Because training is predominantly strength-based, consisting of short high intense bouts of exercise, the energy requirements are less when compared with other female sports such as running or playing a game, as illustrated on figure 6.13.*

1) d) How can a negative energy balance ultimately compromise an athlete's potential to train and complete. 3 marks

Answer:

3 marks for 3 of:

- *A negative energy balance occurs when energy output is greater than energy input.*
- *This means that more energy is used (via exercise in the case of a sports performer) than is eaten as food.*
- *And over time leads to a bodyweight reduction.*
- *Due to loss of muscle protein as protein is broken down and used as a supplementary energy supply.*
- *Symptoms such as lack of energy (due to low muscle and liver glycogen content), tiredness and inability to complete training sessions and prepare for competitions are experienced by the athlete.*
- *Athlete is more likely to suffer from stress fractures as body becomes vulnerable to impact of training sessions.*
- *Overall a negative energy balance will negatively affect training and competitive performance.*

2) The ideal precompetition meal should maximise muscle and liver glycogen storage and provide glucose for intestinal absorption during exercise. How can these goals be achieved? 4 marks

Answer:

- *Eat light complex CHO such as pasta or wholemeal bread.*
- *Eat fruit, such as a banana, containing complex CHO.*
- *Small amounts of glucose as supplied in an isotonic sports drink or energy gel.*
- *To be consumed 3 to 4 hours prior to exercise/competition period.*
- *These foods contain very little fat and fibre to facilitate gastric empting and minimise gastrointestinal distress.*
- *So good absorption of glucose to muscle and liver glycogen stores.*

3) An athlete is competing in a decathlon (consisting of 10 track and field events) over a period of two days.

a) What nutritional advice would you give this athlete during and between the events in order to achieve an optimal performance. 6 marks

Answer:

6 marks for 6 of:

- *Plan and practice a proposed diet/fluid intake that would nutritionally support the nutritional needs for a decathlon.*
- *During and between events, keep fat intake low and focus on slow-release (low GI) carbohydrates such as wholemeal bread and bananas.*
- *That can help even out blood glucose levels and support muscle and liver glycogen levels.*
- *Use energy gels and energy bars that top up blood glucose levels quickly.*
- *Drink water at regular intervals to remain hydrated. More fluid intake is needed in hot, humid conditions.*
- *Drink sports beverages, such as isotonic sports drinks, between events, thus providing a continued source of carbohydrates to the body.*
- *Plus added sodium, potassium and caffeine, available in some products.*
- *Help to improve electrolyte balance and overall performance.*
- *Watch out for hyperhydration or excessive water intake.*
- *Check colour of urine – it should be pale yellow or nearly clear.*

b) At the end of day one, how could this athlete replenish his glycogen reserves? 4 marks

Answer:

4 marks for 4 of:

- *Eat to recover.*
- *Have a meal as soon as possible following the end of day one. The body has a two hour window immediately following exercise, during which it is more effective in restoring muscle and liver glycogen levels.*
- *A meal consisting of an equal ratio of carbohydrates and protein is the best choice.*
- *Avoid meals with a high fat content, as fat slows digestion and delays the delivery of much needed nutrients to your muscles.*
- *Suggestions for meals include protein shakes, eggs and orange juice, tuna fish sandwiches, bananas, low fat yogurt and oatmeal with fresh fruit.*
- *In addition, eat 50 grams of carbohydrates every two hours to continue the rate of restoring the depleted glycogen stores.*

4) Identify some of the benefits of taking commercially prepared liquid meals. 3 marks

Answer:

- *Offer well-balanced nutritive value.*
- *Contribute to fluid needs.*
- *Are rapidly absorbed.*
- *Leave little residue in the digestive tract.*

5) Table 6.5 provides information on exercise intensity and duration. Information on the appropriate fuel foods for action has been omitted.

