



Examiners' Report Lead Examiner Feedback

June 2206

Pearson BTEC Nationals
In Sport and Exercise Science (31824H)
Unit 13: Nutrition for Sport and Exercise Performance

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications website at <http://qualifications.pearson.com/en/home.html> for our BTEC qualifications.

Alternatively, you can get in touch with us using the details on our contact us page at <http://qualifications.pearson.com/en/contact-us.html>

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson. Their contact details can be found on this link:

<http://qualifications.pearson.com/en/support/support-for-you/teachers.html>

You can also use our online Ask the Expert service at <https://www.edexcelonline.com>

You will need an Edexcel Online username and password to access this service.

Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your learners at: www.pearson.com/uk

June 2206

Publications Code 31824H _2206_ER

All the material in this publication is copyright

© Pearson Education Ltd 2022

Grade Boundaries

What is a grade boundary?

A grade boundary is where we set the level of achievement required to obtain a certain grade for the externally assessed unit. We set grade boundaries for each grade, at Distinction, Merit and Pass.

Setting grade boundaries

When we set grade boundaries, we look at the performance of every learner who took the external assessment. When we can see the full picture of performance, our experts are then able to decide where best to place the grade boundaries – this means that they decide what the lowest possible mark is for a particular grade.

When our experts set the grade boundaries, they make sure that learners receive grades which reflect their ability. Awarding grade boundaries is conducted to ensure learners achieve the grade they deserve to achieve, irrespective of variation in the external assessment.

Variations in external assessments

Each external assessment we set asks different questions and may assess different parts of the unit content outlined in the specification. It would be unfair to learners if we set the same grade boundaries for each assessment, because then it would not take accessibility into account.

Grade boundaries for this, and all other papers, are on the website via this link:

<http://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html>

Awarding BTEC qualifications in 2022

Ofqual has [set out their plans](#) for awarding qualifications in 2022 and intend to return to a normal, pre-pandemic, approach to grading standards over by 2023. They have confirmed that 2022 will be a transition year, to reflect that we are in a pandemic recovery period and students' education has been disrupted.

Our guiding principle and approach to awarding BTEC qualification results in 2022 will be to ensure parity in relation to the approach being taken for GCSE and A level learners. BTEC courses have a different structure and design to academic qualifications - BTECs are modular qualifications (with assessments taking place throughout the course)

compared to GCSEs and A levels which are linear (assessed and awarded at the same time at the end of the year), and therefore our approach needs to be different.

In 2022 we will return to the usual method of calculating BTEC qualification results, however adaptations including, U-TAGs and reduced internal assessment, are in place to provide a comprehensive package of support for students.

The basis of our awarding approach to BTECs this year is to ensure it is as fair as possible for all learners. We will use a range of evidence to set grade boundaries for the external units. Part of this evidence will be to closely monitor learner performance in all assessments that contribute to learners' final qualification grade, to ensure parity with A level and GCSEs.

Further information can be found [on our website](#) and via our Social Media channels.

Introduction

This LE Report should be considered with the live external assessment and corresponding mark scheme.

The format of this assessment followed that of previous test series in relation to the questions, client nutritional programme and client details.

Introduction to the Overall Performance of the Unit

As the paper had no pre-release materials and research notes were not permitted in the summative assessment, a nutritional principles booklet was provided. This booklet provided information on the food group for some foods in the nutritional programme that learners may not be familiar with. In addition, the kcals for 1 g of each macronutrient were provided, the Harris Benedict equation for BMR And activity factor levels. Lastly, the BMI calculation was provided. This was to support learners so that they did not have to recall specific information to support them with mathematical related interpretations of the nutritional programme and client details. This also allows for foods included in the nutritional programme to have variety over each series without disadvantaging learners that are not familiar with all of the foods in the programme.

Most learners were able to provide detailed interpretations of the nutritional programme, and most were able to work out the percentage of calorie intake for each macronutrient which provides a more accurate analysis of nutritional intake as opposed to using grams of intake as a form of comparison. Very few learners now relied on quantities related to the eat well plate which does not provide sufficient evidence for a detailed interpretation of nutritional intake.

There was a wide spread of marks, learners were able to achieve marks across all grade bands with some learners achieving full marks in this series.

The scripts showed that learners could organise their time to complete the initial analysis of the nutritional programme and carry out further related calculations and then go on to answer each question.

