

Higher National Unit Specification

General information for centres

Unit title: Physiology for Health Care Professionals

Unit code: DR3P 34

Unit purpose: This Unit should enable the candidate to demonstrate an understanding of the normal functioning of the healthy person. Physiology deals with the ways that various systems of the body work to produce the activities of living. The body is normally in a state of balance and the study of physiology assists with the understanding of how the balance is maintained.

On completion of the Unit the candidate should be able to:

- 1 Explain the central role of water and its related system in the normal functioning of the body.
- 2 Describe the mechanisms involved in regulating, controlling and protecting the normal healthy body.
- 3 Identify how selected body systems provide the energy required to maintain a healthy body.
- 4 Examine the principles of muscle and skeletal physiology applied to body movement.

Credit points and level: 1.5 HN Credits at SCQF level 7: (12 SCQF credit points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Candidates should have good communication skills, both written and oral. These can be evidenced either by the achievement of nationally recognised qualifications for example Higher English or a qualification equivalent to SCQF level 6 or by the completion of a pre-course interview part of which could take the form of a written assignment. The skills to undertake this Unit could also be demonstrated through an employer's reference or the process of application and interview. In addition to this candidates should preferably have undertaken some work experience, paid or voluntary, in a health care setting.

Core Skills: There are opportunities to develop the Core Skills of Communication at SCQF level 5 and Numeracy at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

General information for centres (cont)

Unit title: Physiology for Health Care Professionals

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

This Unit is included in the framework for HNC Health Care and HNC Allied Health Professions. It is recommended that it should be taught and assessed within the context of these awards.

Assessment: The assessment for this Unit will be either by multiple choice or by restricted response questions. There will be two instruments of assessment, addressing Outcomes 1 and 2 and Outcomes 3 and 4.

Higher National Unit specification: statement of standards

Unit title: Physiology for Health Care Professionals

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The sections of the Unit stating the Outcomes, knowledge and/or skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Explain the central role of water and its related systems in the normal functioning of the body

Knowledge and/or skills

- ◆ The volume and distribution of fluid in the human body
- ◆ The principles of water balance and their importance in care management
- ◆ The function of intercellular fluid in providing a stable internal environment
- ◆ The process of homeostasis
- ◆ Homeostatic control of the body's fluid balance
- ◆ The principles of diffusion, osmosis and active transport applied to fluid movement

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can:

- ◆ understand the principles of water balance and homeostasis and are able to explain the flow of fluids through the tissue
- ◆ to apply this knowledge to situations used in generating evidence and by demonstrating the use of this knowledge and application in other Outcomes

Assessment guidelines

The assessment for this Outcome will be combined with Outcome 2 and will be either by multiple choice or by short answer response.

Higher National Unit specification: statement of standards

Unit title: Physiology for Health Care Professionals

Outcome 2

Describe the mechanisms involved in regulating, controlling and protecting the normal healthy body

Knowledge and/or skills

- ◆ Structure and function of the nervous system
- ◆ Structure and function of the endocrine system
- ◆ Structure and function of the immune system
- ◆ Structure and function of the excretory system
- ◆ the theory of homeostasis including feedback mechanisms
- ◆ the function of selected homeostatic mechanisms
- ◆ the inter-relationship of several body systems

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can:

- ◆ identify how the nervous system controls and protects the human body
- ◆ identify how the endocrine system differs from the nervous system in its function and control of the body
- ◆ identify the role and function of the immune system
- ◆ demonstrate a knowledge of three homeostatic mechanisms
- ◆ identify the body systems involved in the previously identified homeostatic mechanisms

Assessment guidelines

The assessment can be combined with Outcome 1 and will be either by multiple choice or by short answer response.

Outcome 3

Identify how selected body systems provide the energy required to maintain a healthy body

Knowledge and/or skills

- ◆ Structure and function of the circulatory system
- ◆ The healthy heart and cardio-vascular physiology
- ◆ Structure and function of the respiratory system
- ◆ Control of the respiratory rate
- ◆ Structure and function of the digestive system

Higher National Unit specification: statement of standards (cont)

Unit title: Physiology for Health Care Professionals

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can:

- ◆ identify the normal structure and function of the circulatory system
- ◆ demonstrate a knowledge of the normal structure and function of the heart including the flow of blood through the heart and round the body
- ◆ discuss the relationship between the activities of the heart and blood pressure
- ◆ describe the mechanisms of normal breathing demonstrating a knowledge of both process and rate of breathing
- ◆ demonstrate a knowledge of the structure and function of the digestive system
- ◆ discuss the process of energy production

Assessment guidelines

The assessment for this Outcome should be by questions and answers and should address all of the three systems within the Outcome.

