

L3 Lead Examiner Report 2001

January 2020

L3 National in Sport and Exercise

Unit 13: Nutrition for Sport and Exercise Performance (31824)





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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:

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Unit 13: Nutrition for Sport and Exercise Performance (31824)

Grade	Unclassified	Level 3				
Grade	Officiassifica	N	Р	М	D	
Boundary Mark	0	15	24	33	43	





Introduction

This was the fifth series of the new specification and the second time that the assessment had no prerelease materials. The method of external assessment was by a task based approach.

The question paper followed the same format in relation to the questions, client nutritional programme and client details. As the paper had no prerelease 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.

Introduction to the Overall Performance of the Unit

The standard of learner evidence was equitable to the January 2019 series which followed the same format as this paper.

Most learners were able to provide detailed interpretations of the nutritional programme and compare grammes of food consumed, many now were able to work out the percentage of calorie intake for each macronutrient which provides a more accurate analysis of nutritional intake. 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 Questions

The following section considers each question on the paper, providing examples of learner responses and a brief commentary of why the responses gained the marks they did. This section should be considered with the live external assessment and corresponding mark scheme.

Activity 1

In this activity learners had to interpret the nutritional programme for Nikki in relation to her health and well being.

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	1500	37	140	36	60	27	100
Tuesday	1420	39	140	38	60	23	80
Wednesday	1580	44	170	29	60	26	90
Thursday	1450	41	150	31	50	28	100
Friday	1040	46	120	35	40	19	50
Saturday	1290	47	150	35	50	19	60
Sunday	1630	39	160	39	70	22	90

This analysis clearly shows that carbohydrate intake is too low, fat intake is too high and protein intake varies across the week.

In most learners 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 excess fat and a link to Coronary heart disease.





Many learners were able to note that the client had high levels of caffeine intake from the quantity of coffee consumed on a daily basis, but relatively few were able to relate these concerns to health and wellbeing. In addition, very few were able to comment on the limited fruit and vegetable intake in relation to reduced fiber intake and the links to health and wellbeing such as reduce the potential for suffering from constipation or the long term impact of helping to prevent bowel cancer. There was also very limited reference to the low fruit and vegetable intake and the impact on low levels of vitamin and minerals.

The other key aspect of the diet was the low calorie intake related to BMR and BMR adjusted for activity levels.

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 and therefore classed as underweight category.
- BIA was at 16% which is classed as low body fat (athletic)

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 =
$$655.1 + (9.563 \times 47 \text{ kg}) + (1.85 \times 162 \text{ cm}) - (4.676 \times 25 \text{ years}) = 1287.361$$

Very active 1.725 (activity levels)

= 2220.7 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 start to lose body weight if they continued to eat and exercise as per the nutritional program and also not have sufficient energy to be able to take part in daily activities as well as all the physical activity.





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 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 timings of food intake and activity levels and timings of the individual.





This response was awarded 19 marks out of 20

1 Interpret Nikki'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)

CHO-50-60% Pro-12-15% Fects 30-35°10								
ooy	Total colorles	CHO%	(CHO(9)	Pro %	Pro g	Fox %	Forg	
	1500	37	140	100 27		36	.60	
	1420	39	140	23	80	.38	60	
wed	1530	40	170	26	700	29	50	
1hv	1450	41	150	27	100	31	50	
Fco	1040	46	120	19	50	35	10	
Sot	1290	47	150	19	60	35	50	
Sun	1630	139	160	22	90	37	70	

BMR = 655.1 + (9.563 × 47) + (1.85 × 162) - (4.676 × 26)
= 1287 × 1.725 = 2221 coverses per day.
BMT =
$$\frac{47}{1.68^2}$$
 = 17.9 (underwerght)

Minn man

By looking at Nikking number on programme it is clear that she is not howing enough carbohydrates (CHO). The national guilded into be por calories is between 50-60% of your daily calorie into be whereas Nikking is only howing 35-48% of the 18ks were mean that she is not being





able to restore her glycagen levels resulting in a less release of energy causing her to gatique quicker. The It is also clear that she is howing too much protein as the nowlonal guidelines for protein intake is 12-15% of your daily covere intake and Nikk; is howing around 20-30%. This could thurpare lead to alot of the protein being stored as gar because the body can only absorb 30grams of Protein in one turn and the rest is absorbed into being Stored as pat, Whech could lead to her becoming overweight and oppose health 1954s Such as coronary heart disease, which PS where gatty deposits build up around blood ressels near the heart and prevent the place of blood. It is also pound that She is not howing enough calories that sine should be considering herage, weight helight and actfusty levels. Mars 18/19 8 lower than what & should be as & & Currently she is having around 1000 to 1600 calories a day when caxwaring her BMR it shows she should be having 2221 calories a day. This will lead to weight lost as her energy balance is not even as she puts less energy to than what is coming out. This is proven as by calculating her BMI it came out at 17.9 which is crossed as undireight to northonal guidiffies by being underweight this could lead to many negative grows such as peeling thed, nausea and dizziness which could not only expect her within her sports but also within her every day Jobs Such as howevork and walking.





