
Unit Specification

UBT470 – Provide ultrasound treatments

Unit reference number: A/650/9918

Level: 4

Credits: 7

Guided Learning Hours (GLH): 52

Overview

The aim of this unit is to develop the learners' knowledge, understanding and practical skills when completing Ultrasound Cavitation treatments for fat removal and to improve the appearance of cellulite. Learners will acquire skills in providing a thorough consultation to establish client suitability for treatment and also the knowledge on how to formulate treatment protocol to suit individual client's needs. Learners will also be able to provide the client with relevant aftercare to maximize treatment results and look after their skin post-treatment.

Learning outcomes

On completion of this unit, learners will:

LO1 Interpret safety considerations when providing Ultrasound Cavitation treatments

LO2 Comprehend how to perform Ultrasound Cavitation treatments

LO3 Comprehend the relevant anatomy, physiology and pathologies for Ultrasound Cavitation treatments

LO4 Demonstrate how to consult, plan and prepare for Ultrasound Cavitation treatment

LO5 Demonstrate how to provide Ultrasound Cavitation treatments

Unit content

LO1 Interpret safety considerations when providing Ultrasound Cavitation treatments

Safety of product and equipment sourcing

Taught content

- Ensure ultrasound equipment used conforms to EU-Electromagnetic Compliance Directive 2014/30/EU, EU-Low Voltage Directive 2014/35/EU and the Electrical Equipment (Safety) Regulations 1994/2016 as applicable
- Understand how to gain verification of legality
- Ensure products used are those approved by EU Cosmetics Regulations for cosmetic use by practitioner
- Current professional insurance policy requirements for working at this level
- Check with supplier/manufacturer for guidelines

Insurance guidelines

Taught content

- Insurance policy requirements to be met to ensure insurance is valid
- Requirements for sensitivity testing prior to treatment
- Acquiring informed client consent and signature before every treatment
- Providing written aftercare information
- Ensuring the practitioner is working within scope of practice

Hygiene considerations

Taught content

- Use of suitable sterilisation and sanitisation for equipment and surfaces. Single use items as appropriate such as disposable gloves (latex free), disposable hair protectors, applicators, cotton wool, couch roll, clean laundered towels
- General hygiene – i.e. washing of hands before and after treatment, hand gel, clean towels, use of disposables where possible
- Disinfectant or sterilisation – use of heat or chemical methods, bactericides, fungicides, UV cabinet for storage
- Equipment – only used for intended purpose, safe usage/safe handling/storage/visual checks, correct disposal of contaminated waste products

Hygiene and infection control

Taught content

- Knowledge of infection control, bacteria, virus, fungi, parasites, prevention of cross-contamination and disease transmission procedures, levels of infection control, personal immunisation (Hepatitis B), single use barrier consumables for protection against blood borne viruses (BBV) and Methicillin-resistant Staphylococcus aureus (MRSA)

Features, benefits and use of treatment products

Taught content

- Know the ethical methods of sourcing, purchasing and storing regulated treatment products including expiration dates
- The need to have knowledge and understanding about treatment products including the features and benefits
- The safety and legal reasons for using products that are licensed and meet EU standards and the outcome of using products which are not properly tested or contain banned substances
- The use of Material Safety Data Sheet (MSDS) in relation to ultrasound treatments

Hazards and risks

Taught content

- Identification of hazards and risks through risk assessment
- Putting procedures in place to ensure they are minimised, including:
 - Proper training for all staff
 - Protocols to follow during consultation
 - Written aftercare for client
 - Adherence to manufacturers' guidelines
- Oversensitivity of treated area, erythema, irritation, increased body temperature, aches and pains, increased thirst, headaches

Suppliers' and manufacturers' instructions for safe use

Taught content

- Understand and know reasons for supplier and manufacturer products and protocols for ultrasound treatment including sensitivity test recommendations
- Products appropriate for use during ultrasound treatment preparation, performance, post-care and aftercare application according to manufacturers' instructions e.g. gentle cleansers/body wash, moisturisers, SPF, coupling gel. Check expiry date for products
- Follow supplier/manufacturer protocols for hygiene and treatment application – working over the zones of the body in specified order, using the correct pressure, techniques and settings, adapting treatment to all areas. Observation of desirable and undesirable clinical end points, cooling and skin recovery products used in the salon. Frequency of treatment, course of treatments, conditions to treat