Outcome 4

Examine the principles of muscle and skeletal physiology applied to body movement

Knowledge and/or skills

- ◆ Structure and functions of the skeletal muscle
- ◆ Explanation of body movement related to:
 - skeletal attachment of muscles
 - antagonistic muscle pairs
 - operation of levers
 - muscle movement in terms of sliding filament theory
 - explanation of hormonal and nerve control
 - explain movement related to energy requirement

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can:

- ◆ outline the structure and function of skeletal muscle
- ◆ describe the movement of a limb in terms of skeletal attachment of muscle
- ◆ describe antagonistic function of muscles and the movement of muscle filaments
- ◆ explain the consumption of energy due to movement

Assessment guidelines

This assessment for the Outcome will be by restricted response questions addressing the Evidence Requirements above.

Administrative Information

Unit code: DR3P 34

Unit title: Physiology for Health Care Professionals

Superclass category: RH

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History of Changes:

Version	Description of change	Date

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Higher National Unit specification: support notes

Unit title: Physiology for Health Care Professionals

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 60 hours.

Guidance on the content and context for this Unit

This Unit is intended to provide the candidate with an introduction to the anatomy and physiology of the human body. One system ie the Reproductive System has not been included however, it is available in another Unit should a candidate require this knowledge.

Outcome 1

Provides the opportunity to emphasise the role played by water in the normal functioning of the body and in health. An understanding of this concept will enable the candidate to understand ill-health. The candidate should be introduced to the volume and distribution of fluid in the human body and be provided with an awareness of age variance. The knowledge of water balance underpins the candidate's appreciation of intercellular flow and will assist in addressing Outcome 3 when discussing blood pressure. Candidates who can define homeostasis and are able to discuss the principles of diffusion, osmosis and fluid transport will have the knowledge which underpins the physiology of the human body.

Outcome 2

Looks at four body systems. Many deliverers of health related programmes would focus on the more high profile systems such as the cardiac and respiratory systems. The approach taken in this Unit will give the candidate a good foundation knowledge with regard to human physiology as each Outcome builds on the previous Outcome. The candidate is only required to discuss the protection system of the body, however, knowledge of the homeostatic mechanisms will be useful in knowledge and understanding of other Units within this award.

Outcome 3

Addresses three of the systems of the body ie circulatory, respiratory and digestive systems with many candidates having some previous knowledge of these systems. In delivering this Unit it is important to relate the knowledge gained in Outcome 1 to enable the candidate to demonstrate an understanding of mechanisms related to the Units eg the mechanisms of respiration.

Outcome 4

This Outcome completes the holistic overview of the Unit and of health.

Higher National Unit specification: support notes (cont)

Unit title: Physiology for Health Care Professionals

Guidance on the delivery and assessment of this Unit

This Unit is likely to form part of a Group Award, which is primarily designed to provide candidates with knowledge and skills to work with people in need of health care. Physiology often is viewed as a very factual subject and many candidates will develop their awareness through rote learning.

This has influenced the assessment format by having Outcomes 1 and 2 assessed by multiple choice and Outcomes 3 and 4 more focused to enable the candidate to move from rote learning and demonstrate application of knowledge gained in Outcomes 1 and 2. There is however a choice of short answers for Outcomes 1 and 2. If short answers are used to assess all four Outcomes please do not exceed 2,500 words.

The following texts are useful as a resource:

Tortora G J, Grabowski S R	2000 Principles of Anatomy and Physiology , New York, John Wiley & Sons
Wilson K J W & Waugh A	1999 Anatomy and Physiology in Health and Illness , 8th Ed, Edinburgh Churchill Livingstone

Several websites may also be useful resources including:

www.bris.ac.uk/is/subjects/physiology/internetlinks.html

Opportunities for developing Core Skills

There are opportunities to develop the Core Skills of Communication at SCQF level 5 and Numeracy at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Communication: will be evidenced via the candidates' work with individuals and groups. Group discussions are particularly important.

Numeracy: will be evidenced through the candidates' ability to carry out numerical calculations with regard to homeostasis.

Open learning

Theory for this Unit may be developed for delivery by Open Learning. However, it would require planning by the centre to ensure the sufficiency and authenticity of candidate evidence.

For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 — publication code A 1030).

Higher National Unit specification: support notes (cont)

Unit title: Physiology for Health Care Professionals

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Alternative Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs*, which is available on SQA's website: **www.sqa.org.uk**.

General information for candidates

Unit title: Physiology for Health Care Professionals

This Unit will enable you to demonstrate an understanding of the normal functioning of the healthy person. Physiology deals with the ways that various systems of the body work to produce the activities of living. Candidates who wish to pursue a career in nursing will also have to complete the Physiology of the Reproductive Systems. A healthy body is normally in a state of balance, and the study of physiology assists with the understanding of how the balance is maintained.

The Unit will be assessed in one of two ways — either a multiple choice paper to enable you to demonstrate a breadth of knowledge, or by restricted response questions; one addressing Outcomes 1 and 2, and another addressing Outcomes 3 and 4.

On completion of this Unit, you should be able to:

- ◆ explain the central role of water and its related system in the normal functioning of the body
- ◆ describe the mechanisms involved in regulating, controlling and protecting the normal healthy body
- ◆ identify how selected body systems provide the energy required to maintain a healthy body
- ◆ examine the principle of muscle and skeletal physiology applied to body movement.