

VTCT Level 4 Award in Physiology for Advanced Beauty Therapy

Accreditation start date: **1 August 2010**
Credit value: **10**
Total Qualification Time (TQT): **100**
Guided learning hours (GLH): **64**
Qualification number: **500/9075/6**

Statement of unit achievement

By signing this statement of unit achievement you are confirming that all learning outcomes, assessment criteria and range statements have been achieved under specified conditions and that the evidence gathered is authentic.

This statement of unit achievement table must be completed prior to claiming certification.

Unit code	Date achieved	Learner signature	Assessor initials	IQA signature (if sampled)
Mandatory units				
UV40463				

The qualification

Introduction

The VTCT Level 4 Award in Physiology for Advanced Beauty Therapy is a theoretical qualification focused on developing your understanding of advanced physiological principles relating to the ageing process. It is anticipated that this advanced level of scientific understanding can then be applied across the range of advanced beauty therapy treatments and services.

National Occupational Standards (NOS)

This qualification is regulated on the Regulated Qualifications Framework.

This qualification is approved and supported by the Hairdressing and Beauty Industry Authority (HABIA), the standard setting body for hair, beauty, nails and spa qualifications.



Progression

The VTCT Level 4 Award in Physiology for Advanced Beauty Therapy is an approved qualification for providing advanced beauty therapists with a high level of physiological understanding of the ageing process. This qualification provides a sound platform for further learning or training in advanced beauty therapy treatments.

This qualification provides progression opportunities to the following VTCT qualifications:

- Level 4 Diploma in Permanent Hair Removal and Skin Rejuvenation
- Level 4 Certificate in Laser and Intense Pulsed Light (IPL) Treatments
- Level 4 Diploma in Advanced Beauty Therapy
- Level 4 Award in Skin Blemish Removal

Qualification structure

Total credits required - 10 (minimum)

All mandatory units must be completed.

Mandatory units - 10 credits

VTCT unit code	Ofqual unit reference	Unit title	Credit value	GLH
UV40463	A/601/5349	Physiology of ageing	10	64

Guidance on assessment

This book contains the mandatory units that make up this qualification. Where indicated, VTCT will provide assessment materials. Assessments may be internal or external. The method of assessment is indicated in each unit.

Internal assessment

(any requirements will be shown in the unit)

Assessment is set, marked and internally quality assured by the centre to clearly demonstrate achievement of the learning outcomes. Assessment is sampled by VTCT external quality assurers.

Assessment explained

VTCT qualifications are assessed and quality assured by centre staff. Work will be set to improve your practical skills, knowledge and understanding. For practical elements, you will be observed by your assessor. All your work must be collected in a portfolio of evidence and cross-referenced to requirements listed in this record of assessment book.

Your centre will have an internal quality assurer whose role is to check that your assessment and evidence is valid and reliable and meets VTCT and regulatory requirements.

An external quality assurer, appointed by VTCT, will visit your centre to sample and quality-check assessments, the internal quality assurance process and the evidence gathered. You may be asked to attend on a different day from usual if requested by the external quality assurer.

This record of assessment book is your property and must be in your possession when you are being assessed or quality assured. It must be kept safe. In some cases your centre will be required to keep it in a secure place. You and your course assessor will together complete this book to show achievement of all learning outcomes, assessment criteria and ranges.



Creating a portfolio of evidence

As part of this qualification you are required to produce a portfolio of evidence. A portfolio will confirm the knowledge, understanding and skills that you have learnt. It may be in electronic or paper format.

Your assessor will provide guidance on how to prepare the portfolio of evidence and how to show practical achievement, and understanding of the knowledge required to successfully complete this qualification. It is this booklet along with the portfolio of evidence that will serve as the prime source of evidence for this qualification.

Evidence in the portfolio may take the following forms:

- Observed work
- Witness statements
- Audio-visual media
- Evidence of prior learning or attainment
- Written questions
- Oral questions
- Assignments
- Case studies

All evidence should be documented in the portfolio and cross referenced to unit outcomes. Constructing the portfolio of evidence should not be left to the end of the course.