It is clear that wikkl has too much copperas she has around 3-4 cups every day. Coppee has alot of coppedne in It while therefore could read to her hourng Insomnia. Insomnia is where you cannot steep at night so you end up not Stepping at all. This can have a negarite effect on NAKKO as by not being able to sleep she woods her body would have no time to rest which could lead a to great parague to her body. By rooking at her nutitional programme it is also clear that NPKKP has too much water she is currently howling 319thes of water a day, however national guldelines for dally water whoke is 2-2,5 ites a day this means that NPKKE is howing too much water which could lead to hyperhydrauton This is when someone arthus too much water to prevent themselves from becoming dehydrated, however it can still be negative and cause spekness and in serious cases potentially By toking in grewer dutoli we can also see that She does not have alot of daliny produce in her programme. This could cause a lack in coucium Which would cause POKNHOLLY OSKOPOTOSIS. It is a conclision where your bones become thinner and weaker, leading them to be at a greater risk of breaking.



By comparing her BMI to her BIA we can also see how most of her weight is more got than muscle so this can link to her hawing too much protein so it is being stored as gat. Also that She is having alot more saturated gots than unsaturated gats. As she has alot of gried goods which causes them to be more ofly this could affection be why she has more got body far than muscle. Although she is undervelout. It could still lead her to the getting being at 15 k of type 2 diabetes as she is howing too much ofly goods within her duit.

This learner has also provided the RDA for carbohydrate and protein and compared this to the worked out percentage intake which is good practice as this provides a more accurate analysis of nutritional intake compared to using grammes as the main reference.

Reference to carbohydrate intake and the requirement for glycogen synthesis is not a health and well being reference.

This response has identified the BMR with activity levels. They have calculated the BMI and provided the category that this falls into as well as health related consequences of a low BMI.

Excess caffeine intake has been discussed as well as the health related impact of having too much caffeine.

Fluid intake compared to RDA has been covered, however, the link to hypohydration is not credit worthy as the client is not consuming sufficient excess fluids to warrant this concern.

Links to limited calcium intake from very few dairy products and the impact on bone health is provided.



The health concerns with eating too saturated fat and identified a sources of saturated fat in the client's diet from having a lot of fried foods ensures the analysis is contextualized to the client rather than just providing an overview of nutritional knowledge.





This response was awarded 4 marks out of 20

1	Interpret Nikki'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)								
i dista	One of the good things about her								
(diet is that she is taking in her								
	Sa day every day meaning that								
	she is eating 5 portions of fruit and								
	veg daily. This is very good for								
Delega	her health as she assures this way								
	that she is taking in all the necessary								
	micronutrient such as vitamin C								
	which maintains a strong innune system								
	which means that it will prevent								
	her from getting sick in the fitte								
~	and it also avoids conditions such								
	as scorry which is the aftermath								
	of low vitanion Cintake								
	However a regalise aspect of her								
	diet is the fact that she is								





taking in a very low arount of daily which can be defronerful her Kealth. A female her size activity levels should be con sunly around daily colories as fat up to around 166 g of - day daily however avrage she only consumes fat which is loog their recommended. One of Fat is to offer protection organs and intestine however does not norme enough will not have any protection. In As Mikk!
eats low foot she right also have
homore imbalances as fat as ord cholesteral is responsible for Another negative about her diet is She is taking in too many liguids in and overhydroles. A and activity she consumes 41+ daily which has a negative





over hydalion good minerals regalive to her her as para gus C00 4 1/19 bad the food cooked 1180 all the # ex posed cookny not destroged to get micro nutrients

The learner has provided some generalized knowledge of nutrition, but the response has very little application to the scenario provided.

In this case study, the client does consume some fruit and vegetables, however, not the 5 a day stated in the response. Ideally they should have signposted which fruit or vegetable contains the identified vitamin C and then gone on to make the links with the benefits to health and wellbeing as is provided in the response. They have identified the RDA for fat and used grammes as a form of reference, however, the quantity stated that she should consume is incorrect. Knowledge is



shown for the function of fat and gains credit. Fluid intake is referenced together with an overview of what the RDA of fluid should be.

The response overall does not link the types of food in the diet to any of the analysis provided, other than frying foods making the foods 'unhealthy' which demonstrates very limited application as this is the key focus of the task whereby learners have to demonstrate their knowledge of a specific clients nutritional intake rather than providing an overview of their knowledge about the unit content.