Treatment of minors

Taught content

- The age at which an individual is classed as a minor and how this differs internationally and how treatment should only be provided for clients over the age of 18

Timing of treatments

Taught content

- Identify and understand commercial timings for treatments. Recognise variations in timings depending on skin reaction time and recognised influencing factors. Cavitation time needs to be limited per week dependent on output of the hand piece and manufacturer's instructions

Contra-indications that would prevent or restrict treatment

Taught content

- Prevent
 - Active inflammation and/or infection in the treated area, anticoagulant medication, auto-immune conditions (i.e. scleroderma), cancer-related treatments, clients with only one kidney, contagious skin diseases, current or history of cancer and premalignant condition, diabetes, diseases stimulated by heat (such as recurrent herpes simplex in the treatment area), dysfunctions of the nervous system, degenerative neurological disorders, epilepsy, heart disease/disorder, hepatitis, impaired kidney function, impaired liver function, inflammation or infection in the treatment area, IVF procedure, metal implants in the treatment area excluding dental implants, osteoporosis, pacemaker/internal defibrillator, pregnancy, recent pregnancy or breast feeding, renal failure, silicone implants or injections in treatment area, swelling in the treatment area, thrombosis, thrombophlebitis, transplant surgery, uncontrolled disorder of the thyroid gland, under the influence of excessive alcohol, undiagnosed lumps and varicose veins
- Restrict
 - Within treatment area:
 - Abrasions, bruising, cuts, epilation, Intense Pulsed Light (IPL) or laser, large moles, metal prosthesis or implants, prior to cosmetic surgery, recent UV exposure, scarification of the skin, sensitive or excessively reactive skin types, tattoos in the impact zone and varicose veins
 - General:
 - Active inflammatory dermatoses (i.e. psoriasis), anxiety, body piercings, bruises, current medications, facial laser resurfacing, fresh scars or wounds, history of circulatory disorders, implants or IUDS (specific to device used), poor mental and emotional state, ongoing use of isotretinoin (e.g. Roaccutane), over thyroid gland, recent dermal filler injections, recent surgical procedure, scars, supplements and herbal remedies

Referring contra-indicated clients

Taught content

- Actions to take in relation to specific contra-indications when referring clients
- Knowledge of organisation protocol for not naming specific suspected contra-indications when encouraging clients to seek medical advice
- Encourage clients to seek medical advice without alarm or concern
- Reasons for not diagnosing suspected contra-indications due to professional status, acknowledging the need for medical training to be able to diagnose

When to consult with other aesthetic professionals

Taught content

- Recognise when additional information is needed from other clinicians involved with the client and how this can be obtained in compliance with confidentiality and consent guidance and in line with current data protection legislation
- Demonstrate an understanding of when to and how to, request additional advice from other clinicians treating the client, when applicable in line with current data protection legislation

LO2 Comprehend how to perform Ultrasound Cavitation treatments

Treatment planning

Taught content

- Identify client needs, expectations, anticipated costs, and treatment objectives. Agree realistic outcomes against client expectations, discuss expected sensations and relevant potential risks
- Contra-indications that prevent or restrict treatment
- Identification and discussion of skin type, including Fitzpatrick skin type and skin conditions presenting and individual lesions or concerns, to assist in choice of the appropriate treatment and to identify realistic treatment outcomes
- Frequency, duration and potential cost of treatments recommended to achieve treatment outcomes
- Post-treatment advice including possible contra-actions, healing process, recommended skincare/aftercare and restrictions to ensure client is suitable for treatment
- Treatment plan should be clearly agreed between the client and practitioner and recorded on the consultation documentation

Factors to consider when treatment planning

Taught content

- Previous treatment in salon – details of type of treatment, how frequent, dates the treatments were received, to ensure enough time has passed between treatments
- Satisfaction and results – dissatisfaction could indicate body dysmorphia or client with unrealistic expectations
- Legal aspects of responsibility of the practitioner
- Diet and lifestyle factors that could reduce the effects of treatment
- Medical history to ensure client is safe for treatment or if medical referral is required