Individual Sub Tasks/Questions

Activity 1

In this activity learners had to interpret the nutritional programme for Jackie in relation to her health and wellbeing.

Good responses provided nutritional analysis of the percentage of macro nutrients consumed on a daily basis and compare these to recommended amounts.

The table below shows the type of analysis learners could have carried out to inform their analysis of the nutritional intake.

Day	Total Cals	CHO %	CHO g	Fat %	Fat g	Protein %	Protein g
Monday	1965	61%	300	30%	65	9%	45
Tuesday	2056	62%	320	28%	64	10%	50
Wednesday	2044	64%	325	28%	64	8%	42
Thursday	1812	61%	275	30%	60	9%	43
Friday	1828	61%	280	30%	60	9%	42
Saturday	1898	61%	290	29%	62	9%	45
Sunday	1940	62%	300	28%	60	10%	50

This analysis shows that protein intake is too low, carbohydrate intake is slightly too high and fat intake is appropriate.

In most learner responses, there were some links to health and wellbeing which is the focus for the first question. Where learners did relate this to health and wellbeing it was usually related to eating simple carbohydrates and a link to diabetes.

Many learners were able to comment on the no snacks throughout the day and timing of food intake

Some learners were also able to make the link between brown bread and having a high fibre content which reduces the potential for suffering from constipation or the long-term impact of helping to prevent bowel cancer. There was very limited reference to the low fruit and vegetable intake and the impact on low levels of vitamin and minerals.

Many learners mistakenly referred to jam and orange juice which are simple carbohydrates as being high fat followed by the impact of a high fat diet on health and wellbeing which is incorrect. It's important that learners understand the impact of eating high levels of simple carbohydrates and relate this to insulin to return blood sugar levels to normal as this does appear to be a misunderstood area of the specification.

It is expected that further interpretation of the client information should be included in the interpretation of the food intake including:

- Body Mass index which was 17.9 rounded up to 18 and therefore classed as in the underweight category.
- BIA was at 15% which is classed as very low for a female.

Basal metabolic rate could then be worked out using the Harris Benedict equation to work out the calorie intake for the person based on their specific details:

BMR = 1467.96kcal

BMR with activity levels = $1467.96 \times 1.9 = 2789$ kcals

Responses that were rounded up or down were credited.

From this information, learners should have been able to interpret that energy intake is below BMR plus activity levels so the person would lose body weight if they continued to follow this nutritional programme and were in a negative energy balance.

Fluid intake was referred to by many learners in relation to recommended daily amounts and types of fluids consumed, many learners stated that the client was drinking just enough water and could relate this to the RDA for water intake.

Lastly, the factors affecting digestion and absorption of nutrients and fluids should have been commented on in relation to the nutritional programme for the individual with some reference to the types of foods consumed such as simple carbohydrates and complex carbohydrates and timings of food intake.

Activity 1 - This response was awarded 20 marks out of 20.

Task and answer booklet

Please do not write answers outside the spaces provided.

You must complete ALL activities in this task and answer booklet.

- 1** Interpret Jackie's current nutritional programme, in relation to nutritional intake for health and wellbeing.

Use the nutritional principles information booklet to support your answer.

Your answer will focus on the following points:

- (a) food intake
- (b) fluid intake
- (c) factors affecting digestion and absorption of nutrients and fluids.

(20)

Jackie has a BMI of 18. This is her body mass index which is a number that tells us where she fits on a scale, depending on her height and weight. A healthy BMI is anywhere between 18 and 25. This means that Jackie is at the very lowest side of healthy, meaning she must maintain her weight otherwise she will be considered underweight. Her BIA result tells us she is a slimmer individual because she only has 15% of body fat, which isn't odd considering she is a javelin thrower. BMR stands for basal metabolic rate, and this is the amount of calories your body needs to function normally and maintain body temperature at rest. Jackie's BMR is 1468 calories. TER is the total energy requirement needed to maintain body functions and body temperature based on the individual's activity levels. Due to the fact Jackie's activity level is extra active, this means she must consume at least 2789 calories a day to maintain her own bodyweight. This is an extraordinary amount.