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 as they did in activity one. This is due to the fact greater application is required for this activity in relation to addressing the concerns identified in activity one, where, 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, leaners needed to focus on three main strategies:

- Carbohydrate loading
- Increase carbohydrate intake
- Increase calorie intake

The client was under calories and carbohydrate in their usual diet compared to RDA as well as requiring higher levels due to their sport.

Increases in carbohydrate content up to more than 50% RDA, g per kg of body weight for an endurance athlete were credited.

In addition, fat percentage intake was high in relation to macronutrient intake, so strategies to decrease fat intake would also gain credit.





Caffeine intake could be discussed in either relation to decreasing intake as this could have a dehydration effect and therefore impact on ability to produce sweat used for thermoregulation, or maintain/increase caffeine intake to mobilize fatty acids as an energy source could have gained credit.

Supplements could have also been discussed to support these nutritional strategies such as

- Energy gels/glucose tablets
- beetroot juice
- Vitamin/mineral supplements due to limited fruit and vegetable intake, low iron intake affect on performance, B vitamins for energy release from foods, Vitamins (A, C, E and zinc and selenium) to reduce damage caused by free radicals from taking in more oxygen when taking part in aerobic exercise.

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.

This response was awarded 20 marks out of 20





_						
2	Modify the nutritional programme, based on nutritional strategies, in relation to Nikki'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)					
71000	Nikki can implement some attrion					
	nutritional strategies which will help her					
	improve her performance. Firstly Nikki					
	needs to increase her intake					
	of carbonydrates - An example of how					
	she can do this is thro on the days					
	she has no lunch, she could eat a					
	pasta salad (using wholemeal pasta to					
	ensure she is consuming Fibre) She-could					
	also Increase her portion sizes of					
	rice and noodles with her dinner					
	in Order to increase her complex					
	carbohudrates.					
	A strategy Nikki can use to improve					
	her performance is carbohydrate/					
	alucagen loading. This strategy will ensure					
	A strategy Nikki can use to improve her performance is carbonydrate/ alycogen loading. This strategy will ensure that Nikki will have maximum stores of					
	glycogen ready for the event. This will					
	result in her being able to exercise					
	for longer before she starts to					
	glycogen ready for the event. This will result in her being able to exercise for longer before she starts to fatigue. To use this stategy effectively					





Nikki should to per her training in the
four days before the event with the
last day being complete rest. Over these
four days she should increase her
consumption of ea complex carbonydrates
To do this she should be consuming
and & she should also be decreasing
and & she should also be decreasing
the amount of fat and proteins, for
example, instead of frying eggs * and
bacon, street she should boil the eggs
and grill the bacon. On the day of
the event she should eat to a high
carbonydrate meal 3-4 hours before
the event and a high simple
carbo hydrate 60-30 minutes before the
event. This will result in Nikki having
good stores of glycogen ready for the
racc.
Another nutritional Strategy Nibri nould benefit from is beetroot juice.
hould benefit from is beetroot juice.
She should consume 300 - 500mi
in order for this to have an
erogenic effect. Beetroot juice contains
nitrous oxide which helps with
vasodilation of blood vessels consquently





this results in the an increased blood blood blood to the working muscles which will supply more oxygen which can then be converted to energy. It also seems that more carbon dioxide to be transported away
Another nutritional strategy would be to take vitamin supplements. These reduce the damage coused by free radicals (damage to cells) and therefore improve aerobic endurance.
Another Strategy I would advise Nieki, is weight gain. She needs to increase the calories that she intetakes in her diet. Triatholous take place outside and so when Nieki is swimming & a slight small layer of fot will help to insulate her body and keep her warm. She cand do this is ensuring she is eating lunch avery day. The should also include some snacks in her diet on a sunday for example an apple, banance, then one carb bar of her s a day helping to maintain a balanced diet.





Nikki						
after	each	meal.	before	She	trains in	1
order	for 1	ner boo	ly to	digest	the	Fo.od.
and	prevent	tere	Relina	7 OF	bleatine]
and no	U50a	during	her	trainin	q- She	should
EUZHLE	to	diink	woter	after	her trai	Pnini
in order	t0	replace	Fluid	s th	rough SI	weating.

This learner has recommended key changes in his diet including:

- Increase carbohydrate intake
- Carbohydrate loading
- Decrease fat intake

•

For each change, realistic and appropriate strategies have been suggested with reasoning as to how each would benefit sporting performance.

In addition, supplements including beetroot juice and vitamin supplementation which both include clear justification as to how these supplements improve sporting performance.

Further applied knowledge has been given in relation to weight gain being suggested as a layer or fat would be beneficial for triathlon performance to insulate the body from the cold. This shows very good application of the function of fat to the clients sporting performance.

This response was awarded 6 marks out of 20 marks.