Assessing skin characteristics and body conditions

Taught content

- Assessed through questioning at consultation and observation of skin
- How to assess and recognise skin characteristics – level of sensitivity, thickness of skin and epidermal thickness
- Recognition and understanding of skin analysis in area to be treated – surface hydration levels, pigmentation, irregularities, skin texture, skin laxity and sensitivity
- Body condition – recognition of cellulite, uneven fat deposits, poor body contour and skin laxity
- How to match the treatment to suit skin characteristics, body condition and treatment objectives

Treatment advice to provide to the client

Taught content

- Provide consultation at least 48 hours prior to actual treatment to discuss outcomes and pre-treatment preparation
- Physical sensation – during treatment skin will feel gradually warmer. The client will also experience a ‘ringing’ in their ears. There is a resonance from the ultrasound wave. The treatment is generally comfortable and pleasant
- Post-treatment physical sensation
 - Day 1: erythema and slight redness
 - Day 2: occasional bruising
- Possible contra-actions – what they are, why they appear and how long they may last – allergic reaction, bruising, erythema and excessive oedema

Pain threshold and sensitivity variations

Taught content

- Understanding inflammatory response of the skin
- Recognising areas of the body that are more sensitive, fragile and reactive to topical applications. Those that have more prominent and dilated dermal blood vessels which may contribute to an exaggerated inflammatory response plus a more intense physical sensation when the treatment is applied, caution must be taken when treating these

Skin sensitivity testing prior to treatment

Taught content

- Skin test performed during initial consultation after client has agreed and signed informed consent. Client must sign thermal/tactile test form if separate to main consultation form
- Testing to ensure the client has unimpaired sensitivity to stimuli – heat and pressure. Clients with history of lack of sensitivity have an increased risk of overtreatment. Skin test site is normally the treatment area. Skin is prepared as usual for ultrasound treatment. Tactile sensitivity test using soft and sharp objects and thermal sensitivity test using two test tubes filled with hot and cold water are applied to the skin. Evaluation of the skin test is made verbally with the client. Recording of results to include whether the client can tell the difference in sensations. Record date, location of test, and methods used, description of results, if the client is unable to identify the correct sensations a full description of response and method used. Ultrasound Cavitation treatment to be performed when the client is able to correctly identify different thermal and tactile sensations
- Any change of ultrasound equipment to be tested prior to use
- Follow supplier/manufacturer instructions for recommended time between skin test and ultrasound treatment application for each body condition as these may vary

Pre-treatment preparatory programmes

Taught content

- Pre-treatment advice that should be given to clients to optimise results and why this needs to be relevant to their treatment aims
- Typical products used – all products must be relevant to body condition/treatment objectives
- Refrain from using high concentration active skincare including skin thinning products on the area of treatment

Cleansing the skin prior to treatment

Taught content

- Reasons
 - To degrease the skin reducing lipid barrier to give even application and enhance treatment application
 - Removal of surface debris and body oils/oil-based preparations
- Typical products used
 - Preparatory skin products to suit the area of the body to be worked on which may contain agents to degrease the skin

