Unit title:	Physiological principles for health and social care
Unit number:	14
Level:	4
Credit value:	15
Guided learning hours:	60
Unit reference number:	A/601/1608

UNIT AIM AND PURPOSE

This unit will enable learners to explore the structure and functions of body systems and how they work together to maintain essential life processes. Learners will discover how the component parts of these systems can deteriorate.

By investigating a number of common disorders, learners will be able to assess the type and degree of care that people affected by these disorders will need. This will require learners to understand the need for routine testing and monitoring and the guidelines that practitioners must follow.

In the developed world, many people are adopting unhealthier lifestyles and yet, through modern medicine and care practices, living longer.

The unit encourages learners to develop a transferrable skill set beneficial to roles in this career pathway.

LEARNING OUTCOMES AND ASSESSMENT CRITERIA

A pass grade is achieved by meeting **all** the requirements in the assessment criteria.

Learning Outcome (LO) The Learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The Learner can:
LO1 Know the structure and functioning of the human body	1.1 outline the main anatomical features of the human body 1.2 discuss how body systems interact to ensure the body functions and grows
LO2 Understand the relationship between body functioning and relevant, detailed anatomy and physiology	2.1 explain normal body responses to everyday activities 2.2 discuss how body responses are explained by cellular and tissue structure and physiology 2.3 explain how the body coordinates its internal activities
LO3 Understand how routine data collected in health and social care informs the planning of care for individuals	3.1 explain the recording and use of routine measures in health and social care 3.2 assess how routine measures provide information about body functioning 3.3 examine how information about body functioning may inform care planning for individuals

LO4 Be able to relate routine variations in body structure and functioning to care received by individuals	4.1 explain how age may affect body structure and functioning 4.2 assess the impact of common disorders on body structure and functioning 4.3 relate the effects of common disorders and infection to the care routinely given to individuals affected by them

GRADING CRITERIA

A merit grade is achieved by meeting **all** the requirements in the pass criteria **and** the merit descriptors

A distinction grade is achieved by meeting all the requirements in the pass criteria **and** the merit descriptors **and** the distinction descriptors.

Merit Criteria (M1, M2, M3) (M1, M2, and M3 are mandatory to achieve a merit grade. Each must be achieved at least once per unit to achieve a merit grade.)	**Distinction Criteria (D1, D2, D3)** (D1, D2, and D3 are mandatory to achieve a distinction grade. Each must be achieved at least once per unit to achieve a distinction grade.) (In order to achieve a distinction grade, all merit criteria must also have been achieved.)
MANDATORY TO ACHIEVE A MERIT GRADE	MANDATORY TO ACHIEVE A DISTINCTION GRADE
M1 Analyse concepts, theories or principles to formulate own responses to situations.	D1 Evaluate approaches to develop strategies in response to actual or anticipated situations.
M2 Analyse own knowledge, understanding and skills to define areas for development.	D2 Evaluate and apply strategies to develop own knowledge, understanding and skills.
M3 Exercise autonomy and judgement when implementing established courses of action.	D3 Determine, direct and communicate new courses of action.

TEACHING CONTENT

The Teaching Content describes what has to be taught to ensure that learners are able to access the highest grade.

Learners must be able to apply relevant examples to their work. Where examples are given in the Teaching Content, these are suggestions; they do not have to be the examples that the learner uses.

LO1 Know the structure and functioning of the human body	
Main anatomical features	Gross structure and functions of body systems – cardiovascular, respiratory, digestive, renal, endocrine, musculoskeletal, neural, sensory, reproductive and immune Gross structure of body organs – heart, arteries and veins, liver, kidney, lungs, small intestine, pancreas, bone, joint, eye, ear, brain, skin
Interactions	(e.g. digestive and cardiovascular, renal and cardiovascular, reproductive and cardiovascular, respiratory and cardiovascular, cardiovascular and endocrine, cardiovascular and skin, sensory, neural and musculoskeletal)
Functions	To maintain essential metabolism – chemical nature of body activity, rate at which energy is used; changes in metabolic rate (e.g. during exercise, over lifespan) To respond to stimuli To remove poisonous waste products To replicate
Growth	Production of cells during development – increased size of cells (e.g. adipose tissue in obesity, muscle cells during training) tissue turnover/replacement (e.g. skin, hair, nails, bone, sperm).

