

Unit 2: Anatomy and Physiology for Health and Social Care

Delivery guidance

Approaching the unit

The unit covers the basic organisation of the human body, from cells to body systems. This includes the role of cells, tissues and organs in the functioning of the body systems and the processes involved in homeostasis. How the body systems interrelate and affect each other is integral.

The effect of disorders on the body systems and how a disorder of one body system may affect other systems are covered. The effect of factors such as lifestyle and genetics on the disorders, both their likelihood and the degree of severity of the effects, is also included.

Delivering the learning aims

Learning aim A includes the structure of cells and tissues and the location of the major organs. It could be delivered using annotated diagrams, allowing learners to picture how the structures relate to each other. The annotations could then be used to build up knowledge of the function of cell organelles. These diagrams can act as reference points throughout the unit when they are relevant to specific body systems and disorders.

Homeostasis is also covered, especially how negative feedback is the primary mechanism that controls the different aspects of homeostasis. Diagrammatic representation of the processes can help learners understand how a change in one part of a process can influence another part of the process.

Learning aims B and C cover the different human body systems, the disorders that affect them and the factors that may affect those disorders. How a disorder of one body system may affect the function of another body system is also integral to this unit. The delivery of this unit can include practical demonstration of the structures through dissection. This is particularly relevant for the cardiovascular and respiratory systems and the appropriate material for the demonstrations is generally available through abattoirs or butchers' shops. The use of annotated diagrams is useful in this section so that learners can develop an understanding of the interrelated nature of the different structures in a body system. Models of many organs are available from commercial suppliers and can be useful to demonstrate the structure of the organs.



Assessment model

| Learning aim | Key content areas | Recommended assessment approach |
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| <p>A Examine the structure and function of the human body, and the role of homeostatic mechanisms</p> | <p>A1 How cells work</p> <p>A2 Characteristics of tissues</p> <p>A3 The location of body organs</p> <p>A4 Energy in the body</p> <p>A5 Homeostatic mechanisms</p> | <p>This unit is assessed through a Pearson Set Assignment.</p> |
| <p>B Understand the structure, organisation and function of human body systems</p> | <p>B1 The structure and function of the cardiovascular system</p> <p>B2 The structure and function of the respiratory system</p> <p>B3 The structure and function of the musculoskeletal system</p> <p>B4 The structure and function of the digestive system</p> <p>B5 The structure and function of the nervous system</p> | |

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|--|---|--|
| | <p>B6 The structure and function of the endocrine system</p> <p>B7 The structure and function of the lymphatic and immune systems</p> <p>B8 The structure and function of the renal system</p> | |
| <p>C Understand how disorders affect anatomical and physiological systems</p> | <p>C1 Disorders of the body systems</p> <p>C2 Factors that affect body systems</p> | |

Assessment guidance

The unit is assessed by a Pearson Set Assignment (PSA).

The assessment is set by Pearson and must be taken under controlled conditions before it is marked by tutors.

There are 120 guided learning hours assigned to the unit, of which 15 hours will be required for assessment.

The Pearson Set Assignment will require learners to apply their knowledge to a scenario about a body system and an associated disorder. They will also be required to make links to other body systems to show an understanding of how cells, tissues, organs and organ systems work together to ensure the healthy functioning of the human body.

Set assignments are available from September each year and are valid for one year only.

Delivery must cover all the unit content and prepare learners to produce evidence to meet the assessment criteria and assessment guidance in preparation for taking the PSA. Sample assessment materials are available on the Pearson website. These can be used or adapted to help learners prepare for assessment.

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 giving an overview of the human body systems and how cells, tissues and organs are organised to enable those systems to work.

Learning aim A: Examine the structure and function of the human body, and the role of the homeostatic mechanisms

- Learning aim A is about the structure of cells, how cells are organised into tissues and tissues make up organs.
- For A1 and A2 learners need to understand the structure of cells and the function of the organelles and the characteristics of tissues. This can be covered by examining cells and tissues under the light microscope and using annotated diagrams of a typical animal cell to show the function of the organelles and diagrams of the different types of tissue annotated to highlight their structures.
- For A3 learners need to know the location of body organs. This is best done diagrammatically so that learners get an appreciation of the spatial relationship of the different organs.
- For A4 and A5 learners are looking at the physiology of the human body, energy, metabolism and homeostasis. Many learners struggle with these concepts and a combination of tutor-directed notes and independent study would give them an opportunity to embed their understanding of the concepts.

