

Cambridge TECHNICALS LEVEL 3

Cambridge  
TECHNICALS  
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# ***SPORT AND PHYSICAL ACTIVITY***

Unit 12

**Nutrition and diet for sport and  
exercise**

Y/507/4463

Guided learning hours: 30

Version 4 - revised September 2018

\* changes indicated by black line

## LEVEL 3

### UNIT 12: Nutrition and diet for sport and exercise

Y/507/4463

**Guided learning hours: 30**

**Essential resources required for this unit: none**

**This unit is internally assessed and externally moderated by OCR.**

#### UNIT AIM

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The food and drink we put in our body and when has a direct impact on our everyday health and wellbeing. If a body is not fuelled appropriately then it will not be able to cope with the demands that are put on it, particularly during sport and physical activity. Getting the right balance of nutrients and keeping the body appropriately hydrated is key to optimal performance which is why, in the UK alone, the sports nutrition market is worth hundreds of millions of pounds.

In this unit you will gain an understanding of what is meant by the term 'balanced diet' as well as the principles behind it, the relationship between energy intake and energy expenditure and how this changes depending on the sport or physical activity taking place and the importance of hydration for performance. You will also gain an insight into the use of nutritional supplements and how these can be used to improve performance in sport and physical activity.

In this unit you will use learning from mandatory Unit 1, Body systems and the effects of physical activity and then the learning from this unit can be used in other units such as Unit 7 Improving fitness for sport and physical activity by helping to inform people how to maintain a healthy lifestyle, or in any unit where physical activity takes place as an awareness of hydration needs and signs and symptoms of dehydration will ensure activities can be delivered safely (e.g. Unit 2 and Unit 6). The learning will also be used in the set assignment for Unit 11 Physical Activity for specific groups as an awareness of an individual's diet will inform the activities that you plan for them.

## TEACHING CONTENT

The teaching content in every unit states what has to be taught to ensure that learners are able to access the highest grades.

Anything which follows an i.e. details what must be taught as part of that area of content. Anything which follows an e.g. is illustrative; it should be noted that where e.g. is used, learners must know and be able to apply relevant examples in their work, although these do not need to be the same ones specified in the unit content.

For internally assessed units you need to ensure that any assignments you create, or any modifications you make to an assignment, do not expect the learner to do more than they have been taught, but must enable them to access the full range of grades as described in the grading criteria.

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
1. Understand the principles and importance of a balanced diet	1.1 Meaning of a 'balanced diet' 1.2 The importance of a balanced diet, i.e. <ul style="list-style-type: none"> <li>• weight control</li> <li>• chronic diseases</li> <li>• health and wellbeing</li> </ul> 1.3 Components of a balanced diet, i.e. <ul style="list-style-type: none"> <li>• macronutrients (e.g. carbohydrates, proteins, fats)</li> <li>• micronutrients (e.g. vitamins, minerals, fibre)</li> <li>• water</li> </ul> 1.4 Nutritional advice, i.e. <ul style="list-style-type: none"> <li>• current recommended guidelines from public health sources associated with nutrition (e.g. the Eatwell plate, the food pyramid, food traffic lights)</li> <li>• common terminology (e.g. Recommended Daily Allowance (RDA), Optimum Level (OL), Safe Intake (SI), Estimated Average Requirement (EAR))</li> <li>• food labelling (e.g. legal requirements, different ways information is displayed)</li> <li>• current healthy eating initiatives (e.g. Change4Life, Healthy Schools, Ministry of Food)</li> </ul> 1.5 Nutritional requirements for different groups, i.e. <ul style="list-style-type: none"> <li>• children</li> <li>• young people</li> <li>• adults</li> <li>• older people</li> <li>• athletes</li> <li>• physically inactive people</li> </ul>

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
2. Understand energy balance	<p>2.1 Energy intake, i.e.</p> <ul style="list-style-type: none"> <li>• units of measurement (e.g. calories, joules, kilocalories, kilojoules)</li> <li>• sources (e.g. fats, carbohydrates, proteins)</li> </ul> <p>2.2 Energy balance, i.e.</p> <ul style="list-style-type: none"> <li>• basal metabolic rate (BMR) and factors affecting it (e.g. age, gender, fitness levels)</li> <li>• thermic effect of food</li> <li>• energy expenditure (e.g. energy expenditure = BMR x Physical Activity Level)</li> <li>• energy intake versus expenditure and how this effects weight</li> </ul> <p>2.3 Calorific requirements for different groups, i.e.</p> <ul style="list-style-type: none"> <li>• children</li> <li>• young people</li> <li>• adults</li> <li>• older people</li> <li>• athletes</li> <li>• physically inactive people</li> </ul>
3. Understand the importance of hydration in sport and exercise	<p>3.1 Hydration, i.e.</p> <ul style="list-style-type: none"> <li>• importance (e.g. everyday health and wellbeing)</li> <li>• effects of poor hydration habits (e.g. kidney health, Urinary Tract Infections (UTIs), loss of concentration, heat exhaustion)</li> <li>• signs and symptoms of: <ul style="list-style-type: none"> <li>○ dehydration/hypohydration</li> <li>○ hyperhydration and hyponatremia</li> </ul> </li> <li>• dangers of extreme dehydration</li> </ul> <p>3.2 Fluid intake, i.e.</p> <ul style="list-style-type: none"> <li>• sources of fluid, (e.g. water, sports drinks (e.g. hypertonic, hypotonic, isotonic), food, fruit juices)</li> <li>• timing of fluid intake (e.g. pre-event, inter-event, post-event)</li> </ul> <p>3.3 Effects on sport and exercise performance, i.e.</p> <ul style="list-style-type: none"> <li>• lowering of concentration levels</li> <li>• heat cramps, heat exhaustion, heat stroke</li> <li>• decrease in blood volume = increase in heart rate = decrease in stroke volume</li> <li>• increase in core temperature = increased cardiovascular strain</li> <li>• increased rate of glycogen degradation, elevated muscle temperature, increased levels of lactate</li> </ul>



Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
4. Know the effects of supplements on diet and performance in sport and exercise	<p>4.1 Supplements, i.e.</p> <ul style="list-style-type: none"> <li>• Vitamins / minerals</li> <li>• protein (e.g. whey, casein, plant protein, amino acids)</li> <li>• carbohydrate</li> <li>• caffeine (e.g. thermogenics, 'fat burning' pills)</li> <li>• illegal supplements (e.g. weight loss drugs and muscle gain drugs containing steroids and hormones)</li> </ul> <p>4.2 Methods of taking supplements (e.g. shakes, bars, powders, gels, drinks)</p> <p>4.3 Effects on sport and exercise performance, i.e.</p> <ul style="list-style-type: none"> <li>• repair and recovery</li> <li>• increased muscle mass</li> <li>• weight gain/weight loss</li> <li>• increased energy</li> </ul>
5. Understand the psychology of healthy eating	<p>5.1 Common food issues/factors affecting eating habits, i.e.</p> <ul style="list-style-type: none"> <li>• using food as a coping mechanism</li> <li>• pressure to conform to body image ideals</li> <li>• lifestyle factors affecting diet (e.g. work, convenience foods, social life)</li> <li>• diet trends (e.g. Atkins, juice diets, 5:2)</li> </ul> <p>5.2 Causes, signs, symptoms and effects of eating disorders, i.e.</p> <ul style="list-style-type: none"> <li>• anorexia</li> <li>• bulimia</li> <li>• obesity</li> <li>• food phobias</li> <li>• disordered eating (e.g. skipping meals, avoiding certain food groups)</li> </ul> <p>5.3 Eating disorders in sport, i.e.</p> <ul style="list-style-type: none"> <li>• more likely in aesthetic sports (e.g. gymnastics, bodybuilding, diving) and weight category sports (e.g. boxing, martial arts)</li> <li>• why participation in sport increases chance of suffering from an eating disorder (e.g. pressure about appearance, feeling stress or pressure so it becomes a coping mechanism, belief that weighing less/ being lighter will improve performance, coach pressure on performance and success rather than the athlete as a whole, involvement in training since childhood)</li> <li>• effects of eating disorders on involvement in sport and exercise (e.g. recurrent ill health/ poor immune system, tired, lethargic, dehydration, heart problems, stress fractures, osteoporosis and injury, disturbed endocrine function, lack of menstrual cycle)</li> </ul>

## GRADING CRITERIA

LO	Pass	Merit	Distinction
	The assessment criteria are the Pass requirements for this unit.	To achieve a Merit the evidence must show that, in addition to the Pass criteria, the candidate is able to:	To achieve a Distinction the evidence must show that, in addition to the pass and merit criteria, the candidate is able to:
1. Understand the principles and importance of a balanced diet	*P1: Outline the components of a healthy balanced diet, including recommended guidelines from public health sources associated with nutrition		D1: For a selected elite sports performer, outline their nutritional, calorific and hydration needs at different times of the year/season and how their diet, training and performance can be supported by the use of legal supplements
	*P2: Describe nutritional requirements for different groups		
2. Understand energy balance	*P3 Explain energy balance and the calorific requirements for different groups	M1: Analyse how energy balance and hydration needs differ across a number of different sports	
3. Understand the importance of hydration in sport and exercise	*P4: Explain the importance of hydration to performance in sport and exercise		
4. Know the effects of supplements on diet and performance in sport and exercise	P5: Describe the supplements different individuals may use and what effects this could have on their performance in sport or exercise		
5. Understand the psychology of healthy eating	*P6: Describe the psychological factors that affect people's eating habits	M2: Outline why eating disorders can be more common in some sports and the effects on the individual's performance	

## SYNOPTIC LEARNING AND ASSESSMENT

It will be possible for learners to make connections between other units over and above the unit containing the key tasks for synoptic assessment, please see section 6 of the centre handbook for more details. We have indicated in this unit where these links are with an asterisk and provided more detail in the assessment guidance section below.