Ultrasound waves

Taught content

- Ultrasound is a form of mechanical energy creating vibrations at increasing frequencies and are known as sound energy. The frequencies used in ultrasound therapy are typically between 1.0 and 3.0MHz
- Ultrasound waves are elastic waves not audible to humans. The ultrasound equipment passes electricity through ceramic or quartz crystal substances, which then vibrate extremely quickly when electricity is passed through them – piezoelectricity. As this vibration occurs it pushes and pulls the air around it, producing ultrasound waves consisting of compression and expansion impulses which are transmitted to the body via a hand piece
- Ultrasonic cavitation is a non-surgical, non-invasive fat removal treatment based on a low frequency ultrasound. This energy is generally delivered between 32kHz to 37kHz at a power of up to 200w. Ultrasound waves are emitted from transducers on the hand piece and travel into the subcutaneous fat causing 'cavitation' of the fat cell – the emulsification of solid fat substances releasing triglyceride fluid into the interstitial fluid between cells which is then eliminated through the urinary and the lymphatic systems. The ultrasound field, when applied to the target area, creates bubbles (known as the Cavitation Effect) in the liquid that surrounds fat cells containing fatty acids, triglycerides and water. These bubbles create internal pressure and movement on the fat cell. This pressure is too much for the cell to withstand, so the bonds of the cell membrane break causing lipids (fats) inside the cell to leak out and disintegrate into a liquid state, which is then expelled through the body's normal metabolic method as the fluid is enzymatically metabolized to glycerol and free fatty acids. The enzyme Hormone Sensitive Lipase (HSL) acts as the catalyst for this reaction. The body goes into shock and sends water mixed with hyaluronic acid which turns into a thick gel. The formation of thick gel means that oxygen cannot reach the fat cells and causes them to combust in the area. This is known as tissue hypoxia (the starvation of oxygen to the fat cells). Fat cell membranes do not have the structural capacity to withstand the vibrations produced from cavitation. The free fatty acids are insoluble, so are picked up by the lymphatic system and then metabolized by the liver. Water soluble glycerol is absorbed by the circulatory system and used as an energy source. Once the fuel in the bloodstream has been used up, the liver will begin to target the remaining fat deposits, starting with those most easily broken down which are the treated areas. The result is natural fat loss without damage to other tissues or organs. Ultrasound cavitation destroys fat cells leading to fat storage which is significantly reduced or eliminated

Preparation of equipment and products for treatment

Taught content

- Understanding how to prepare equipment on a clean trolley in an ergonomic manner to prevent strain to the practitioner and to assist in the smooth application of treatment, e.g. safety, time management, hygiene, organisation and professionalism
- Why it is necessary to select appropriate products and equipment before start of each treatment and place on trolley, checking appropriate products and equipment are being used for treatment
- Understanding why appropriate PPE (personal protective equipment) is prepared and used

Selection of equipment

Taught content

Selection and use of device hand piece, intensity and technique of application according to:

- Treatment objectives
 - Fat removal – circumference reduction on abdomen and flanks, thighs, buttocks, calves and arms
- Settings for use should be as stated in manufacturers' instructions

Method of application

Taught content

- Apply appropriate PPE (personal protective equipment)
- Test machine – touch transducers with finger and feel the plates vibrating
- Divide the client's treatment areas into hand size working zones, applying recommended ultrasound gel onto the client's skin only in working area as very easily absorbed. Start working over the first zone in circular like motions following manufacturers' instructions. The hand piece needs to be moving continuously and must stay in contact with the skin. A hand sized working zone will need to be treated for 5 minutes. Once this is completed the second zone can then be worked on repeating as section 1
- Complete this process until all zones of the treatment area are complete
- Once the treatment is complete, remove the product with warm water and mitts or sponges
- Apply post-treatment products
- Depending on client's concern and treatment plan other technologies can be combined with cavitation

Adaptations to treatment

Taught content

- How to adapt the treatment to take into account pre-existing conditions
 - Adapt application by omitting treating areas with skin tags, irregular moles or highly couperose. Avoid working over bone, over the spine and around the heart band. Cavitation should not be applied on or near the head

Areas to avoid

Taught content

- Avoid treatment over the spine, around the heart band, bony areas
- The head, neck and décolleté must also be avoided

Use and limitations of ultrasound equipment

Taught content

- Used for fat removal on areas of the body that require inch loss
- It is suitable for using on the body only. Results will improve with subsequent treatments and generally a course of 8 weekly treatments is recommended. If the client requires a second course then 2-3 weeks is recommended between courses
- The delivery depth of the Ultrasound Cavitation is dependent on the hand piece used for application and the shape and size of the transducer
- Limitations of equipment and products
 - Ultrasound Cavitation can be used weekly for a course, it is a progressive treatment and consecutive treatments will give better results. A break from cavitation treatments is recommended after a course, to give resting and regeneration time for the organs involved with lymphatic drainage and waste removal
 - Each treatment has time limitations depending on power output of the hand piece. Time limitations will be specified by the manufacturer