LO2 Understand the relationship between body functioning and relevant detailed anatomy and physiology	
Everyday activities	(e.g. obtaining nutrients and oxygen, excreting, physical activity, avoiding danger, fighting infection, repairing damage)
Cellular and tissue structure	(e.g. wall of stomach, wall of small intestine, alveoli, kidney nephron, voluntary muscle, joint, retina, cochlea, neuron, blood and lymph)
Physiology	(e.g. absorption of nutrients, gaseous exchange, filtration and selective reabsorption in kidneys, muscle action and locomotion, sensory detection and response, immune response, inflammatory response, blood coagulation)
Internal activities	(e.g. regulation of: body temperature, blood glucose, blood pressure, heart rate, breathing rate, urine output)
Coordination	Concept of homeostasis, principles of feedback, role of endocrine system, role of the autonomic nervous system and central nervous system, role of kidney, role of skin
LO3 Understand how routine data collected in health and social care informs the planning of care for individuals	
Routine measures	(e.g. visual observation, weight, height, temperature, pulse, ECG monitoring, blood pressure, respiration rate, food intake, fluid intake, fluid output, urine tests-glucose, ketones, protein, blood tests (e.g. liver function tests, cholesterol, glucose, blood proteins, clotting time, PSA levels), cognitive/memory tests)
Information	As relevant to measurement taken (e.g. heart rate, blood pressure, peak flow, over/under weight, nutrition, stroke/CHD risk, kidney function, hydration, diabetic stability, infection, prostate problems)
Assessment considerations	(e.g. sources of error, reliability, validity; concept of normal range, derived measures – e.g. body mass index (BMI), fluid balance, nutritional health)
Care planning	(e.g. commissioning, monitoring course of health/disorder/disease, NICE guidelines, National Service Frameworks, care routines, professionals involved, reporting data to professionals, recognising need for emergency responses).

LO4 Be able to relate routine variations in body structure and functioning to care received by individuals	
Effects of ageing	(e.g. reduced metabolism, decreased fertility, loss of elasticity (e.g. skin, arteries, lens), loss of reaction times, degeneration or impaired function of tissues, organs and systems – e.g. coronary arteries, neural tissue, bone, cartilage, eyesight, hearing, speech, incontinence, ataxia, cognitive abilities)
Common disorders	(e.g. diabetes, cardiovascular disease, stroke, Alzheimer's, Parkinson's, autoimmune, obesity)
Impact	(e.g. changes to body structure, impaired or loss of function, risks from treatment)
Common disorders	(e.g. diabetes, cardiovascular disease, stroke, Alzheimer's, Parkinson's, autoimmune, obesity)
Infections	(e.g. septicaemia, gangrene, respiratory, urinary, influenza)
Routine care	(e.g. activities of daily living, mobility aids, monitoring, medication/treatment, available help, practitioners and services, infection prevention and control, rehabilitation).

GUIDANCE

Delivery guidance

It will be beneficial to deliver this unit in a way that uses actual events, industry forecasts or sector specific contexts which offer the learner the opportunity to explore, develop and apply the fundamental principles of the sector or subject area. Typical delivery contexts could include researching selected disorders, their diagnosis and monitoring. Discussions with key professionals or individuals affected by a disorder should be encouraged where possible.

Learners will benefit from being encouraged to exercise autonomy and judgement to write an information booklet for an individual with a specified disorder, informing them of the biology behind their condition and the everyday impact it will have on their lives and care. Learners may adapt their thinking and reach considered conclusions, when assessing the impact of common disorders on body structure and functioning.

Learners would benefit from being presented with subject/sector-relevant problems from a variety of perspectives and being given the opportunity to explore them using diverse approaches and schools of thought. For example, case studies or scenarios could be used to enable learners to identify appropriate measurements for testing and monitoring. Current national guidelines could be used as the basis to identify possible justifications for these.

Assessment evidence guidance
Evidence produced must demonstrate how a learner has met each of the Learning Outcomes, and be submitted in the form of assignments, essays, project portfolios, booklets, care plans, presentations or, where appropriate, reflective accounts. Where group work/activities contribute to assessment evidence, the individual contribution from each learner must be clearly identified. All evidence must be available for the visiting moderator to review. Where learners are able to use real situations or observations from work placement, care should be taken to ensure that the record of observation accurately reflects the learner's performance. This should be signed, dated, and included in the evidence. It is best practice to record another individual's perspective of how a practical activity was carried out. Centres may wish to use a witness statement as a record of observation. This should be signed and dated and included in the evidence.

RESOURCES

Books
L. S. Costanzo. *Physiology*. 4th ed. Saunders. 2009. ISBN: 978 1416062165 G. J .Tortara & B. H. Donaldson. *Principles of Anatomy and Physiology*. John Wiley & Sons. 2011. ISBN: 978 047092986 J. P. T. Ward. *Physiology at a Glance*.2nd ed. Wiley-Blackwell. 2008. ISBN: 978 1405177238
Journals
The Journal of Physiology *The Journal of Physiological Sciences* *BMC Physiology*
Websites
www.physoc.org www.stcms.si.edu/hbs/hbs.student.htm
Signposting to other units within the qualification
Unit 7: The role of public health in health and social care Unit 23: Complementary therapies Unit 31: Health promotion