

iUBT310 – Physiology of ageing

URN – A/617/4288

Guided Learning Hours: 64

Learning outcome	Assessment criteria	Taught content to include
LO1 Understand the nature of ageing	1.1. Describe the characteristics of ageing	<ul style="list-style-type: none"> • Physical changes • Psychological changes • Biological ageing • Chronological ageing
	1.2. Explain the differences between intrinsic and extrinsic environmental effects on the skin which contribute to the ageing process	<ul style="list-style-type: none"> • Intrinsic to include: <ul style="list-style-type: none"> - Senescence - Heredity factors - Chronologic age - Free radicals - Matrix metalloproteinase (MMP) activation - Hormones • Extrinsic to include: <ul style="list-style-type: none"> - Environment - Temperature changes - UV light - Pollution - Diet including gut health - Smoking - Medication - Alcohol - Lifestyle - Occupation - Stress - Relaxation - Illness - Current skincare regime

	1.3. Critically compare different theories of ageing	<ul style="list-style-type: none"> • Theories of ageing, e.g.: <ul style="list-style-type: none"> - Evolutionary theories - Programmed longevity theory - Immunological theory - Wear and tear theory - Cross-linking theory - Free radical theory - Endocrine theory - Rate of living theory
	1.4. Explain the ageing process in cells and tissues	<ul style="list-style-type: none"> • Cells <ul style="list-style-type: none"> - Lipid loss - Loss of function - Mutation - DNA damage • Tissues <ul style="list-style-type: none"> - Atrophy - Loss of function - Waste accumulation - Stiffness - Degeneration

LO2 Understand the causes and effects of ageing of the skin	2.1. Analyse the changes which occur to the repair mechanisms of the skin with ageing	<ul style="list-style-type: none"> • Loss of cell function • DNA damage • Reduction in healing abilities • Increase in healing time
	2.2. Explain how ageing causes microscopic changes to the structure of skin	<ul style="list-style-type: none"> • Epidermis • Dermis • Subcutaneous tissue/hypodermis
	2.3. Evaluate the causes of changes to the skin when ageing	<ul style="list-style-type: none"> • Biological • Chronological • Intrinsic • Extrinsic
	2.4. Explain pathological conditions of the skin which may occur as a result of ageing	<ul style="list-style-type: none"> • Thin skin • Pigmentation • Elastosis • Solar elastosis

		<ul style="list-style-type: none"> • Dehydrated skin • Dry skin • Loss of subcutaneous tissue - poor thermoregulation • Haematomas • Cherry angiomas • Hyperplasia e.g. skin tags etc. • Decreased cellular renewal • Melanomas • Allergies • Increased incidence of skin disorders i.e. psoriasis, eczema • Pressure ulcers • Increased incidence of skin infections
	2.5. Explain the ageing effect of UV on the skin	<ul style="list-style-type: none"> • Light spectrum • UVA • UVB • UVC • Melanocytes • Melanin production and function • The effects of UV light exposure on the skin • Effects of prolonged UV exposure
	2.6. Recommend precautions to minimise damage caused by UV light	<ul style="list-style-type: none"> • Physical barriers e.g. hats, clothing • Avoid or limit exposure • Nutritional protection e.g. vitamin C, antioxidants • Time of exposure • Sunscreens • Sun Protection Factor (SPF)
LO3 Understand the cause and effects of degenerative disorders as a result of the ageing process	<p>3.1. Explain possible causes of degenerative disorders and their effects on the:</p> <ul style="list-style-type: none"> • Skeletal system • Muscular system • Nervous system • Cardiovascular system • Immune system • Respiratory system 	<ul style="list-style-type: none"> • Skeletal system <ul style="list-style-type: none"> - Loss of bone mass - Brittle bones - Spinal curvature - Postural deformities - Joint degeneration - Stiffness - Fractures - Osteoarthritis - Osteoporosis

		<ul style="list-style-type: none"> • Muscular system <ul style="list-style-type: none"> - Atrophy - Stiffness - Inflammation - Pain - Polymyalgia rheumatica • Nervous system <ul style="list-style-type: none"> - Loss of sensation - Paresthesia - Reduction in reflexes - Dementia – Alzheimer’s disease, vascular dementia etc - Parkinson’s disease - Multiple sclerosis • Cardiovascular system <ul style="list-style-type: none"> - Decrease in blood volume - Thickening/hardening of blood vessels - Atherosclerosis - Cardiovascular diseases e.g. heart disease, angina, heart failure, transient ischemic attacks (TIA) - Hypertension - Varicose veins - Deep vein thrombosis • Immune system <ul style="list-style-type: none"> - Reduction in immunity - Reduction in lymphocytes - Reduction in lymphatic circulation - Rheumatoid arthritis • Respiratory system <ul style="list-style-type: none"> - Reduction in lung capacity - Loss of lung tissue elasticity - Pneumonia - Emphysema
	<p>3.2. Describe contra-indications to beauty therapy treatments when a degenerative disorder is present</p>	<ul style="list-style-type: none"> • Understanding of when medical, GP or specialist permission is required • Understanding when informed consent is required • Understanding when contra-indications restrict treatment • Scope of practice • Referral

<p>LO4 Understand how beauty therapy treatments and products may delay the ageing process</p>	<p>4.1. Justify how beauty therapy treatments and products may delay the skin ageing process</p>	<ul style="list-style-type: none"> • Corrective/active skincare products, e.g.: <ul style="list-style-type: none"> - Cleansers - Serums - vitamin, A, B, C, E, peptides, microbiomes, anti-inflammatory - Anti-oxidants - Phytosterols - Phytohormones - Moisturisers - Sunscreens - Skin lighteners e.g melanin suppressors- tyrosinase inhibitors, niacinamide - Topical microbiomes - Cosmeceuticals • Peels, e.g.: <ul style="list-style-type: none"> - Alpha hydroxy acids (AHAs) – lactic acid, glycolic acid etc - Beta hydroxy acids (BHAs) – salicylic acid etc - Polyhydroxy acids (PHAs) - Carboxylic and dicarboxylic acids - Phenol (carbolic acid) - Trichloroacetic acid (TCA) - Vitamin A - Jessner peels - Enzymatic peels • Galvanic treatments • Microcurrent treatments • Microdermabrasion treatments • Intense pulsed light treatments • Laser treatments • Light emitting diodes (LED) • Radio frequency therapy • Collagen induction therapy (CIT) i.e. skin micro needling • Plasma pen therapy • High intensity focused ultrasound (HIFU)/microfocused ultrasound • Hydro facial • Ultrasonic/sonophoresis • Facial massage
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		<ul style="list-style-type: none"> • Nutritional supplements e.g. omega 3 and 6 fatty acids, microbiomes • Antioxidants • Vitamin C • Mesotherapy
	<p>4.2. Evaluate the performance of beauty therapy treatments and products considered to delay the ageing process</p>	<ul style="list-style-type: none"> • Methods of evaluation • Corrective/active skincare products, e.g.: <ul style="list-style-type: none"> - Cleansers - Serums - vitamin, A, B, C, E, peptides, microbiomes, anti-inflammatory - Anti-oxidants - Phytosterols - Phytohormones - Moisturisers - Sunscreens - Skin lighteners e.g melanin suppressors- tyrosinase inhibitors, niacinamide - Topical microbiomes - Cosmeceuticals • Peels, e.g.: <ul style="list-style-type: none"> - Alpha hydroxy acids (AHAs) – lactic acid, glycolic acid etc - Beta hydroxy acids (BHAs) – salicylic acid etc - Polyhydroxy acids (PHAs) - Carboxylic and dicarboxylic acids - Phenol (carbolic acid) - Trichloroacetic acid (TCA) - Vitamin A - Jessner peels - Enzymatic peels • Galvanic treatments • Microcurrent treatments • Microdermabrasion treatments • Intense pulsed light treatments • Laser treatments • Light emitting diodes (LED) • Radio frequency therapy • Collagen induction therapy (CIT) i.e. skin micro needling • Plasma pen therapy

		<ul style="list-style-type: none"> • High intensity focused ultrasound (HIFU)/ microfocused ultrasound • Hydro facial • Ultrasonic/sonophoresis • Facial massage • Nutritional supplements e.g. omega 3 and 6 fatty acids, microbiomes • Antioxidants • Vitamin C • Mesotherapy • Knowledge of common cosmetic surgery procedures
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Assessment	
Portfolio of evidence containing: <ul style="list-style-type: none"> • Assignment 	<p>The assignment should be evidenced using assignment guidance and assessment forms which may be downloaded from the website www.itecworld.co.uk.</p> <p>This will be internally assessed by the college lecturer and verified by the external examiner (if sampled)</p>

Guide to taught content
<p>The content contained within the unit specification is not prescriptive or exhaustive but is intended to provide helpful guidance to teachers and learners with the key areas that will be covered within the unit, and, relating to the kinds of evidence that should be provided for each assessment objective specific to the unit learning outcomes.</p>

Document History

Version	Issue Date	Changes	Role
v1	18/09/2019	First published	Qualifications and Regulation Co-ordinator
v2	27/01/2020	Format changes	Qualifications Administrator