Benefits and effects of Ultrasound Cavitation removal

Taught content

- Physical effects
 - Ultrasonic cavitation allows for non-aggressive removal of targeted fat deposits. When targeting subcutaneous fat, the Ultrasound Cavitation is emitted into the subcutaneous layer. Cavitation within this layer creates holes in the fat layer resulting in inch loss in the treatment area. Results will differ from one client to another depending on body metabolism, tissue structure, targeted area, age and hormonal variations
- Visible benefits/effects
 - Improved blood and lymph circulation
 - Detoxification by removing toxins bound in adipocyte cells
 - Inch loss
 - Fat elimination
 - Spot fat reduction
 - Decreases fatty deposits/constricts connective tissue
 - Body sculpting
 - Reduces the appearance of cellulite
 - Tightens connective tissue to lift and tone the skin
 - Improved appearance and feel of skin

Effects and risks associated with the treatment

Taught content

- Non-compliance to safety and hygiene practices will result in undesirable effects being achieved. If the body is treated for too long by cavitation, sensitivity to the tissues will occur. It can also create added pressure on the kidney and liver resulting in discomfort in these areas. Keep to manufacturers' guidelines on practical application
- Possible side effects to cavitation treatment are erythema, irritation, slight bruising, increased body temperature and skin sensitivity

Contra-actions which may occur

Taught content

- How to deal with them, what advice to give clients and when to refer to medical practitioner
 - I.e. erythema, irritation, slight bruising, increased body temperature and skin sensitivity

Pre and post-treatment products

Taught content

- Understand the types of pre and post-treatment products available and why they are necessary i.e. products containing PPC (Phosphatidylcholine), detoxification oils or creams and cellulite homecare products

Treatment progression and further treatment recommendations

Taught content

- Recommendations for frequency of treatment depending on condition treated and treatment objectives, benefits of homecare products and advice on benefits of additional technologies such as radio frequency skin tightening or fat melting, vacuum skin rolling treatments
- Recommendations on lifestyle to reinforce treatment effects
- Complimentary products to be used in conjunction with clinic treatment
- Knowledge of maintenance treatment timings and use of body care programmes at home to reinforce treatment effects

LO3 Comprehend the relevant anatomy, physiology and pathologies for Ultrasound Cavitation treatments

Structure and functions of the skin and its relevance to ultrasound treatments

Taught content

- Epidermis – stratified epithelial tissue, stratum germinativum, stratum spinosum, stratum granulosum, stratum lucidum, stratum corneum
- Cell structure and types in the skin, mitosis, epidermal lipidity and hydration, epidermal tissue differentiation, keratinisation, natural desquamation and melanin synthesis
- The defensive role of the epidermis and the importance of the natural barrier function (NBF) and implications of compromised NBF
- The role of melanocytes, keratinocytes and fibroblasts in promoting and rejuvenating healthy skin
- Melanogenesis to include post inflammatory hyper-pigmentation (PIH) plus causes and recognition of hypo and hyper-pigmentation pigmented lesions, recognition and causes i.e. vitiligo, solar/seborrheic keratosis, actinic keratoses, lentigines, ephelides, chloasma, melasma, poikiloderma of civatte and skin cancers
- Dermis – blood/lymph supply, papillary layer, reticular layer, extra cellular matrix- collagen, elastin, hyaluronic acid, dermal cells mast cells, fibroblasts macrophages and neutrophils, proteoglycans and glycosaminoglycans (GAGS)
- Extracellular matrix development, function, degeneration and regeneration including importance of collagenase and elastase in the wound healing process
- Nerve endings (Meissener’s corpuscles, Pacinian corpuscles, Merkel’s discs and Ruffini corpuscles)
- Hypodermis – subcutaneous layer, adipose tissue, adipocytes, lipocytes, tissue hypoxia, lipolysis (speeding up breakdown of fat) and lipogenesis (the synthesis of lipids from sugars, slowing down the storage of fat)
- Functions of human fat
- Calorie consumption rate vs energy output. (Triglycerides, cholesterol and essential fatty acids)
- Differentiate between visceral fat and subcutaneous fat
- Release of hormones to control metabolism
- Adipose tissue is primarily composed of adipocytes (fat cells) or lipocytes; cells that synthesise and specialise in storing energy as neutral fats (triglycerides). Human fat is a liquid at body temperature, so adipocytes are normally filled with oil. Adipose tissue consists of a loose collection of adipocytes embedded in a mesh of collagen fibres which play a vital role in energy homeostasis and process the largest energy reserve as triglycerol in the body. Adipocytes stay in a dynamic state and start expanding when energy intake is higher, the hormone insulin promotes expansion. It is located beneath the subcutaneous tissue (hypodermis) consisting of free standing fat cell chambers (filled with fat cells), separated by vertical walls of connective tissue called septa. These fat chambers are prone to collapse when undue pressure is applied. This pressure is the result of excess weight, fluid retention or lack of strength due to little or no exercise. Larger chambers generate smaller compartments of fat cells (papillae adipose) that are clustered tightly under the skin. The combination of free standing fat cell chambers and compartmentalised clusters of fat cells are the elements that create the change in appearance in the skin’s surface known as cellulite
- Functions of adipocytes – develop from adipoblasts or lipoblasts which derive from fibroblasts
 - Store triglycerides