of calories for a 16 year old female, considering the recommended daily intake for females is 2000 calories and 2500 calories for males. Based off of her weeks diet plan, Jackie is only consuming between 1812 and 2056 calories daily. On average, 61-64% of her overall calories are coming from carbohydrates. It is recommended that 50-60% of your daily intake should come from carbohydrates, meaning Jackie is slightly over on the amount she is eating. Carbohydrates are the bodies main source of energy, providing you with long lasting energy. They are easy to digest meaning Jackie can eat them before training for energy. Therefore it is better that Jackie overeat carbs than not eat enough. Proteins are a form of amino acid that build and repair muscle and bones, as well as help make hormones and enzymes. It is recommended that 10-15% of your daily intake should be from protein, however Jackie is only getting 8-10% of her daily calories from protein. Protein deficiency can cause things like bone fractures due to the lack of strength in the bones, as well as causing rickets in children. Jackie should consider consuming more protein in her diet because it will help aid the recovery of muscles and aid their growth. This could benefit her sporting performance. The recommended amount of fat to consume each day is 30-35% of your daily calorie intake. On average, Jackie is consuming between 28-30% of fats in her diet. This is only just below the recommended.

Fats are good for you because like carbohydrates, they help supply the body with energy. However, too many fats cause weight gain, which could lead to obesity, heart disease and type 2 diabetes. Jackie seems to consume a form of saturated fat everyday because she is having jam. Saturated fats are sugary fats that will only supply short immediate bursts of energy. These types of fats are what could cause obesity and type 2 diabetes if eaten in excess. Unsaturated fats are the healthy fats such as nuts, avocados and seeds which Jackie doesn't appear to be including in her diet. Her fluid intake appears to be good because she is drinking 2 litres of water every single day, and it is recommended that you consume 2-2.5 liters everyday. It is important for Jackie to remain hydrated throughout the day because it allows her body temperature to regulate properly. If she were to become dehydrated, she may suffer from clammyness, headaches and dizziness. She is also consuming 330 ml of isotonic sports drink everyday that she is training. This is good because the drinks will help replenish salts and sugars lost through sweat. Lastly she is consuming 1-2 glasses of orange juice everyday. Orange juice is high in vitamin C which is good for things like wound healing and preventing scurvy. There are a number of other micronutrients she is consuming. For example, she eats broccoli and lettuce which are sources of vitamins K. ~~and~~ Vitamin K is found in a lot of leafy green vegetables and is good for blood clotting, if you are deficient in vitamin K you

are at risk of blood clots. ^{*} Finally, in her diet Jackie is consuming foods such as Noodles ~~and~~, spaghetti ~~and~~ and brown bread which all contain grains. Grains are a type of fibre ~~and~~ which is very good for healthy digestion and help harden your stools.

^{*} She is eating carrots which are good sources of vitamin A. Vitamin A is essential for helping vision, ~~and~~ if you are not getting enough vitamin A within your diet it could cause night blindness.

The learner was able to provide a full analysis of the BMI and BIA. BMR and BMR with activity levels were provided for this client and a confirmation that the client was not eating sufficient calories for their activity levels.

The learner was able to provide an analysis of the nutritional programme in relation to:

- Each macronutrient in terms of percentage intake
- Function of each macronutrient
- RDA percentage for each macronutrient
- then give an analysis on how the clients intake was or was not in line with these RDAs.
- Link to health and wellbeing for some of the macronutrients
- Links to health and wellbeing for named micronutrients in foods in the clients diet

Links to any modifications or sporting performance are not credited in this activity as this is all assessed in Activity 2.

Activity 1 - This response was awarded 4 marks out of 20.

Task and answer booklet

Please do not write answers outside the spaces provided.

You must complete ALL activities in this task and answer booklet.

1 Interpret Jackie's current nutritional programme, in relation to nutritional intake for health and wellbeing.

Use the nutritional principles information booklet to support your answer.

Your answer will focus on the following points:

- (a) food intake
- (b) fluid intake
- (c) factors affecting digestion and absorption of nutrients and fluids.

