Unit 9: Nutrition for Physical Activity and Exercise

Delivery guidance

Approaching the unit

This unit explores the importance of a balanced diet, using the appropriate amounts of nutrients to boost the health and wellbeing of an individual. Appreciating the nutritional requirements of certain exercises and activities will enable learners to apply their understanding to the nutritional requirements of an individual. Hydration is a key concept of a balanced diet to prevent dehydration and add to health and wellbeing, and so learners will explore fluid intake and learn how to advise an individual on an appropriate choice. Gaining an enhanced level of knowledge and understanding of the digestive system will support the learner in understanding the impact of nutrition on the performance of the body.

Guest speakers can add a different dimension to learning as their personal experience can reinforce the theory. Use the specification to guide the guest speakers so that information needed by learners for assessment is covered and can be used.

You may wish to contact a local club or community activity group to secure interviews with their participants on diet and hydration intake. Learners will benefit from working with those whose future health and wellbeing will be enhanced by participating in physical activity.

Learners will benefit from 'command verb' practice to help them achieve higher grades.

Delivering the learning aims

Learning aim A focuses the learner on appreciating the macro and micronutrients used to build a balanced diet whilst developing an understanding of the terminology used in the nutritional sector. The role of each nutrient will be investigated to appreciate the role within the body and the necessity for wellbeing and physical activity. Understanding guidance on nutritional intake is a key element of the learning aim, using research to confirm current guidelines. Learners will discover the importance of hydration on wellbeing and sports participation whilst appreciating the impact of dehydration, including factors that affect the levels of fluid and types of available fluid. Learners will also acquire knowledge and understanding of the digestive system whilst appreciating the role of enzymes in extracting nutrients from food.

Learning aim B explores the measurement of energy and how important sources of energy are to participants' diet and sporting and physical activity. Use examples to reflect on the energy demands of selected sports/activities and to appreciate the importance of ensuring intake matches expenditure. Body composition is a consideration for performers and coaches when selecting playing positions or events, and learners will need to use equipment to measure their peers' body mass index (BMI). Learners will develop an understanding of the basal metabolic rate (BMR) and the factors affecting basal metabolic rate. Factors affecting body composition are investigated, as well as health tests used to share the data with an individual.

Learning aim C fuelling the body to participate in sport and physical activity is vital for the health and wellbeing of an individual. Learners will gain an appreciation of a balanced diet, using guidelines to address the concept of food groups and recommended allocations of nutrients. Learners will be introduced to the impact of appropriate preparation of foods, considering the impact of each method whilst judging the nutritional value. Health benefits and concerns will be investigated with the concept of mental health due to poor body image, Supplements are a growing trend with various organisations claiming different nutritional benefits for their

supplement. Learners will research the supplements and the impact on participation with various nutritional strategies being addressed to gain advantage in performance. Interviewing a potential participant will allow learners to link theory to practice whilst guiding a selected individual on their nutritional needs. An initial assessment will take place in order to gather baseline information whilst discovering the client's needs and current nutritional intake. Using the information to generate an effective plan for future sport and physical activity participation will enable the learner to work on a one-to-one basis with a client.

Assessment model

Learning aim	Key content areas	Recommended assessment approach
A Examine principles of nutrition, digestion and hydration	**A1** Nutritional principles **A2** Macronutrients **A3** Micronutrients and fibre **A4** Fluid intake **A5** Digestion	A detailed case study examining the nutritional, energy and hydration needs for clients and their importance in relation to their physical activity and exercise.
B Explore energy intake and expenditure in physical activity and exercise	**B1** Energy **B2** Body composition and weight management	
C Assess and plan diets for health and participation in exercise and physical activity	**C1** Balanced diet for health and wellbeing **C2** Benefits of a balanced diet and dietary concerns **C3** Types of physical activities and exercise **C4** Nutritional supplements and strategies **C5** Advising and planning diets for clients	A justified one-week diet and hydration plan for a selected client undertaking regular exercise and physical activity. This will include reviewing the nutritional assessment of the client.

Assessment guidance

This unit is internally assessed. There is a maximum number of two summative assignments for this unit. Tutors should refer to the assessment guidance in the specification for specific detail, particularly in relation to the requirements for Pass, Merit and Distinction grades.

It is suggested that learners will base their evidence on a selected client who would like to improve their ability to participate in physical activity and exercise whilst improving their diet.

Learning aims A and B

For learning aims A and B the learner should apply their learning to create a case study for a selected client examining the nutritional, energy and hydration needs and their importance in relation to their physical activity and exercise. Pictures and diagrams would be useful in showing understanding of the digestive system.

Learning aim C

For learning aim C the learner should conduct a baseline assessment with a client who wants to participate more in physical activity and who needs advice on nutritional choices. Once the baseline assessment has been carried out, learners should assess the data against recommended amounts before creating a revised one-week diet and hydration plan. The plan should be accompanied with a justification that includes reasons why they have included certain foods and their amounts, as well as hydration ideas. The justification should also include the impact on the sportsperson's performance, if the new plan is adopted.

Getting started

This gives you a starting place for one way of delivering the unit, based around the recommended assessment approach in the specification.