- Mechanical shock absorbers
- Thermal insulation
- Body shape and architecture
- Two types of adipose tissue
 - White adipose tissue (white fat – unilocular)
 - Contains a large lipid droplet surrounded by a layer of cytoplasm and a flattened nucleus. Fat is stored in a semi-liquid state composed of triglycerides and cholesterol ester
 - Brown adipose tissue (brown fat –multilocular)
 - Polygonal in shape. Unlike white fat cells, these cells have considerable cytoplasm with lipid droplets scattered throughout and a round nucleus. The brown colour comes from the large quantities of mitochondria. Brown fat known as baby fat is used to generate heat
- Identification of Cellulite Grade
 - Grade one
 - Deterioration of the skin’s dermis (blood vessels and capillaries that create a complex transport network throughout the skin slowly begins to break down)
 - Upper region of the dermis begins to lose capillary network
 - Fat cells housed within the free standing fat cell chambers begins to engorge with lipids often swelling 2-3 times their original size
 - Fat cell clumping may commence at this stage as well
 - Fluid begins to accumulate in the tissue due to a breakdown in the capillary system
 - Projections of fat begin to occur in the dermis
 - Increase in GAGs (Glycosaminoglycans) which account for enhanced ability for tissues to retain excess water
 - Grade two
 - Dermal deterioration continues
 - Microcirculatory system continues to decline
 - Fat cells engorge further
 - Fat clumping more pronounced pushing blood vessels further away
 - Gaps can start to appear in the dermis which may be the result of the normal inflammatory process which activates specific enzymes such as collagenase and elastase, creating an available path for immune cells to migrate to the site of inflammation
 - Fluids continue to accumulate
 - “Orange peel” is now evident
 - Grade three and four
 - Microcirculatory system continues to deteriorate slowing metabolism in the cells of the dermis
 - Protein synthesis and the repair process are reduced drastically (contributes to the thinning of the dermis)
 - Protein deposits begin to form around fat cell clusters

- Pinching the skin between finger and thumb at this stage demonstrates a definite “orange peel” effect
 - By Grade 4, hard nodules are evident in the dermal region. These are composed of fat cell clumps encased in a hardened protein shell. This is the final stage in cellulite formation
- Identification of cellulite types
 - Adipose cellulite – firm cellulite with an orange peel effect, loose skin
 - Oedematous cellulite – cellulite caused by water retention that results in soft cellulite on loose skin
 - Fibrotic cellulite – hard, compact cellulite with an orange peel effect. This differs from adipose cellulite
 - Hard cellulite – younger clients. Area rigid with stronger attachment to muscles. Skin dry due to poor nourishment caused by blood and lymphatic problems. Can be treated but may need more treatments
 - Soft cellulite – older clients. Loss of connective tissue support systems and loss of tissue tone/reduced muscle tone. Due to structural/metabolic collapse of tissues
 - Edematous cellulite – younger clients who take the contraceptive pill. Associated with fluid retention/venous insufficiency. Nodules can be felt and legs tend to be swollen