(20)

Within Jackie's current nutritional programme she has the same breakfast and lunch choices and also no snacks through out the day. With her lunch choices she has high glycaemic index carbohydrate choices which has high fibre in them. Also her breakfast has HGI too however with her dinner she has got varieties with veg, low glycaemic index carbohydrates as well as omega 3 such as in oily fish. Within her fluid intake she also has the same drinks everyday with also having 2L of water every day which is not enough water in her 5th hydration as she is extra active within her training and sport.

within her results of her basal metabolic rate (working out down below)

$$\begin{aligned} & \text{Females: } 665.1 + (19.536 \times 58 \text{ kg}) + (1.89 \times 180 \text{ cm}) - (4.676 \times 16) \\ & \quad \quad \quad \downarrow \quad \quad \quad \downarrow \quad \quad \quad \downarrow \quad \quad \quad \downarrow \\ & 665.1 + 554.654 + 333 - 74.816 \\ & \quad \quad \quad \downarrow \\ & 1467.938 \text{ rounded up } 1467.94 \end{aligned}$$

with her BMR 1467.94 she is eating over her BMR which shows that she burns a lot of fat. The factors affecting digestion and absorption of nutrients and fluids is the factor of having high glycaemic index carbohydrates which has a lot of fibre making it easier for bowel movements as also not having enough protein within her diet. Her fluid intake for water is low the government recommended 2.5 litres of water everyday ~~also~~ ^{however} as she is extra active her body would need more hydration as she probably eats sweets more and her breathing rate increases. Also within the food intake she should be open to having snacks throughout the day e.g. like fruit or a cereal bar.

This response provides a very generic knowledge of the client's nutritional programme and just provides overviews of food stating 'lunch choices have a high glycaemic index' which gains no credit as the learner needs to state which foods in the nutritional programme have a high glycaemic index and what this means in terms of digestion and absorption. Reference to Omega 3 in oily fish again gains no credit as the learner has to select the foods in the diet that meet this criteria to show application of knowledge and understanding to the client and nutritional programme provided.

Reference to not enough fluids again shows limited knowledge however, later on in the response they do make reference to the RDA for fluid intake which is required in order to be able to determine if the client is consuming sufficient fluids.

BMR working out is correct however the learner does not add in the activity levels so does not make the link that the client is in a negative energy balance.

The learner has picked out content in the nutritional programme such as full fat cheese, chips and stated that they are fatty foods rather than any analysis of the overall percentage of fat or indeed other macronutrient intake.

Activity 2

Nutritional strategies are provided in the unit content in Learning Aim D. It is therefore expected that learners will select appropriate strategies for the client based on their event and their current nutritional intake.

Many learners did not perform as well in this activity, compared to Activity 1. This could be due to the fact, greater application is required for this activity in relation to addressing the concerns identified in Activity 1 - (how and why this diet can be modified and how this will be beneficial to improve sporting performance for the clients specific sport)

For this activity, learners needed to focus on two main strategies:

- Increase protein intake
- Increase calorie intake

The client takes part in a strength-based sport and as such a high protein diet is required to support muscle hypertrophy.

Learners could gain credit from knowledge shown such as:

- Examples of quantities of protein intake
- Suggestions of foods to add in more protein
- Knowledge of supplements to increase protein intake also gained credit such as:
 - Protein shakes
 - Protein bars
 - BCAA (leucine, isoleucine, valine) / derived from whey protein)

They could follow this by providing justification of the benefits of the increased protein intake for a strength-based athlete such as repair muscle after training, hypertrophy, higher muscle mass increases force produced to throw the javelin, reduced risk of injury from muscle tear, BCAAs broken down most in weight training so benefits of supplementation with these.

Increase calorie intake and/or weight gain could include Increase portion size, appropriate snacks and the benefits from this including reducing the use of protein as energy source so protein used for muscle repair/growth; more energy available for training; glucose/glycogen used for energy production in sport/training at high intensity.

In addition, other modifications that could gain credit include

- Reduce carbohydrate intake for a strength athlete, use of carbs and protein promotes an anabolic environment to increase protein synthesis to promote muscle development
- Increase water or fluids intake for sport so greater than 2.5 L used for thermoregulation in sports performance (sweating)

- Supplements: Creatine, caffeine and the effects on sports performance including potential issues of supplements related to contamination
- Micronutrients - Vitamin supplement or in diet – to gain credit here the learner would need to name the micronutrient and their effect on the body to improve sports performance

Learners responses related to digestion and absorption gained credit for reference knowledge such as:

- Spreading protein consumption across the day including meals and snacks to produce multiple spikes in Protein synthesis
- Creatine uptake boosted by carbohydrate rich meal or snack
- 30-35 g intake of protein optimal intake absorption – any more than that converted into fat/broken down and excreted through urine as urea
- Excess protein intake can lead to digestive distress
- Golden window post exercise to maximise protein synthesis

Any justification of the modifications related to health and wellbeing were not credit worthy unless there were additional links to the effect on sporting performance.

Good responses provided appropriate modifications which were supported with reasoning for each modification related to the clients sporting event.

Activity 2 This response was awarded 20 out of 20 marks

2 Modify the nutritional programme, based on nutritional strategies, in relation to Jackie's sports event.

Use the nutritional principles information booklet to support your answer.

Your answer will focus on the following points:

- (a) modifications that are relevant to the sporting event
- (b) justifying the modifications
- (c) the impact of factors affecting digestion and absorption of nutrients and fluids.

(20)

Jackie does javelin for her sport so therefore will require a lot of protein as it is a strength and power based sport that requires large a lot of muscle fibres (type 2a and x especially) for peak performance. As mentioned in Q1, Jackie isn't getting enough protein with around 8-10% of her diet being protein when the RDA is 15-20%. ~~She is~~ Not having enough will prevent her micro fibre tears from healing and therefore ^{her muscles} won't recover properly from training and won't get stronger or build the muscle she needs to increase the strength and power of her throws. She can increase ^{this} ~~be~~ protein by eating more lean meat and ^{other} high biological value, complete proteins such as eggs and ^{machery} ~~soy~~. She could have eggs on toast instead of jam on toast which is full of simple carbs and sugar anyways, so ~~doing~~ this would be healthier and increase protein. She should try to eat ~~these~~ her protein within the 'golden hour' for optimum protein.

Synthesis after a training session. ~~Since~~ She could have does weightlifting most days at 7-8 am and should therefore aim to eat her eggs on toast (at least ~~4~~ 5-6 eggs) within 8-9 am. She could also consume a protein shake right after a workout if this isn't possible, as protein powder contain high quality protein and BCAAs including amino acids the body doesn't produce. The powder should be from a reputable ~~comp~~ brand like MyProtein or Bulk. This way, she can maximise muscle growth and increase her protein intake to the recommended amount and thus increase performance in her ~~sport~~ sport and allow her muscles ~~to~~ recover and benefit more from ~~the~~ her weightlifting sessions and javelin training - she could also try combining her carbs and protein by consuming her salads, spaghetti's and pastas with large pieces (around 100-200g) of lean meat (red meat for creatine and extra benefits to ~~her~~ strength and performance) ~~and~~ like chicken breast. This should allow her to not only recover her muscles tissues but also her glycogen stores which were also used up during training and the ~~should be~~ ~~eat~~ carbs should be consumed in the 'golden window' of 2 hours after workout for ~~optimal~~ faster rate of ~~it~~ converting into glycogen.

Jackie needs to also add some more fruit to her diet like apples and bananas (for potassium) she could add these to her snacks since she does not eat them for the entire week. These are high in things like potassium ~~and~~ to prevent weakness and fatigue and other minerals and also vitamins such as vit C which improves wound healing and prevents diseases like Scurvy, it also boosts immune system and prevents sickness. This will benefit performance, as she will turn up to events fully healthy and ready. ~~without~~ ^{Drinking} things like milk and eating more dairy products like cheese (which she eats but not enough) will increase her calcium and therefore the strength of her bones to prevent weak, brittle bones that could fracture/break/injure during performance (especially ^{spine and} arms bones as they do ~~not~~ most of the work in her sport). ~~More~~ She could replace her orange juice for 1-2 glasses of ^{whole} milk instead or make her protein shakes with 500ml of ~~low~~ ^{high} fat whole milk, I say whole milk as she is not consuming enough calories (1934) and should be consuming 2789 to maintain her energy levels, prevent fatigue and allow her ^{muscles} body to recover glycogen stores after ~~long~~ training/performance and slow rate of fatigue. ~~She~~ She needs to increase portion sizes of complex

