

Higher National Unit specification

General information for centres

Unit title: Complementary Therapies: Anatomy and Physiology

Unit code: F1BN 34

Unit purpose: This Unit is designed to enable the candidate to develop their understanding of human anatomy and physiology. Candidates will also be able to analyse and discuss the affects of various Complementary Therapies on these functions.

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

- 1 Identify and describe the characteristic structures of the major systems of the body.
- 2 Describe the functions of the major systems of the body.
- 3 Analyse and describe the effects of specific Complementary Therapies on the major systems of the body.

Credit points and level: 2 HN credits at SCQF level 7: (16 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: It is highly recommended that candidates have studied Human Biology, Biology, or Anatomy and Physiology at SCQF level 6 before enrolling in this class.

Core Skills: There are opportunities to develop the Core Skill(s) of Problem Solving, IT and Written Communications in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

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.

Assessment: This Unit will be assessed using specified forms of appropriate assessments in order to present sufficient evidence showing that candidates have met all of the requirements, for each Outcome within the knowledge and/or skills specified. Candidates must achieve all of the Evidence Requirements for each Outcome in order to pass this Unit successfully.

Higher National Unit specification: statement of standards

Unit title: Complementary Therapies: Anatomy and Physiology

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

Outcome 1

Identify and describe the characteristic structures of the major systems of the body

Knowledge and/or Skills

- ◆ Skeletal and muscular systems
- ◆ Nervous and endocrine systems
- ◆ Cardiovascular and respiratory systems
- ◆ Lymphatic and urinary system
- ◆ Digestive system
- ◆ Integumentary system
- ◆ Reproductive system

Evidence Requirements

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

- ◆ Identify the major structures of the body systems from diagrams and anatomical descriptions. This will be assessed under closed-book supervised conditions.
- ◆ Describe the characteristic structures of the major systems of the body. The information provided in the section 'Guidance on the content and context for this Unit' offer relevant information as a source of key tissues and structures for the assessment of the Outcome.

Assessment Guidelines

The assessment of Outcome 1 (Anatomy) can be linked to Outcome 2 (Physiology), where they can be assessed as an individual system in turn. In this case the assessment(s) should also test the candidates understanding of the relationship between structure and function by open-book extended response questions, where the candidate will be provided with unseen questions, but may use course notes.

Higher National Unit specification: statement of standards (cont)

Unit title: Complementary Therapies: Anatomy and Physiology

Outcome 2

Describe the function of the major systems of the body

Knowledge and/or Skills

- ◆ Skeletal and muscular systems and the principles of their interaction
- ◆ Nervous and endocrine systems and the principles of their interaction with the other systems of the body
- ◆ Cardio-vascular and respiratory systems and the principles of their interaction with the other systems of the body
- ◆ Lymphatic system
- ◆ Urinary system
- ◆ Digestive system
- ◆ Integumentary system
- ◆ Reproductive system

Evidence Requirements

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

- ◆ Describe the functions of the major systems of the body.

The assessment should use extended response questions to provide evidence of a candidates understanding of the physiological function of the major systems of the body and the interactions between them.

Outcome 2 should be assessed through supervised open-book extended response questions, where the candidate will be provided with unseen questions, but may use course notes. This enables the candidate to describe the physiological activities of the individual systems and the interactions between them.

Assessment Guidelines

The assessment of Outcome 2 (Physiology) can be linked to Outcome 1 (Anatomy), where they can be assessed as an individual system. In this case the assessment(s) should also test the candidates' understanding of the relationship between structure and function and supervised open-book extended response questions, where the candidate will be provided with unseen questions, but may use course notes, would be more appropriate.

Higher National Unit specification: statement of standards (cont)

Unit title: Complementary Therapies: Anatomy and Physiology

Outcome 3

Analyse and describe the effects of a specific Complementary Therapy on all the major systems of the body

Knowledge and/or Skills

- ◆ Define the aim(s) of a complementary therapy on the systems of the body
- ◆ Understand the effects of a complementary therapy on the systems of the body
- ◆ Understand the effects of complementary therapies on the immunity of the body

Evidence Requirements

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

- ◆ Research and describe the aim(s) of a selected complementary therapy and state the body system(s) involved in its application.
- ◆ Research and discuss the evidence to explain the effect(s) of the therapy on the structure and/or function of the specified body system(s).
- ◆ Research the body's own healing mechanisms and how complementary therapies effects them.

This assessment should be generated from research carried out by the individual candidate and be no less than 1,500 words.

Assessment Guidelines

It must contain information gathered throughout their course and candidates will be given guidance regarding scientific protocols and conventions, including how to conduct an effective literature search, analysing of reports and scientific papers and the correct methods for referencing material. The assessment of the completed report should be holistic and will consider the candidates ability to meet the Evidence Requirements set out in the Outcomes.

Administrative Information

Unit code:	F1BN 34
Unit title:	Complementary Therapies: Anatomy and Physiology
Superclass category:	RH
Original date of publication:	February 2007
Version:	02 (February 2008)

History of changes:

Version	Description of change	Date
02	Further clarification of assessment. Page 2, Outcome 1 – changed to ‘closed-book supervised conditions for diagrams and/or anatomical descriptions. Page 3, Outcome 2 Evidence Requirement changed to unseen extended response question where candidate may use course notes. Page 10 amended to reflect Outcomes 1&2 as per page 2. Page 12 amendments to reflect Outcomes 1&2 as per page 2.	Feb 08

Source: SQA

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Higher National Unit specification: support notes

Unit title: Complementary Therapies: Anatomy and Physiology

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 80 hours.

Guidance on the content and context for this Unit

This Unit is intended to provide knowledge of the anatomy and physiology of the human body that will help to prepare candidates for their role as a Complementary Therapist. The Unit will help the candidate to apply their knowledge of the anatomy and physiology of the human body to the range of complementary therapies and be able to assess any benefits of treatments to their clients.

Outcome 1 (Anatomy)

Skeletal system

- ◆ Bone anatomy (diaphysis, epiphysis, periosteum, endosteum, articular cartilage, bone marrow, epiphyseal plates, medullary cavity), bone histology (matrix, compact and cancellous bone).
- ◆ Bones of the axial skeleton (skull, vertebral column and thoracic cavity) and appendicular skeleton (the pectoral and pelvic girdles, upper & lower limbs).
- ◆ Joints of the skeletal system: fibrous, cartilaginous, synovial; articulations and biomechanics of body movement (angular, circular, special and combination movements).

Muscular System

- ◆ Structural characteristics of skeletal muscle (sarcolemma, endomysium, perimysium, fascicles, epimysium, fascia), muscle fibres (sarcomeres, actin and myosin).
- ◆ Gross muscle anatomy (muscle shapes, nomenclature, movements accomplished by muscles (1st, 2nd and 3rd class levers).
- ◆ Origin, insertion and actions of the major superficial muscles: muscles of facial expression, sternocleidomastoid, splenius capitis, trapezius, deltoid, biceps brachii, triceps brachii, teres minor, teres major, pectoralis major, serratus anterior, linea alba, muscles of the abdominal group (rectus abdominus, transversus abdominis, internal and external obliques), latissimus dorsi, erector spinae, gluteal group (gluteus maximus, g. medius, g. minimus), quadriceps (rectus femoris, vastus lateralis, v. medialis, v. intermedius), sartorius, hamstring group (biceps femoris, semitendinosus, semi-membranosus), adductor group (adductor magnus, a. longus, a. brevis), gastrocnemius, tibialis anterior, soleus, peroneus longus, peroneus brevis.

Nervous system

- ◆ Brain (cerebrum, cerebellum, brainstem, diencephalons hypothalamus).
- ◆ Spinal cord.
- ◆ Neurons (myelinated and unmyelinated) (sensory, motor, association), neuroglia.

Endocrine system

- ◆ Pituitary, thyroid, parathyroid, thymus, adrenals, pancreas, ovaries, testes.

Higher National Unit specification: support notes (cont)

Unit title: Complementary Therapies: Anatomy and Physiology

Cardio-vascular system

- ◆ Heart: cardiac muscle, valves, sino-atrial node (SA), atrio-ventricular node (AV), bundle of His, purkinje fibres, left and right atria, left and right ventricles, chordae tendineae, papillary muscles, pericardium, endocardium, myocardium.
- ◆ Blood vessels: arteries, arterioles, veins, venules, capillaries.
- ◆ Fluid and formed components of blood (plasma, platelets, erythrocytes, leucocytes).

Respiratory system

- ◆ Nasal and oral cavities, pharynx, larynx, trachea, lungs, bronchi, bronchioles, alveoli, pleural cavity containing surfactant, muscles of respiration (diaphragm, internal and external intercostals).

Lymphatic system

- ◆ Lymphatic capillaries, veins, ducts, lymph nodules, lymph nodes, thymus, spleen (white and red pulp), tonsils.

Urinary system

- ◆ Kidneys (renal capsule, hilum, sinus, medulla, cortex, calyces, renal pelvis, renal artery, renal vein, nephrons), ureters, bladder and urethra.

Digestive system

- ◆ Oral cavity, salivary glands, pharynx, oesophagus, stomach, accessory glands (liver, gallbladder, bile ducts), duodenum, jejunum, ileum, caecum, colon, mesentery.

Integumentary system

- ◆ Skin (hypodermis, dermis, epidermis), hairy and planter skin.
- ◆ Accessory skin structures (hair, erector pili muscles, glands (sebaceous and sweat glands — apocrine and eccrine), nails).

Reproductive System

- ◆ Uterus, fallopian tubes, cervix, vagina, ovaries, ovarian ligaments, testies, seminal vesicles, prostate gland, vas deferens, epididymis, urthera, penis.

Outcome 2 (Physiology)

Skeletal system

- ◆ Ossification (endochondral and intramembranous).
- ◆ Bone growth (appositional, endochondral, epiphyseal plates, factors affecting growth).
- ◆ Calcium homeostasis.

Higher National Unit specification: support notes (cont)

Unit title: Complementary Therapies: Anatomy and Physiology

Muscular System

- ◆ Principles of skeletal muscle contraction.
- ◆ Physiology of skeletal muscle fibres (sliding filament theory, neuromuscular junction, excitation-contraction coupling, energy requirements, types of contraction (isometric, isotonic, muscle tone, concentric, eccentric).

Nervous system

- ◆ Functional divisions of the nervous system: Central Nervous System (CNS) — brain and spinal cord, Peripheral Nervous System (PNS) — cranial and spinal nerves, sensory and motor branches (somatic and autonomic systems) (sympathetic and parasympathetic) branches.
- ◆ Nervous interaction with the other systems of the body.
- ◆ Action potentials and the synapse (pre and post synaptic membranes, nerve transmission).
- ◆ Homeostasis and reflex arcs (sensory receptor, afferent neuron, association neuron, efferent neuron, effector organ).
- ◆ Neuronal pathways and circuits (convergent, divergent, oscillating).

Endocrine system

- ◆ Characteristics of the endocrine system (hormones as chemical messengers, control of secretion (+ve and – ve feedback) interaction of hormones with their target tissue).
- ◆ Activities of the major endocrine organs (formation, secretion, regulation and action(s) of the hormone): hypothalamus (releasing and inhibiting hormones), pituitary glands (hormones of the posterior and anterior lobes), thyroid (Tri-iodothyronine (T₃) and thyroxine (T₄) calcitonin) and parathyroid gland (parathyroid hormone), pancreas (insulin and glucagons), adrenal glands (hormones of the adrenal medulla and cortex), ovaries, and testes (reproductive hormones).