Unit assessment methods

This section provides an overview of the assessment methods that make up each unit in this qualification. Detailed information on assessment is provided in each unit.

Mandatory units				
		External	Internal	
VTCT unit code	Unit title	Question paper(s)	Observations	Assignments
UV40463	Physiology of ageing	1	✗	✓

Unit glossary

	Description
VTCT product code	All units are allocated a unique VTCT product code for identification purposes. This code should be quoted in all queries and correspondence to VTCT.
Unit title	The title clearly indicates the focus of the unit.
National Occupational Standards (NOS)	NOS describe the skills, knowledge and understanding needed to undertake a particular task or job to a nationally recognised level of competence.
Level	Level is an indication of the demand of the learning experience, the depth and/or complexity of achievement and independence in achieving the learning outcomes.
Credit value	This is the number of credits awarded upon successful achievement of all unit outcomes. Credit is a numerical value that represents a means of recognising, measuring, valuing and comparing achievement.
Guided Learning Hours (GLH)	The activity of a learner in being taught or instructed by - or otherwise participating in education or training under the immediate guidance or supervision of - a lecturer, supervisor, tutor or other appropriate provider of education or training.
Total qualification time (TQT)	The number of hours an awarding organisation has assigned to a qualification for Guided Learning and an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study, or any other form of participation in education or training. This includes assessment, which takes place as directed - but, unlike Guided Learning, not under the immediate guidance or supervision of - a lecturer, supervisor, tutor or other appropriate provider of education or training.
Observations	This indicates the minimum number of observations required to achieve the unit.
Learning outcomes	The learning outcomes are the most important component of the unit, they set out what is expected in terms of knowing, understanding and practical ability as a result of the learning process. Learning outcomes are the results of learning.
Evidence requirements	This section provides guidelines on how evidence must be gathered.
Maximum service times	The maximum time specified by Habia in which a particular service or practical element must be completed.
Observation outcome	An observation outcome details the practical tasks that must be completed to achieve the unit.
Knowledge outcome	A knowledge outcome details the theoretical requirements of a unit that must be evidenced through oral questioning, a mandatory written question paper or portfolio of evidence.
Assessment criteria	Assessment criteria set out what is required, in terms of achievement, to meet a learning outcome. The assessment criteria and learning outcomes are the components that inform the learning and assessment that should take place. Assessment criteria define the standard expected to meet learning outcomes.
Range	The range indicates what must be covered. Ranges must be practically demonstrated in parallel to the unit's observation outcomes.

UV40463

Physiology of ageing

This is a preparation for work unit which is based on knowledge and understanding. This unit is about the nature of ageing, causes and effects of ageing on the body systems, and the beauty treatments and products that may delay the ageing process.

Level

4

Credit value

10

GLH

64

Observations

0

External paper(s)

1



Physiology of ageing

Learning outcomes

On completion of this unit you will:

1. Understand the nature of ageing
2. Understand the causes and effects of ageing of the skin
3. Understand the causes and effects of degenerative disorders as a result of the ageing process
4. Understand how beauty therapy treatments and products may delay the ageing process

Evidence requirements

1. *Knowledge outcomes*
There must be evidence that you possess all the knowledge and understanding listed in the 'Knowledge' section of this unit. This evidence may include projects, assignments, case studies, reflective accounts, oral/written questioning and/or other forms of evidence.
2. *Tutor/Assessor guidance*
You will be guided by your tutor/assessor on how to achieve learning outcomes in this unit. All outcomes must be achieved.
3. *External paper*
Knowledge and understanding in this unit will be assessed by an external paper. The criteria that make up this paper are highlighted in white throughout this unit. **There is one external paper that must be achieved.**

Developing knowledge

Achieving knowledge outcomes

You will be guided by your tutor and assessor on the evidence that needs to be produced. Your knowledge and understanding will be assessed using the assessment methods listed below:

- Observed work
- Witness statements
- Audio-visual media
- Evidence of prior learning or attainment
- Written questions
- Oral questions
- Assignments
- Case studies

Where possible your assessor will integrate knowledge outcomes into practical observations through oral questioning.