Structure and function of circulatory and lymphatic systems and its relevance to ultrasound treatments

Taught content

- Circulatory system:
 - Functions of blood – transport, regulation, protection and clotting
 - The structure of veins, venules and capillaries
 - The structure of arteries, arterioles and capillaries
 - Main arteries of the body
 - Aorta, common carotid, subclavian, splenic, right and left iliac, renal artery and hepatic artery
 - Main veins of the body
 - Superior vena cava, inferior vena cava, splenic vein, right and left iliac vein, renal vein, hepatic vein, hepatic portal vein and subclavian
 - Main arteries of the arm
 - Subclavian, common carotid, brachial, ulnar, radial, deep palmar arch, superficial palmar arch and digital
 - Main veins of the arm
 - Axillary, brachial, basilic, cephalic, subclavian and palmar digital
 - Main arteries of the leg
 - External iliac, femoral, popliteal, anterior tibial, posterior tibial and plantar arch
 - Main veins of the leg
 - Long saphenous, short saphenous, dorsal venous arch, femoral, popliteal, anterior tibial and posterior tibial
 - Blood composition – erythrocytes, leucocytes, thrombocytes, plasma

- Circulation – heart, pulmonary circulation, capillaries, systemic circulation
- The process of blood clotting – platelets, thromboplastin, prothrombin, thrombin, fibrinogen, fibrin, calcium
- Lymphatic system:
 - Functions of the lymphatic system – fluid distribution, fighting infection, transport and absorption of fat
 - Functions of lymph nodes – filter toxins, clean lymphatic fluid, produce antibodies and antitoxins, produce lymphocytes, macrophages and phagocytes
 - The position of the main lymph nodes – body – thoracic duct, right lymphatic duct, axillary, supra-trochlear, inguinal, cisterna chyli, popliteal, thymus gland, lacteals, spleen, thymus gland, superficial and deep cervical
 - Oxygen and nutrition carried in blood
 - The interaction of the lymphatic and circulatory systems
 - The relevance of the lymphatic and circulatory systems to ultrasound treatments

The principles and functions of digestive and excretory systems and relevance to ultrasound treatments

Taught content

- The digestive and excretory systems and their effects on the skin/body conditions which may affect the client receiving ultrasound treatment
- Alimentary canal – mouth, salivary glands, tongue, epiglottis, oesophagus, stomach, small intestine (jejunum, ileum, duodenum), appendix, large intestine, rectum, anus
- Accessory organs – liver, gall bladder, pancreas
- The processes of digestion and absorption
- The excretory system – kidneys, ureter, bladder, urethra, lungs, large intestine, liver, skin
- The processes of excretion
- The relevance of the digestive and excretory systems to ultrasound treatments

Common diseases and disorders and relevant terminology of the skin

Taught content

- Allergic reaction bruise, benign, bulla, crust, erythema, excoriation, fissures, haemangioma, hyperaemia, inflammation, keloid, macule, malignant, papule, pustule, nodule or cyst, oedema, scales, scar, tumour, ulcer, vesicle, weal, weeping, chilblains, couperose, telangiectasia, comedones, crow's feet, hyper-keratosis, milia, pseudo folliculitis, urticaria, hyperpigmentation, hypopigmentation, atopic eczema, atopic dermatitis, psoriasis, acne vulgaris, acne rosacea, boils, carbuncles, folliculitis, impetigo, herpes simplex, herpes zoster, warts, verrucae, candida, tinea corporis, albinism, chloasma, dermatosis papulosa nigra, ephelides, lentigo, leucoderma, naevae, papilloma, port wine stain (capillary naevus), vitiligo, sebaceous cysts (steatoma), skin tags (fibroma, verrucae filiformis), spider naevi, styes, xanthomas and prickly heat (miliaria rubra)

Common diseases and disorders of the circulatory system

Taught content

- