

Cambridge TECHNICALS LEVEL 3

APPLIED SCIENCE

Cambridge
TECHNICALS
2016

Unit 7

Human nutrition

M/507/6154

Guided learning hours: 60

Version 3 - September 2016 - black line indicates updated content

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Guided learning hours: 60

Essential resources required for this unit: Access to food products and measuring equipment

This unit is internally assessed and externally moderated by OCR.

UNIT AIM

The human body requires a range of nutrients to ensure sufficient bodily function and health. The aim of this unit is to provide you with knowledge of the nutrients needed and the way the body uses them.

You will be able to calculate the energy content of food and compare with requirements. You will also understand the importance of hydration and supplements. Finally the unit links the development of deficiency and disease from a biological and psychological perspective.

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:
<p>1 Understand human nutritional requirements in the maintenance of health</p>	<p>1.1 The sources of nutrients (e.g. meats, fish and shellfish, eggs, dairy produce, fats and oils, fruit and vegetables, grains and seeds, nuts, pulses)</p> <p>1.2 The nutritional requirements of the body i.e.:</p> <ul style="list-style-type: none"> • macronutrients <ul style="list-style-type: none"> ○ those providing bulk energy e.g. carbohydrates, proteins, and fats. ○ water and atmospheric oxygen • micronutrients <ul style="list-style-type: none"> ○ organic acids ○ trace minerals ○ vitamins <p>1.3 The role of nutrients for growth and repair</p> <p>1.4 Fluid intake (e.g. recommended amounts)</p> <p>1.5 The importance and principles of a balanced diet</p> <p>1.6 How nutritional requirements may vary in individuals (e.g. calorific requirements, nutrient requirements, allergies/intolerances)</p>
<p>2 Be able to calculate nutritional requirements to maintain energy for different levels of activity</p>	<p>2.1 How to calculate energy intake and output i.e.:</p> <ul style="list-style-type: none"> • Units of measurement <ul style="list-style-type: none"> ○ energy intake ○ energy expenditure ○ aerobic vs anaerobic • Energy balance <ul style="list-style-type: none"> ○ basal metabolic rate (BMR) and factors affecting it <p>2.2 How the amount of calories required varies according to level of activity i.e.:</p> <ul style="list-style-type: none"> • Dietary reference values – Estimated Average Requirements (EAR)

Learning outcomes The Learner will:	Teaching content Learners must be taught:
	2.3 Measuring the energy content of food e.g. burning a suitable carbohydrate food, use of calorimeter
3 Understand conditions relating to dietary needs	<p>3.1 Variations in dietary needs i.e.:</p> <ul style="list-style-type: none"> • age groups (e.g. children, teenagers, young adults, adults, elderly) • life stages (e.g. pregnancy, lactation) • activity levels • gender • situations (e.g. hospitals, schools, prisons, care homes) • specific dietary needs (e.g. diabetes, food allergies, intolerances, special diets) <p>3.2 Factors affecting eating habits i.e.:</p> <ul style="list-style-type: none"> • eating disorders (e.g. anorexia nervosa, bulimia, obesity) • lifestyle and education • diabetes • food allergies and intolerances <p>3.3 The problems caused by imbalances in food intake i.e.:</p> <ul style="list-style-type: none"> • poor growth rate • shortened lifespan • blood water in-balance • obesity • heart disease • type 2 Diabetes • cholesterol (e.g. colon cancer) • vitamin and mineral deficiencies
4 Be able to label food with nutritional information	<p>4.1 The sources of labelling of food products to indicate nutritional information i.e.:</p> <ul style="list-style-type: none"> • government sources • standard recipes • National Health Service • supermarket/food producer labelling (e.g. traffic light system, food groups e.g. low salt, low fat, calorific value) • legislative requirements for food manufacturers <p>4.2 Nutritional requirements (e.g. recommended guidelines from public health sources associated with nutrition)</p> <p>4.3 Dietary reference values - DRV</p>