2 Modify the nutritional programme, based on nutritional strategies, in relation to Nikki'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)Cucoud avaloudd olive noticible moregulation hy so hemic





forward, 1 would increase Nikhis mall Whale mornings the This me had řeplaces decresika arrichty cuocado dive 15 unsakuakd weaving

The learner has identified increasing calorie intake as a strategy and given some suggested foods that could be eaten but not given any reasoning as to why the foods that are high in unsaturated fats have been recommended and at which point they should be consumed eg as a snack, added to a meal etc. There follows a list of foods with links to which macronutrient they mainly contain, again with no reasoning as to when the foods should be consumed or what they should replace or be added to.





Links to how increasing energy will increase performance is very vague. Increased protein will reduce DOMS and increasing fat will help with thermoregulation again are too vague to gain credit as there is no knowledge shown as to how these macronutrients provide this stated benefit.

Stating that coffee should be cut out and increase in water again is too vague to gain credit, the leaner needs to identify that coffee contains caffeine which can be a diuretic or dehydrates the person to then go on to discus links to fluid intake.

The last part of the response relates to the effect of fat intake on health and wellbeing with an attempt to link oxygen flow to working muscles but no further links are made to triathlon performance.

Activity 3

The phase of the event is 'during the event'. The learner's response should focus on the following key areas:

- Taking on simple carbohydrates or types of fluids with carbohydrates in the event to provide energy (includes energy gels, typ of sports drink, glucose tablets etc)
- Taking on fluids to hydrate
- Identification of caffeine or beetroot juice as a potential supplement

With justification related to:

- Offset glycogen depletion –(55% depletion after one hour exercise, full depletion after 2 hours of high intensity exercise), maintain high intensity exercise, glycogen stores only last for certain period of time etc
- Replace fluids lost through sweating, maintain core body temperature etc
- Replace electrolytes

Good responses included a range of foods, supplements and fluids with timings and quantities of how much should be consumed with reasoning related to absorption and digestion as well as potential benefits to sporting performance.





This response was awarded 10 marks out of 10 marks.

3	Recommend nutritional guidance for Nikki based on her phase of training.
	The phase of training is 'during the event'.
	Your answer will focus on the following points: (a) links to the phase of training (b) impact of factors affecting digestion and absorption of nutrients and fluids. (10)
01	he Recommedation that I would make you within is
	untain her hydration levels. Due to in sports such as
	athlon athletics losse water through sweat and to
	mbat this rikki Should look to consume around
	0-200 ml g water every 10-15 minutes to reduce the
	ences of dehydration during the race. Also in this water
	e Should be electrolytes to reduce the chances
	Wilhi getting Cramp due to low concentration
	electrolytes in the bloodstream,
An	ather recommendation that I would make is
	pogenic aids such as an isotonic drink due
b	isatonic being a 1 source of Carbohydrate replenishment
Ou	e to along the race within 15 likely to deplete
	of her glucose and glycogen stores and will start to
	in jat Which takes alor longer to breakdown so
	isotonic drink would be a good way to
	imulate a minor increase in sugar in the body and
	Source of energy to use
-	J ()



Another erappienic aid I would recommend recommend is gets due to gets being another good source of quick carbohydrate replenishment due to a get Saché having around 40 30-409 of carbohydrate in Which is quickly digestable on the move and will not while being able to continue on her make within seel bloated or sich bith continuing her triathlon. Another Re recommendation that I would make Jor Nikhi is to not eat any solid goods due to solids goods being harder to digest and the more intense the exercise the longer it will take yor the solid good to be digested into the body and able to use. Also eating Solid joods may make wikhi be sick and that could lead to nikki having to Stop and drop out by the race. The last recommendation that I would make is no Carbonated drinks due to it may make Nikk, jeel jull. But it will also make her bloated and will impair her thirst and will lead to within not drinking enough water, and this could lead to dehydration and depending on in which stage of the race a very Significant injury.





The learner has provided hydration as a key recommendation with links to sporting performance from losing water through sweating and also electrolytes. Quantity and timing of water intake have also been provided.

Isotonic drinks have been recommended with very good reasoning to their benefit of sporting performance.

Gels have also been included with a quantity given and reasoning as to why this is beneficial related to digestion aspect of the supplement.

The last two recommendations are types of foods that the person should avoid consuming with reasoning related to digestive concerns, this does show knowledge of recommendations, however, the recommendations should really be about the types of foods and fluids that should be consumed during the phase rather than the types of foods and fluids not to consume. The credit for this response is all in the first three paragraphs.





This response was awarded 3 out of 10 marks

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This response discusses energy gels and links to their impact of replenishing energy quickly and then sports drinks and knowledge that they are high in glucose so provide energy.



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.
- 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.









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