Cardio-vascular system

- ◆ The cardiac cycle (route of blood through the heart, systole and diastole, aortic pressure curve, heart sounds), regulation of the heart (intrinsic and extrinsic).
- ◆ Electrical properties of the heart (autorhythmicity, the electrocardiogram, conducting pathways).
- ◆ Heart and homeostasis (effect of blood pressure, pH, CO₂, O₂).

Respiratory system

- ◆ Ventilation (pressure differences and air flow, pulmonary volumes and capacities).
- ◆ Gas exchange (pressures, diffusion of gases through the respiratory membrane, ventilation and blood flow).
- ◆ O₂ and CO₂ transport around the blood (diffusion gradients, haemoglobin, the oxyhaemoglobin dissociation curve).
- ◆ Control of respiration (nervous, chemical, effect of O₂ and CO₂).

Higher National Unit specification: support notes (cont)

Unit title: Complementary Therapies: Anatomy and Physiology

Lymphatic system

- ◆ Fluid balance (formation and transport of lymph).
- ◆ Fat absorption (formation of chyle, lacteals).
- ◆ Defence: filtration of lymph and blood, innate and adaptive immunity (humoral and cell mediated immunity), acquired immunity (active and passive natural immunity; active and passive artificial immunity).

Urinary system

- ◆ Formation of urine (filtration, tubular reabsorption and tubular secretion).
- ◆ Regulation of urine concentration and volume (hormonal mechanisms, autoregulation, sympathetic innervation).
- ◆ Micturition reflex.

Digestive system

- ◆ Ingestion (mastication, deglutition, peristalsis).
- ◆ Function and digestive secretions of the oral cavity, stomach, small and large intestine, the liver, gallbladder and pancreas.
- ◆ Mechanical and chemical digestion and absorption of proteins, fats and carbohydrates.

Integumentary system

- ◆ The skin as a protective barrier, thermoregulation, vitamin D production, sensation, excretion.
- ◆ Effects of ageing on the integumentary system.

Reproductive system

- ◆ Interaction of Gonadotropin Releasing Hormone (GnRH), Follicle Stimulating Hormone (FSH) Luteinizing Hormone (LH), oestrogen and progesterone in follicular and luteal phases, testosterone regulation via hormone via Interstitial Cell Stimulating Hormone (ICSH). Role of Human Chorionic Gonadotropin (HCG) at implantation.

Outcome 3

Some suggested therapies for research include:

- ◆ Aromatherapy
- ◆ Reflexology
- ◆ Massage
- ◆ Alternative medicine

Higher National Unit specification: support notes (cont)

Unit title: Complementary Therapies: Anatomy and Physiology

Guidance on the delivery and assessment of this Unit

This Unit will be delivered as one of a number of mandatory Units that will fully prepare the candidate for work as a professional Complementary therapist. This Unit is intended to provide candidates with a broad knowledge and understanding of the basic anatomy and physiology of the major systems of the body. This knowledge aims to enhance the skills of the complementary therapist by providing an awareness of how their profession can maintain and improve the quality of life of their clients. Candidates should be aware of the requirement for integrated function to enable maintenance of a stable internal environment; therefore the learning and teaching process should involve a holistic approach where possible. The purpose of this Unit is also to encourage candidates to adopt a process of enquiry within their field of study and to apply the concept of an evidence-based approach. The Unit terminology is scientific in nature and it is important that students become comfortable and competent in the use of scientific and medical terminology. Therefore, the use of the correct terminology should be an integral part of the learning, teaching and assessment process.

Outcome 1

Identification of the major structures of the body systems from diagrams and anatomical descriptions must be assessed under closed-book supervised conditions.

The assessment should identify major structures of each of the body systems and describe at least five, but no more than 10, items for each system except the muscular systems where the minimum is 10. This should be assessed by supervised open-book extended response questions, where the candidate will be provided with unseen questions, but may use course notes.

The assessment of Outcome 1 (Anatomy) can be linked to Outcome 2 (Physiology). In this case the assessment(s) should also test the candidates understanding of the relationship between structure and function and by supervised, open-book extended response questions where the candidate will be provided with unseen questions, but may use course notes.

Outcome 2 should be assessed through supervised open-book extended response questions where the candidate will be provided with unseen questions, but may use course notes based on a sample approach.

Outcome 2 should be assessed through supervised open-book extended response questions where the candidate will be provided with unseen questions, but may use course notes, that enable the candidate to describe the selected physiological activities of the individual systems and the interactions between them. The assessment of Outcome 2 (Physiology) can be linked to Outcome 1 (Anatomy), where they can be assessed as an individual system. In this case the assessment(s) should also test the candidates understanding of the relationship between structure and function.

Outcomes 1 and 2 can be combined to enable the anatomy and physiology of individual systems to be assessed on completion of the mandatory theory. In this case the assessment(s) should also test the candidates understanding of the relationship between structure and function by open-book extended response questions where the candidate will be provided with unseen questions, but may use course notes.

Higher National Unit specification: support notes (cont)

Unit title: Complementary Therapies: Anatomy and Physiology

Outcome 3 should be discussed at the start of the course to allow candidates to begin their research on their chosen complementary therapy. Guidance should also be given at this point on referencing and scientific writing. This assessment should be no less than 1,500 words and contain information gathered throughout their course. The completed project should show that the candidate has researched their chosen therapy and the aims and effects of the therapy. Candidates must show their ability to consider scientific evidence objectively and to analyse the effectiveness of their chosen therapy using this evidence based approach. All material used must be referenced correctly. Assessment of the evidence should be holistic.

This assessment should be generated from research carried out by the individual candidate and be no less than 1500 words. It must contain information gathered throughout the course and candidates will be given guidance regarding scientific writing protocols and conventions, including how to conduct an effective literature search, analysis of reports and scientific papers in addition to the correct method for referencing material (BS5605:1990; BS1629: 1989).

Opportunities for developing Core Skills

This Unit has been signposted for Communication at SCQF level 6, written communication (produce well structured written communication on a complex topic), Information Technology at SCQF level 5 (use an IT system effectively and responsibly to process a range of information), Problem Solving at SCQF level 5.

Open learning

If this Unit is delivered by open learning methods, additional planning resources may be required for candidate support, assessment and quality assurance.

For further information and advice please refer to *Assessment and Quality for Open and Distance Learning (SQA, February 2001 – publication code A1030)*.

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. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

General information for candidates

Unit title: Complementary Therapies: Anatomy and Physiology

The Unit is intended to underpin and support other mandatory Units in the course that will help to prepare you for your role as fully qualified complementary therapists. The Unit is designed to allow you to build upon the knowledge and skills gained through previous, relevant programmes of study. The Unit will help you to apply your knowledge of human anatomy and physiology to a range of complementary therapies and to develop skills of analysis and evaluation of their field of study. This Unit is divided into 3 Outcomes each with their own style of evidence gathering. This will enable you to study the course notes and complete the coursework in a student led rate.

Outcome 1 (Anatomy)

You will be asked to identify the major structures of the body system from diagrams and anatomical descriptions and this will be carried out under closed-book supervised conditions.

You will be asked to identify major structures of each of the body systems and describe at least five but no more than 10 items for each system except the muscular systems where you will be asked to identify a minimum of 10. This will be assessed under supervised open-book extended response questions, where you will be provided with unseen questions, but may use your course notes.

Outcome 2 (Physiology)

For each system studied, you will be assessed by supervised open-book extended response questions where you will be provided with unseen questions, but may use your course notes.

Outcome 3

This Outcome requires you to select a complementary therapy of your choice and research the effects of your chosen therapy on human anatomy/physiology (whichever is relevant). You will be required to consider the evidence that supports your claims and analyse the effectiveness of your chosen therapy. This assessment will be no less than 1,500 words and contain information gathered throughout your course. You must show your ability to consider scientific evidence objectively and to analyse the effectiveness of your chosen therapy using this evidence based approach. All material used must be referenced. You will be deemed to have met the Outcomes if the majority of your work meets the required standard.