Table 6.5 – **fuel and exercise**

exercise intensity	exercise duration	fuel used
maximal sprint	**short**	***carbohydrate***
low to moderate	**moderate - up to 2 hours, e.g. jogging**	***carbohydrate and fat equally***
severe	**prolongued - e.g. cycling**	***less carbohydrate and more fat***

a) Complete the third column to show which fuel foods supply the glycogen needed as exercise intensity and duration change. 3 marks

Answer:

See table 6.5 above.

b) Why is carbohydrate a much faster fuel (energy) source when compared with fat utilisation? 2 marks

Answer:

2 marks for 2 of:

- *Carbohydrates are absorbed as glucose in the small intestine.*
- *And transported around the body to provide an immediate energy source.*
- *Although fat provides twice the energy yield of carbohydrates, fats are absorbed as fatty acid and glycerol, stored as triglycerides in adipose tissue.*
- *And then converted to glucose in the liver.*
- *And so there is a delay in fat conversion of 20 minutes minimum before fat becomes a usable energy fuel food.*

c) High-fat diets, as an ergogenic strategy for sports performance, have been used by athletes for endurance and ultra-endurance sports. Discuss. 6 marks

Answer:

6 marks for 6 of:

- *Eating a low-carbohydrate, a high-fat diet increases fat reserves and can force the body to adapt to burn fat more efficiently.*
- *Body fat reserves represent a relatively abundant fuel substrate even in the leanest of athletes even with low body fat percentages of 10%.*
- *Yielding twice the energy yield of carbohydrates.*
- *And so fat becomes a valued secondary fuel food as the exercise duration increases.*
- *Endurance athletes can exercise at a higher submaximal exercise level from improved fat oxidation.*
- *Thereby conserving glycogen stores, a physiological adaptation called 'glycogen sparing'.*
- *Excess fat reserves are detrimental to most sport performance due to increased body mass.*
- *Which can have a negative effect on sport performance.*
- *For optimal competition performance, the athlete needs a combination of adequate fuel stores from CHO and fats in relation to the demands of his or her event.*

6) What are the benefits of adding a small amount of sodium to a rehydration beverage? What is the effect of hyperhydration on sodium functioning within the human body? 3 marks

Answer:

1 mark for:

Benefits of adding a small amount of sodium:

- *Sodium is an electrolyte, and it helps regulate the amount of water that's in and around your cells.*

What is the effect of hyperhydration:

2 marks for 2 of:

- *Drinking too much water during endurance sports causes the sodium in the body to become diluted.*
- *When this happens, the body's water levels rise, and cells begin to swell.*
- *With an associated reduction in urine production.*

7) Why is water considered an important nutrient to the human body, and why might a person who is exercising need extra amounts of it? 4 marks

Answer:

2 marks for 2 of:

Function of water within the human body:

- *Water makes up 72% of muscle weight and 50% of adipose tissue.*
- *The human body uses water in all its cells, organs, and tissues to help regulate its temperature and maintain other bodily functions.*

2 marks for 2 of:

Why might a person who is exercising need extra amounts of it?

- *During exercise more water is produced during tissue respiration.*
- *And is transported to the skin where sweating occurs.*
- *More water must be consumed to replace the amount lost.*
- *Since excess loss of fluids impairs performance.*

8) a) Discuss how a balanced diet could be manipulated to increase an athlete's glucose reserves prior to a marathon race. 6 marks

Answer:

- *Carbo-loading (or glycogen loading) before the event (modern method).*
- *This consists of tapering of training, whilst eating 50% CHO diet.*
- *Partially depletes glycogen stores.*
- *Therefore energy levels are not compromised.*
- *And glycogen synthase activity is increased (enzyme responsible for converting glucose to glycogen).*
- *Then, gradually increase CHO intake to 70% of diet, with light training.*
- *Day of rest and 70% CHO diet.*
- *Repletes glycogen stores on day of marathon.*
- *Taking in isotonic fluids during the event will top up blood glucose levels during the event.*

b) Carbohydrates are used as an energy source during both aerobic and anaerobic conditions. It is therefore beneficial that an elite athlete's stores of carbohydrate are at a maximum before competition day. Discuss the advantages and disadvantages of glycogen loading. 4 marks

Answer:

Advantages:

- *Enhanced glycogen stores in muscle and liver.*
- *Overall effect is for overall times in aerobic activities beyond 90 minutes to improve significantly.*

Disadvantages:

- *Increased body mass due to increased water retention.*
- *Needed for enhanced glycogen storage.*
- *During CHO depletion phase decreased energy levels.*
- *And increased fatigue (if using classic method of carbo-loading).*

8) c) How can an athlete's diet aid the recovery process? 2 marks

Answer:

2 marks for 2 of:

- *Quick ingestion of carbohydrates after exercise (2 hour window of opportunity) will speed up recovery.*
- *Eating foods, such as rice and bananas, that have a high glycemic index.*
- *To raise blood glucose levels quickly and stimulate greater insulin release needed to convert glucose into glycogen.*
- *Water needed to rehydrate the body.*
- *Electrolyte replenishment needed to aid the metabolic process.*
- *Protein needed to aid tissue damage, repair and growth.*

9) Give a brief outline and comment upon the following techniques, which may be employed in the belief that they will enhance sport performance: 12 marks

3 marks for each technique.

a) Whey protein.