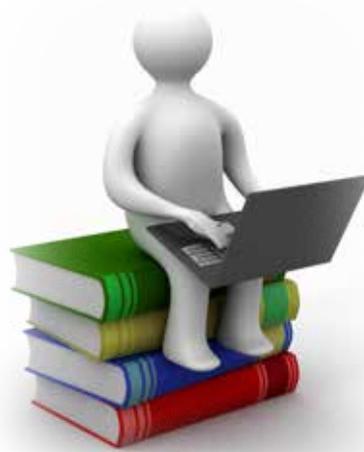
Achieving the external paper

The external paper will test your knowledge of the criteria highlighted in white. **A pass mark of 70% must be achieved.** Criteria not achieved will be identified to your tutor/assessor. You will then be orally questioned or asked to produce other forms of evidence as **all unit criteria must be achieved.**

Your assessor will complete the table below when the 70% pass mark has been achieved.

Paper	Date achieved	Assessor initials
1 of 1		

Knowledge



Outcome 1

Understand the nature of ageing

You can:	Portfolio reference/ Assessor initials*
a. Describe the characteristics of ageing	
b. Explain the differences between intrinsic and extrinsic environmental effects on the skin which contribute to the ageing process	
c. Critically compare different theories of ageing	
d. Explain the ageing process in cells and tissues	

* Assessor initials to be inserted if orally questioned.

Requirements highlighted in white are assessed in the external paper.



Outcome 2

Understand the causes and effects of ageing of the skin

You can:	Portfolio reference/ Assessor initials*
a. Analyse the changes which occur to the repair mechanisms of the skin with ageing	
b. Explain how ageing causes microscopic changes to the structure of skin	
c. Evaluate the causes of changes to the skin when ageing	
d. Explain pathological conditions of the skin which may occur as a result of ageing	
e. Explain the ageing effect of UV on the skin	
f. Recommend precautions to minimise damage caused by UV light	

* Assessor initials to be inserted if orally questioned.

Requirements highlighted in white are assessed in the external paper.



Outcome 3

Understand the causes and effects of degenerative disorders as a result of the ageing process

You can:	Portfolio reference/ Assessor initials*
a. Explain possible causes of degenerative disorders and their effects on the: <ul style="list-style-type: none"> • skeletal system 	
<ul style="list-style-type: none"> • muscular system 	
<ul style="list-style-type: none"> • nervous system 	
<ul style="list-style-type: none"> • cardiovascular system 	
<ul style="list-style-type: none"> • immune system 	
<ul style="list-style-type: none"> • respiratory system 	
b. Describe contra-indications to beauty therapy treatments when a degenerative disorder is present	

* Assessor initials to be inserted if orally questioned.

Requirements highlighted in white are assessed in the external paper.



Outcome 4

Understand how beauty therapy treatments and products may delay the ageing process

You can:	Portfolio reference/ Assessor initials*
a. Justify how beauty therapy treatments and products may delay the skin ageing process	
b. Evaluate the performance of beauty therapy treatments and products considered to delay the ageing process	

* Assessor initials to be inserted if orally questioned.

Requirements highlighted in white are assessed in the external paper.

Unit content



This section provides guidance on the recommended knowledge and skills required to enable you to achieve each of the learning outcomes in this unit. Your tutor/assessor will ensure you have the opportunity to cover all of the unit content.

Outcome 1: Understand the nature of ageing

Characteristics of ageing: Chronological, physiological and functional ageing, senescence, senility, biogerontology, geriatrics, longevity, demography, disease, morbidity, mortality, structural changes (height, muscle mass, hip diameter, elasticity, lung function), compositional changes (water content, fat content), functional changes (movement, respiration, fertility, cardiac function, blood pressure, digestion, excretion).

Intrinsic environmental effects on the skin:

Internal and natural causes – reduced collagen and elastin production, slower rate skin renewal, poor desquamation, hormones.