## ASSESSMENT GUIDANCE

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LO1 Understand the principles and importance of a balanced diet

For P1, learners must outline the components of a balanced diet using current dietary guidelines from at least two different authoritative sources (e.g. NHS, British Nutrition Foundation, Department of Health). For P2, learners must describe the nutritional requirements for at least two different groups from the Teaching Content. For this LO, learners may draw on learning from Unit 7, Improving fitness for sport and physical activity and Unit 11, Physical activity for specific groups.

LO2 Understand energy balance

For P3, learners must explain energy balance and calorific requirements for at least two different groups from the Teaching Content. For this LO, learners will benefit from drawing on learning from mandatory Unit 1, Body systems and the effects of physical activity – LO5 Understand the different energy systems in relation to exercise and physical activity. Learners may also draw on learning from Unit 11, Physical activity for specific groups.

LO3: Understand the importance of hydration in sport and exercise

For P4, learners can use examples from both sport (e.g. football, cricket, tennis) and exercise (e.g. aerobics classes, weight training) to explain the importance of hydration for performance. For M1, learners must analyse energy balance and nutritional requirements for at least three different sports. These sports must have clearly different requirements (e.g. football, tennis, marathon running). For this LO, learners will benefit from drawing on learning from mandatory Unit 1, Body systems and the effects of physical activity – LO3 Understand the cardiovascular system in relation to exercise and physical activity and LO5 Understand the different energy systems in relation to exercise and physical activity.

LO4 Know the effects of supplements on diet and performance in sport and exercise

For P5, learners must describe the use and effects of supplements on at least two different individuals. There must be clear difference between the individuals (e.g. casual gym user compared to elite bodybuilder, marathon runner compared to tennis player). For D1, learners can outline the requirements for any elite performer of their choosing from any sport where nutrition, hydration, etc. is of great importance.

LO5 Understand the psychology of healthy eating

In P6, learners will describe the psychological factors affecting people's eating habits using examples of sport and/or physical activity. For M2, learners must consider at least two different sports to outline why eating disorders can be more common in some sports and the effects on performance. For this LO, learners may draw on learning from Unit 19, Psychology for sport and exercise

**Feedback to learners:** you can discuss work-in-progress towards summative assessment with learners to make sure it's being done in a planned and timely manner. It also provides an opportunity for you to check the authenticity of the work. You must intervene if you feel there's a health and safety risk.

Learners should use their own words when producing evidence of their knowledge and understanding. When learners use their own words it reduces the possibility of learners' work being identified as plagiarised. If a learner does use someone else's words and ideas in their work, they must acknowledge it, and this is done through referencing. Just quoting and referencing someone else's work will not show that the learner knows or understands it. It has to be clear in the work how the learner is using the material they have referenced to inform their thoughts, ideas or conclusions.

For more information about internal assessment, including feedback, authentication and plagiarism, see the centre handbook. Information about how to reference is in the OCR Guide to Referencing available on our website: <http://www.ocr.org.uk/i-want-to/skills-guides/>.

## MEANINGFUL EMPLOYER INVOLVEMENT - a requirement for the Foundation Diploma and Diploma (Tech Level) qualifications

The 'Diploma' qualifications have been designed to be recognised as Tech Levels in performance tables in England. It is a requirement of these qualifications for centres to secure employer involvement through delivery and/or assessment of these qualifications for every learner.

The minimum amount of employer involvement must relate to at least one or more of the elements of the mandatory content.

Eligible activities and suggestions/ideas that may help you in securing meaningful employer involvement for this unit are given in the table below.

Please refer to the *Qualification Handbook* for further information including a list of activities that are not considered to meet this requirement.

Meaningful employer involvement	Suggestion/ideas for centres when delivering this unit
1. Learners undertake structured work experience or work placements that develop skills and knowledge relevant to the qualification.	Learners may be able to work alongside a nutritionist or dietician for a work experience placement.
2. Learners undertake project(s), exercises(s) and/or assessments/examination(s) set with input from industry practitioner(s).	Learners could produce material for a dietician's waiting room or leaflets for a sports club to give to their players. Learners could deliver presentations on the importance of nutrition and hydration to junior squads and academies at local sports groups.
3. Learners take one or more units delivered or co-delivered by an industry practitioner(s). This could take the form of master classes or guest lectures.	A dietician or nutritionist could deliver workshops or lectures on any of the learning outcomes.
4. Industry practitioners operating as 'expert witnesses' that contribute to the assessment of a learner's work or practice, operating within a specified assessment framework. This may be a specific project(s), exercise(s) or examination(s), or all assessments for a qualification.	A sports nutritionist or dietician could assess learners' understanding of any of the Learning Outcomes.



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