Answer:

- *Whey protein is a natural protein present in milk and is used as a protein supplement in sports drinks.*
- *Whey protein contains a branch chain of amino acids which are the first ones to be used during intense training.*
- *Because it is extremely easy to digest and so can provide instantaneous nourishment to the muscles.*
- *Whey protein provides the body with these amino acids and in turn they assist with repairing and rebuilding lean muscle tissue.*

b) Ginseng.

Answer:

- *Ginseng is derived from a root and consumed as tea.*
- *It is thought to increase mental alertness, boot energy levels, increase $\dot{V}O_{2max.}$, reduce OBLA and boost the immune system.*
- *There are a limited amount of scientific studies to support these claims.*

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c) Bicarbonate loading.

Answer:

- *Bicarbonate loading is a process whereby a performer ingests bicarbonate prior to competition.*
- *Used in anaerobic sports that generate high levels of lactic acid, such as a 400 metre race.*
- *The ingestion of bicarbonate provides a buffer, thus allowing higher concentrations of lactate in the blood.*
- *Thus delaying the onset of fatigue (OBLA).*
- *Bicarbonate loading can cause cramping, vomiting, bloating and diarrhoea.*

d) Caffeine.

Answer:

- *Caffeine stimulates the central nervous system, thereby reducing reaction time.*
- *Caffeine is used as a substance to promote fat metabolism.*
- *Thus sparing glycogen reserves during prolonged exercise.*
- *And reduces adipose tissue in elite performers.*
- *Benefits are likely to occur across a range of sports, including endurance events, stop-and-go events (e.g., team and racquet sports), and sports involving sustained high-intensity activity.*

10) What is an ergogenic aid? Discuss the role which nutritional supplements play in improving performance. 12 marks

Answer:

2 marks for definition:

- *An ergogenic aid is defined as any means of improving the efficiency.*
- *And enhancing the quality of sporting performance.*

Examples of nutritional ergogenic aids, identifying at least 3 ergogenic aids and giving an explanation for its use:

- *Creatine supplementation increases PC levels.*
- *Thereby enhancing ATP-PC energy system.*
- *Glutamine supplementation reduces the risk of infection by boosting the body's immune system.*
- *Vitamin supplementation (C and E) act as antioxidants, thereby enhancing recovery from exercise.*
- *Isotonic sports drinks prevent dehydration.*
- *And supplement energy reserve.*
- *Hypotonic sports drinks replenish blood glucose levels.*
- *And top up glycogen stores after exercise has finished.*
- *Caffeine ingestion increases mental alertness.*
- *However, an unregulated supplement industry, and inadvertant cross contamination of supplements with banned substances.*

11) The dietary requirements of a power athlete and an endurance-based athlete have similarities and differences. Discuss 12 marks

Answer:

- *A balanced diet for both groups of athletes is essential for optimal performance.*
- *Consisting of between 10-15% proteins, 20-25% fats and 60-75% carbohydrates.*
- *And nutritionally complete to meet the demands of the individual's training and competition programme.*
- *As well as providing nutrients for tissue growth and repair.*
- *A tailor-made diet will include the additional nutrient and fluid demands that will enable an athlete to train hard, recover between sessions and maintain ideal body weight.*
- *The energy requirements between a power and endurance-based athlete will be different because of the differences in the intensity and duration of the training or competition programmes.*
- *As reflected by the daily energy intake of around 8500 kJ for a female swimmer and around 6000 kJ for a female gymnast.*
- *Glycogen is the most important fuel reserve and the major fuel that supports any type of exercise.*
- *Hence a high carbohydrate (CHO) diet significantly improves performance for both power athlete and endurance-based athlete.*
- *However, an endurance-based athlete, such as a marathon runner, would need to consume at least 6-10 grams of CHO per kg of body mass.*
- *The additional stored carbohydrate provides the critical energy for improved endurance performance.*
- *Furthermore, carboloading, used by many endurance-based athletes, is a very effective technique for increasing both muscle and liver glycogen stores.*
- *CHO requirement for a power athlete would be around 4-6 grams of CHO per kg of body mass.*
- *Thus reflecting a reduced intake as discussed above.*

- *Protein requirements would differ between these two groups of athletes.*
- *For an endurance-based athlete the recommended protein intake is 1.2-1.4 grams per kg of body mass.*
- *In contrast, for a power athlete the recommended protein intake is 1.4-1.8 grams per kg of body mass.*
- *This need for a difference in protein intake is because after heavy resistance training the rate of protein breakdown and resynthesis is greater for the power athlete.*

- *Fat intake should be restricted for both endurance and power athletes, since muscle mass is more powerful than fat.*

- *Water intake before, during and after training or competitions is vital to all sports performers.*
- *Since excessive fluid loss can lead to dehydration and reduced performance.*
- *Sports drinks also reduce the risk of dehydration.*
- *And provide an important source of energy.*
- *And so improve the performance of both endurance-based and power athletes.*

- *Elite power and endurance-based athletes supplement their diets with nutritional ergogenic aids.*
- *Such as glucosamine, a herbal supplement that is known to reduce joint inflammation and stiffness.*
- *And protein supplements such as glutamine, which is known to reinforce the immune system.*
- *Thus reducing the risk of infection.*

12) A level. Give a brief outline and comment critically upon the effects of glycogen loading on the enhancement of sport performance. 15 marks

Answer:

- *Glycogen loading, also known as carbo-loading, is a method of manipulating an athlete's diet to maximise the glycogen held in muscle and the liver.*
- *By raising muscle glycogen stores above their normal resting levels.*
- *Glycogen loading enables the maximum possible energy to be available for a major endurance event over 90 minutes of continuous activity.*
- *Depletion/repletion technique- traditionally 7 days prior to event such as a marathon race, liver and muscle glycogen stores are depleted.*
- *Achieved by the athlete eating a reduced intake of carbohydrates (CHO) with a low GI value for 3 days.*
- *And performing an endurance training session such as a 20 mile run.*
- *Repletion of glycogen stores occurs with a high GI, CHO-rich diet combined with light exercise or rest for 3 more days just prior to event.*
- *In terms of the effects of glycogen loading, the body reacts to glycogen depletion by vigorously increasing muscle and liver glycogen content to above normal levels during the repletion phase.*

- *There are disadvantages in using this dietary regime such as increase in body mass.*
- *Since more water is needed to store the increased glycogen stores.*
- *And during the depletion phase many athletes feel weak, depressed and irritable.*
- *Modern-day athletes prefer a gradual tapering off in training.*
- *Alongside increased carbohydrate intake again over a period of 7 days.*
- *This method offers similar ergogenic benefits to those observed in the depletion/repletion method outlined above.*
- *The advantage of this modern method is that is does not have the glycogen depletion phase and its disadvantages as outlined above.*
- *The evening prior to global endurance events, such as the London marathon, competitors are invited to pasta parties as a final effort to top up glycogen levels.*
- *During an endurance event, the effect of reduced muscle glycogen levels begins to be felt at the 1.5 hour mark.*
- *And so the athlete is advised to consume isotonic drinks and energy gels available at the food stations on the route.*
- *This fuel intake needs careful planning in order to optimise performance.*
- *The effect of drinks and gel foods during the event is to top up blood glucose levels that will sustain performance during the latter stages of the event.*
- *Using glycogen loading techniques before and during an endurance event, a runner's time would reduce by more than 10 minutes in a 2 hour run.*

13) How can an elite athlete assess whether their diet meets the demands of their training and competitive programmes? 4 marks

Answer:

4 marks for 4 of:

- *Elite athlete needs to be nutritionally assessed.*
- *Required to create a dietary log recording all food eaten and portions within an elected time period.*
- *Required to complete a questionnaire about food habits.*
- *Required to analyse training and competition demands.*
- *Checked for body composition to assess ideal body weight.*
- *Once assessment is completed, a tailor-made diet can be created that meets the specific and dietary requirements of the athlete.*