Learning aim B: Understand the structure, organisation and function of human body systems

- Learning aim B is an examination of all the body systems in detail. This could be delivered through a mixture of practical examination of either dissections of samples or models of the various organs, diagrammatic representations of the various systems to enable learners to picture how the systems work together, and notes to fill in the detail they have observed through demonstrations and diagrams.

Learning aim C: Understand how disorders affect anatomical and physiological systems

- Learning aim C is about the disorders of the body systems and the factors that affect them.
- For C1 the learners examine the disorders that affect the different body systems. These could be considered in conjunction with the relevant body system in learning aim B, detailing how the factor affects the severity and prevalence of the disorder.
- For C2 learners cover the factors that affect the disorders, both positively and negatively. This could be delivered as a separate section, as many factors affect more than one body system. Another approach would be to look at the relevant factors at the same time as the body system and disorder are covered.

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

This unit links to:

- Unit 3: Enquiries into Current Research in Health and Social Care
- Unit 5: Principles of Safe Practice in Health and Social Care
- Unit 6: Promoting Public Health

Resources

Textbooks

Annets, F, Hartley, J, Hocking, S, Llewellyn, R, Meunier, C, Parmar, C and Peers, A –
BTEC National Applied Science Student Book 1 (Pearson, 2016)
ISBN 9781292134093

This book for the BTEC Level 3 Nationals in Applied Science includes units that contain overlapping scientific content and some contemporary issues that may be relevant in the study of this unit.

Annets, F, Hartley, J, Hocking, S, Llewellyn, R and Meunier, C –
BTEC National Applied Science Student Book 2 (Pearson, 2016)
ISBN 9781292134130

This book for the BTEC Level 3 Nationals in Applied Science includes units that contain overlapping scientific content and some contemporary issues that may be relevant in the study of this unit.

Any current Level 3 science textbook with a section on muscles, the skeleton, the endocrine system, the nervous system and homeostasis will provide suitable content to support learners in understanding the systems.

Websites

NHS

www.nhs.uk

This is a huge website – search for the different conditions and you will find a lot of information on each one.

Nursing Times

www.nursingtimes.net

A website offering the latest news, clinical research and continuing professional development for nurses and other health professionals.

National Center for Biotechnology Information

www.ncbi.nlm.nih.gov/

Search 'degenerative disorder of musculoskeletal system' for articles and links to recent clinical studies and reviews. Useful to stretch and support high-level learners.

Nuffield Foundation

www.nuffieldfoundation.org

Search for 'modelling sliding filament hypothesis'.

Ivy Roses

www.ivyroses.com

Search for 'skeletal disorders' for resources covering conditions and disorders of the skeletal system. Gives an overview of causes and effects of some conditions.

WebMD

www.webmd.com

Search for 'endocrine disorders' and 'endocrine disorders/diabetes' for an overview of the glands of the endocrine system, causes of endocrine disorders and diabetes.

BTEC INTERNATIONAL HEALTH AND SOCIAL CARE
UNIT 2: ANATOMY AND PHYSIOLOGY FOR HEALTH AND SOCIAL CARE

Brain and Spine Foundation
www.brainandspine.org.uk
Search for the Parkinson's disease factsheet.

Medical News Today
www.medicalnewstoday.com
Search for 'multiple sclerosis: what you need to know'.

Lumen Learning
www.lumenlearning.com
Search for 'homeostasis' for a lesson on homeostasis and how it affects ageing.

Shout Out UK
www.shoutoutuk.org
Search for 'interplay of the nervous and endocrine systems'.

Pearson is not responsible for the content of any external internet sites. It is essential for tutors to preview each website before using it in class so as to ensure that the URL is still accurate, relevant and appropriate. We suggest that tutors bookmark useful websites and consider enabling students to access them through the school/college intranet.