~~So~~ ^{Carbs to do this. So} although Jackie is ~~not~~ eating enough calories and should therefore increase her ^{food} portion sizes. For example, instead of 2 slices of brown bread for breakfast, make in 4-5. Liquid calories like the protein shake I've mentioned are also easier and quicker and more convenient to consume ~~digest~~ and digest ~~of~~ within the 'golden hour' after workouts for optimum protein synthesis and strength gains to enhance her throws and increase the distance the javelin travels. She could consume this protein shake (and add other foods to it like peanut butter for more cal's and protein) ~~to~~ right after her 6-7 pm javelin sessions. ~~to advise this~~ ~~be advised~~ Jackie should aim to drink 3-4 litres ~~less~~ of water per day since she only consumes 2 litres ~~while~~ while doing a lot of physical activity that ~~requires~~ requires fluids to be replaced ~~after~~ by 150% after being lost through sweat. Water also aids in digestion. Fibre also aids in digestion and she could get more by consuming more fruit like I mentioned. She could also add other snacks like almond nuts for vit E. It's important that she consumes vit B₁₂ from things like eggs, ~~because~~ as vit B allows energy to be absorbed from nutrients and therefore used more efficiently during competition/training. Digestion of food should be given 6-8 hours to pass stomach and ~~then~~ small intestine.

(Total for Activity 2 = 20 marks)

In this response, the strategies provided are realistic and specific to the client's diet. The learner has identified increasing protein intake required with reference to the RDA. Justification as to the issues related to a low protein intake are provided and modifications to the diet with methods to increase protein intake are given.

Reference to timing of food intake to optimise protein synthesis is also provided. Knowledge of BCAAs in a protein shake and reasons why these are taken is provided. An understanding of glycogen stores, their use in training and how to replete these together with knowledge of the golden window to maximise glycogen repletion also gains credit.

Knowledge of micronutrients is demonstrated, milk containing calcium reducing the risk of bone fracture when competing and B vitamins and energy release gains credit.

Methods to increase calorie intake are also provided as well as identification and justification related to sports performance of increasing fluid intake.

Activity 2 This response was awarded 4 out of 20 marks

2 Modify the nutritional programme, based on nutritional strategies, in relation to Jackie's sports event.

Use the nutritional principles information booklet to support your answer.

Your answer will focus on the following points:

- (a) modifications that are relevant to the sporting event
- (b) justifying the modifications
- (c) the impact of factors affecting digestion and absorption of nutrients and fluids.

(20)

To modify Jackie's nutritional programme for javelin, I would include a protein shake ~~before~~ 20 minutes ~~before~~ after finishing ~~training~~ weight training, this because it will add extra protein into the diet, to help with getting her BMI to a healthy range, and also ~~to~~ help with repair of muscles after exercise to counteract the muscle soreness and feeling of fatigue. I would also add an extra portion of oily fish which is also rich in protein, this is because it helps with joint movement and give more range at the shoulder when throwing a javelin.

~~Another nutritional strategy would be to include tapering in the training programme, this is because it would~~

Carbloading before an event of javelin would be helpful to Jackie, this is because it would boost energy levels by ~~boosting energy levels~~ having more glycogen in the body ~~is~~ when leading up to throwing at an event or ~~training~~ training. Too much of this ~~is~~ would lead to the glycogen stores turning to fat so must be done in moderation.

Tapering is also a useful way of keeping healthy to take part in a sporting event like javelin for Jackie. This is because she could regulate the amount of macronutrients she consumes by using her percentages against the recommended daily allowance. Tapering will help with injury prevention and muscle repairs, the reason for this is that Jackie will ~~be able to~~ ~~have~~ be able to have protein and calcium in her diet ~~to~~ to aid with keeping the likelihood of injury at a minimum.

In this response the learner has identified the client should have a protein shake and linked this to repairing muscle tissue which gains credit. The recommendation to have a fish is a high protein food so also gains credit.

No credit is given to the part of the response related to carbohydrate loading as this is not relevant for this clients sport.

Reference to tapering is confused and incorrect and gains no credit.

Activity 3

The learner's response should focus on the following key areas:

- protein to help with muscle repair from damage in competition
- replace depleted glycogen stores used in competition/restore blood glucose levels
- replace fluids lost through sweating in the competition

Factors affecting digestion and absorption of foods and fluids are also important in the different phases of the event and as such the learner's response could have covered areas such as:

Protein

- Golden hour – first hour after exercise to maximise muscle repair
- BCAA – increase rate of protein synthesis compared to other proteins

Glycogen resynthesis

- First two hours post event body is able to convert carbohydrate into glycogen at a very fast rate – (golden window).
- high or moderate GI carbohydrates (50-75g) in first 15 mins
- 50-75 g of carbohydrate every 2 hours

Fluid replacement

- Isotonic drinks contain electrolytes to increase rate of rehydration, sodium to replace sodium/Potassium lost through sweat
- Cold drinks and carbonated drinks take longer to absorb fluid into the blood stream

Many learners mistakenly referred to the client consuming glycogen and did not seem to know that carbohydrates are converted to glycogen with links to the golden window optimising this conversion time.