Extrinsic environmental effects on the skin:

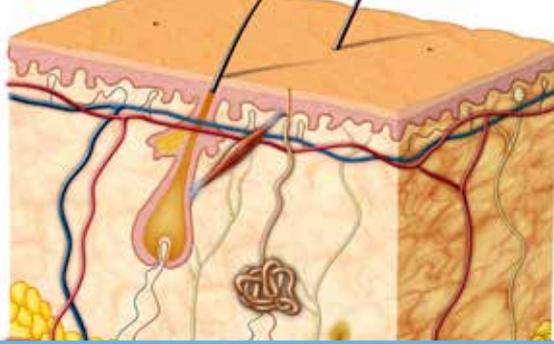
External causes – sun exposure, facial expressions, gravity, sleep, hydration, smoking, alcohol, diet and nutrition, chemicals, products.

Theories of ageing (genetic and non-genetic theories): Programmed death theory, DNA error theory, cellular theory, free radical theory, collagen theory, mutating auto-immune theory, neuro-ageing theory, nutritional theory, ageing by program, gene theory, gene mutation theory, cross-linkage theory, cellular garbage theory, accumulation of errors theory, wear and tear theory, auto-immune theory.

Ageing process in cells and tissues:

Cellular changes – membrane-transport changes, reduced fluidity, nuclear (faulty DNA, protein synthesis errors, reduced organelle manufacturing, membrane defects, cross linking, condensed chromatin, reduced mitosis), cytoplasmic (lipofuscin), ribosomal (reduced numbers), mitochondrial (reduced numbers, membrane disorganisation), lysosomal (reduced efficiency).

Tissues – reduced tissue mass (atrophy), increased cell size (hypertrophy), increased cell numbers (hyperplasia), abnormal cell size, shape, reduced function (dysplasia), tumour formation (neoplasia), reduced mitosis, increased pigment (lipofuscin), increased lipids, reduced cell/tissue function, increased waste.



Outcome 2: Understand the causes and effects of ageing of the skin

Repair mechanism of the skin:

Wound healing process – haemostasis (clotting), inflammatory (phagocytosis), autolysis, cell migration and division, proliferation (granulation, angiogenesis, collagen deposition, tissue formation, epithelialisation, wound contraction), remodelling (collagen remodelled along tension lines, apoptosis, growth factors).

Changes to the repair mechanisms

(ageing): Reduced ability and slower rate of repair, microscopic changes to the structure of skin during ageing, melanocytes (numbers decline, density doubles upon sun exposure, increased lentiginos), Langerhans cells (reduced density and responsiveness), dermal changes (reduced collagen, decreased density, loss of elasticity).

Causes of changes to the skin when

ageing: Reduced activity of sebaceous and sudoriferous glands (dryness, heat exhaustion), hardened elastin (loss of elasticity), cross-linking and hardening collagen (wrinkles), reduced skin regeneration, increased scaling, reduced number fibroblasts (thinning skin/transparency), less subcutaneous fat (bony appearance), reduced muscle tone (flaccid muscles), poor circulation (visible/broken capillaries), reduced metabolism and poor waste elimination (dull and sallow complexion/puffiness), hyperplasia (enlarged naevi, seborrheic warts, verruca filiformis), melanocyte enlargement (pigmentation), hormonal changes (terminal hair growth).

Pathological conditions of the skin which may occur as a result of ageing:

Acrochordon/skin tag, actinic keratosis, angiomas, cancer (basal cell carcinoma, squamous cell carcinoma, malignant melanoma), decubitus ulcers, easy tearing, eczematous dermatitis, asteatotic eczema, nummular eczema, seborrheic dermatitis, gravitational eczema, autoeczematization eczema, elastotic skin and comedones, herpes zoster, laxity, lentigo, naevi, pruritus, purpura, rosacea, seborrheic keratosis, telangiectasia, verruca filiformis, vitiligo, xerosis.

Ageing effect of UV on the skin:

Abnormal elastin production, accelerated ageing, actinic keratosis, affected DNA repair, altered cell death, bruising, collagen and elastin breakdown, free radical generation, hyper/hypo-pigmentation, lowered immunity, photosensitivity, seborrheic keratosis, tumours/cancers.