Introduction
Introduce this unit by painting a picture of diet and sport/physical activity, use video clips of player interviews discussing their intake of food to set the scene. Stress the importance of diet as recommended by sport science and government sources. Debate the consequences, allow learners to reflect on their diet choices and how their participation and performance is impacted.
Learning aim A: Examine principles of nutrition, digestion and hydration
• A1 deals with the sources for nutritional guidance from the government as well as sports science. Understanding the messages necessary for health and wellbeing as well as performance is vital in appreciating the importance of a balanced diet. • A2 covers macronutrients and their functions whilst appreciating how the body uses the nutrient to perform physical activity. Appreciating the energy value of each nutrient, including alcohol and government nutritional initiatives, will enable the learner to gain an understanding of the amount of each nutrient needed for physical activity. • A3 reviews the function of micronutrients, appreciating their sources as well as the recommended daily allowance (RDA). Deficiencies in micronutrients can have a significant impact on the body, therefore learners must consider the consequences. Fibre is a vital element of nutrition needed for an effective digestive system, learners will appreciate the function as well as sources to support their understanding. • A4 investigates the importance of hydration and fluid intake, including sources and types from the local market. Factors affecting hydration levels must be considered as effects of dehydration and hyperhydration has an impact on wellbeing and performance. • For A5, encourage a creative approach to developing knowledge and understanding of the digestive system. Use a step-by-step guide to allow learners to create the structure of the digestive system using Playdough or plasticine, ask that they take pictures of their creation on their phones to share with others. Also encourage each learner to share the journey of food through the system with their peers or family. Producing a story encourages more creativity to fully appreciate the journey of food through the digestive system and cement learning of the digestive juices and enzymes. The section will conclude with learners appreciating how the structure and function of the digestive system supports the food choices of an individual.
Learning aim B: Explore energy intake and expenditure in physical activity and exercise
• Learning aim B investigates the importance of energy and expenditure at rest and whilst performing the required sporting actions. A tutor presentation will allow learners to understanding the term 'energy', sharing information on measuring the concept as well as including the appropriate foods to locate the sources needed for the requirements of the sport. Practically participating in measuring BMI will enhance the learning experience for each learner whilst cementing knowledge of the impact of BMI on sports performers.

Energy balance is a key concept as are the factors that affect BMR, and learners will use the information provided to develop their understanding of this concept.

- For B1, create a presentation that educates learners on the term 'energy', how it is measured and sources of fuel for sport performance. Offering a practical session to develop knowledge and understanding of BMI will cement learners' appreciation of the methods used. Reinforcing the experience, learners should create a step-by-step guide for each method experienced or researched.
- For B2, discuss BMI, reinforcing with an information presentation whilst allowing learners to appreciate the factors that can affect a performer's BMI. Factors affecting body composition are investigated with measurements being taken to provide learners with the importance of hip to waist ratio.

Learning aim C: Assess and plan diets for health and participation in exercise and physical activity

- For C1, learners will investigate the food groups and make up of a balanced diet using the recommended amounts of each nutrient. Conclude this by presenting information on how best to prepare food to maintain its nutritional value. The concept of food labelling has grown in popularity with food companies, and learners should explore the information on labels on various food types.
- For C2, learners will explore the benefits of a balanced diet as well as gain an appreciation of the dietary concerns that may be affecting an individual. Guest speakers can be used to share their personal experience of a dietary concern. Myths surrounding dieting should be investigated whilst stressing the need to be aware of 'fake news'.
- For C3, learners need to appreciate the types of sport and physical activities, enhancing their learning further by calculating required nutrients for specified activities.
- C4 focuses on supplements and their growing popularity, with many individuals enhancing their training regime with additional supplements. Learners should explore current trends, reflecting on the positives and negatives of each supplement. Learners should research the message being shared by the company and reflect on its impact on performance. Nutritional strategies are often sought by backroom staff to enhance the physical capabilities of a performer, and learners should research the recommended strategies to enhance their understanding.
- For C5, learners should arrange to work with a client who has nutritional needs linked to their health and or physical performance. Initially, the learner will interview the client, assessing their nutritional needs and concerns. Targets should be set for enhanced participation in physical activity before the learner prepares an appropriate diet plan for the client to meet their goal.

Details of links to other BTEC units and qualifications, and to other relevant units/qualifications

This unit links to:

- Unit 6: Exercise and Fitness Skills Development
- Unit 7: Personal Training and Programming.

Resources

In addition to the resources listed below, publishers are likely to produce Pearson-endorsed textbooks that support this unit of the BTEC International L3 Qualifications in Sport. Check the Pearson website at: (http://qualifications.pearson.com/endorsed-resources) for more information as titles achieve endorsement.

Textbooks

Bean, Anita – *The complete guide to Sports Nutrition (Publisher, A&C Black, London 2009)* ISBN 9781408105382

Benardot, Ben – *Advanced Sports Nutrition* (Publisher: Human Kinetics, 2020) ISBN 978-1492593096

Currell, Kevin – *Performance Nutrition* (Publisher: The Crowood Press Ltd, 2016) ISBN 978-1785002229

Girard Eberle Suzanne – *Endurance Sports Nutrition* (Publisher Human Kinetics, 2013) ISBN 978-1450432153

Jordan Matt – *Sports Nutrition* (CreateSpace Independent Publishing Platform, 2017) ISBN 978-1981781867

Websites

https://www.active.com/nutrition/articles/athletes-what-to-eat-and-when-for-top-performance?page=2

https://www.nutritionist-resource.org.uk/articles/sports-nutrition.html#theimportanceofsportsnutrition

https://www.nutrition.org.uk/healthyliving/an-active-lifestyle/eating-for-sport-and-exercise.html

https://jissn.biomedcentral.com/articles

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