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 human nutritional requirements in the maintenance of health	*P1: Outline the components of a healthy balanced diet		
2. Be able to calculate nutritional requirements to maintain energy for different levels of activity	*P2: Describe energy intake and expenditure when exercising and at rest	M1: Calculate the BMR for two comparable groups of people taking different levels of exercise	
	*P3: Measure the energy content of a carbohydrate food		
3. Understand conditions relating to dietary needs	*P4: Describe the common diseases and conditions relating to nutrition	M2: Explain physical impacts of developing a condition relating to malnutrition	D1: Recommend and justify nutritional requirements for a specific group of people
	*P5: Describe the factors that affect people's eating habits		
4. Be able to label food with nutritional information	*P6: Label food products to provide nutritional information to consumers	M3: Explain how legislation affects food labelling in the UK	D2: Discuss how food labelling may lead to confusion for consumers and suggest solutions

ASSESSMENT GUIDANCE

LO1 - Learners could produce information leaflets for junior schools or health centres about what makes a healthy diet. Learners could produce a PowerPoint presentation.

LO2 – Learners could interview other learners/staff and calculate how much food and fluid intake should be consuming. Use their own data to analyse consumption and expenditure of food, comparing different groups.

LO3 – Research and report the statistics on a chosen nutritional related disease/condition. Could review case studies. Could produce a leaflet showing common conditions/diseases associated with nutrients

LO4 –Analyse food products to identify ingredients and nutritional content. Present this information in the form of content labels.

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/>.

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 Qualification Handbook for more details. We have indicated in the unit where these links are with an asterisk.

Name of other unit and related LO	This unit:
<p>Unit 1 Science fundamentals</p> <p>LO2 Understand reactions in chemical and biological systems.</p> <p>LO4 Understand the principles of carbon chemistry</p>	<p>LO1 Understand human nutritional requirements in the maintenance of health (P1)</p> <p>LO2 Be able to calculate nutritional requirements to maintain energy for different levels of activity (P2, P3)</p> <p>LO3 Understand conditions relating to dietary needs (P4, P5)</p>
<p>Unit 2 Laboratory techniques</p> <p>LO1 Understand the importance of health and safety and quality systems to industry</p> <p>LO2 Be able to separate, identify and quantify the amount of substances present in a mixture</p> <p>LO3 Be able to determine the concentration of an acid or base using titration</p> <p>LO4 Be able to examine and record features of biological samples</p>	<p>LO1 Understand human nutritional requirements in the maintenance of health (P1)</p> <p>LO2 Be able to calculate nutritional requirements to maintain energy for different levels of activity (P2, P3)</p> <p>LO3 Understand conditions relating to dietary needs (P4, P5)</p> <p>LO4 Understand food labelling and nutritional information (P6)</p>

Name of other unit and related LO	This unit:
<p>Unit 3 Scientific analysis and reporting</p> <p>LO1 Be able to use mathematical techniques to analyse data</p> <p>LO2 Be able to use graphical techniques to analyse data</p> <p>LO4 Be able to analyse and evaluate the quality of data</p> <p>LO5 Be able to draw justified conclusions from data</p> <p>LO6 Be able to use modified, extended or combined laboratory techniques in analytical procedures</p> <p>LO7 Be able to record, report on and review scientific analyses</p>	<p>LO2 Be able to calculate nutritional requirements to maintain energy for different levels of activity (P2, P3)</p> <p>LO3 Understand conditions relating to dietary needs (P4, P5)</p>
<p>Unit 4 Human physiology</p> <p>LO3. Be able to assess how the cardiovascular system functions in the body</p> <p>LO4. Be able to assess how the respiratory system functions in the body</p>	<p>LO1 Understand human nutritional requirements in the maintenance of health (P1)</p>
<p>Unit 8 Cell biology</p> <p>LO1 Understand the functions of the plasma membrane and endomembrane systems</p>	<p>LO1 Understand human nutritional requirements in the maintenance of health (P1)</p> <p>LO2 Be able to calculate nutritional requirements to maintain energy for different levels of activity (P2, P3)</p> <p>LO3 Understand conditions relating to dietary needs (P4, P5)</p>

To find out more
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