Recommended precautions to minimise damage caused by UV light:

Avoid UV sunbeds, awareness of medications and cosmetic procedures causing photosensitivity, diet and nutrition, minimise exposure, protective clothing, shade, use sunscreen.



Outcome 3: Understand the causes and effects of degenerative disorders as a result of the ageing process

Degenerative disorders (causes and effects):

Skeletal system – bursitis, fractures, gout, kyphosis, osteoarthritis, osteomalacia, osteopenia, osteoporosis, rheumatoid arthritis, tumours.

Muscular system – lumbago, muscle cramps, muscle atrophy, muscle dystrophy, myasthenia gravis, polymyositis, polymyalgia rheumatic.

Nervous system – anxiety, dementia (Alzheimer's disease, non-Alzheimer's dementias, multi-infarction dementia), depression, insomnia, multiple sclerosis, Parkinson's, reduced reflex response, reduced autonomic response.

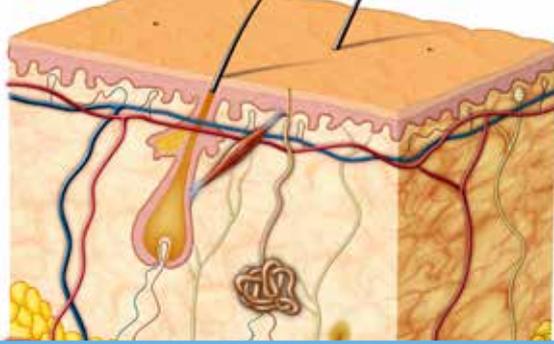
Cardiovascular system – angina pectoris, arrhythmias, arteriosclerosis, atherosclerosis, congestive heart failure, coronary artery disease, hypertension, myocardial infarction, pacemaker, phlebitis, stroke, thrombosis, varicose veins.

Immune system – decreased immune response, reduced bone marrow, lymphoma.

Respiratory system – chronic obstructive pulmonary disease (COPD) (emphysema, chronic bronchitis), pneumonia, tuberculosis, pulmonary embolism.

Contra-indications: Contagious skin diseases, dysfunction of the nervous system, heart disease/disorder, pacemaker, recent scar tissue, undiagnosed lumps and swellings, medication causing thinning or inflammation of the skin (steroids, accutane, retinols), recent dermabrasion, diabetes, epilepsy, high/low blood

pressure, micro-pigmentation, history of thrombosis or embolism, botox, dermal fillers, metal pins or plates, medication, pregnancy, piercings, anxiety, cuts, abrasions, bruising, irritation, allergic reaction, excessive erythema, muscle fatigue, hyper/hypo-pigmentation.



Outcome 4: Understand how beauty therapy treatments and products may delay the ageing process

Skin effects: Hydration, moisturising effects, exfoliation, cell regeneration, collagen promotion, nutrients, cell metabolism, fine lines and wrinkles, desquamation, acid mantle.

Pentapeptides: Increase collagen and elastin production in the skin.

Collagen and elastin: Reduces the appearance of fine lines and wrinkles and improves elasticity, promotes firmer skin, similar to a 'filler' effect.

Fatty acids: Combination of fatty acids and synthetic peptides enable deeper penetration for collagen stimulation.

Retinol (Vitamin A compound): Anti-oxidant, breaks down free radicals, free radicals cause wrinkles.

Hydroxy acids: Exfoliating effect, stimulates growth of smooth evenly pigmented new skin.

Enzymes: Nutrients regulate energy in cells, reduces the appearance of fine lines.

Copper peptides: Enhance wound healing, stimulate collagen production.

Electrotherapy treatments: Improve muscle tone, plumping out fine lines and wrinkles, promote deeper penetration of skincare products, improve lymphatic circulation which aids cell metabolism.

Microdermabrasion: Removal of fine surface layer of skin, vacuum suction and aluminium oxide crystals, subtle temporary results.

IPL and Laser (non-ablative lasers): Heat to the dermis causes new collagen and elastin production.

Evaluate the effectiveness of beauty therapy treatments: Consultation, client requirements, desired results, before and after photographs, course of treatments, treatment plans, home care products, client satisfaction, record keeping.