Activity 3 This response was awarded 10 out of 10 marks

3 Recommend nutritional guidance for Jackie based on her phase of event.

The phase of event is 'post-event'.

Your answer will focus on the following points:

(a) links to the phase of event

(b) impact of factors affecting digestion and absorption of nutrients and fluids.

(10)

Jackie is in the 'post-event' phase. This means that she needs to replenish her glycogen stores and fluids that will have been lost through sweat. I recommend that she rehydrates immediately after the event with water and 150% of what was lost by drinking water or isotonic sports drinks which also include electrolytes and sodium that increase the rate of rehydration, and sodium (also lost via sweat). She should aim to replenish glycogen stores within the 'golden window' of 26-2 hours after event as that is when carbs are converted to glycogen the quickest. Eat plenty of ~~high~~ ^{medium} to moderate glycemic index foods such as gummy bears, cereal or sports drinks like Lucozade sport to replenish 50-75g within the first 15 mins, as they don't have too long to digest and absorb nutrients / carbs.

protein bars are also a good option, as her muscles will be very fatigued and have

lots of micro-tears that need to be repaired by consuming complete, high biological value protein like this and also things like protein shakes since their all convenient, and easy to digest (especially liquid proteins). Consume your protein within the 'golden hour' ~~per~~ (1 hour after event) for maximum protein synthesis. Since it's a strength-based sport and not endurance, ~~it is~~ ~~people~~ consuming protein ~~will~~ should will be much more important ~~than~~ ~~it~~ compared to replenishing to allow the ~~user~~ muscles ^{issues} (especially in arms) to recover (heal). Eat ~~to~~ a large meal of carbs like pasta ^{at nice to} aid in replenishing ~~carbs~~ glycogen.

~~Consume~~ Ensure that Jackie is deficient in Vitamin B, as this will aid in absorbing and using the energy gained from the protein and nutrients for better recovery post event. Give 6-8 hours for food to pass stomach and small intestine and 24-72 hours for post-event meals to fully digest depending on how much is eaten.

Finally, energy gels are also a good option for consuming immediately after the event for a quick ~~ref~~ release of energy and helping body recover.

(Total for Activity 3 = 10 marks)

This response covers the key areas of focus for the post event phase of a strength-based sports event.

Reference to fluids, quantities and types of fluids are provided, together with knowledge that electrolytes increase rate of rehydration.

Types of carbohydrates and reference to the golden window linked to convert carbohydrates to glycogen in the fasted time gains credit.

Types of protein and reason for consuming protein post event are given together with knowledge related to digestion and absorption.

Activity 3 This response was awarded 3 out of 10 marks

3 Recommend nutritional guidance for Jackie based on her phase of event.
The phase of event is 'post-event'.
Your answer will focus on the following points:
(a) links to the phase of event
(b) impact of factors affecting digestion and absorption of nutrients and fluids. (10)

In the post-event phase the main thing Jackie needs to do is get her energy levels and glucose levels back up to where they should be. This can be done by having some energy gels or some high GI food to help get the energy levels back up quickly as these food with high glucose/sugar levels are easier to be digested and broken down. Jackie should also drinks high amounts of fluid as quickly as possible to help restore her fluid levels to get them back to normal.

This response is very limited; however, it does include knowledge of energy gels and the fact they are broken down quickly as well as knowledge related to the requirement for fluid intake to restore fluid levels which gains credit.

Summary

Learners are encouraged to:

- Read and analyse the nutritional programme in relation to macro nutrient content. Percentage intake for each macronutrient should be assessed in relation to RDAs.
- Expect to carry out calculations in relation to BMI and BMR of the client and use this information in the activities to justify the interpretation of nutritional programme and modifications.
- When answering questions refer to the nutritional programme and individual as much as possible and make sure that the content you refer to is actually in the case study.
- In question 2, justification for nutritional modifications is related to the client's sport and help to improve sports performance.
- Ensure only the correct phase of the event is discussed in question 3, any other phases that are covered that are not asked about in the question will not gain credit.
- Use the assessment criteria in the mark scheme for each activity to guide them and ensure they cover all the content needed for each activity.



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom

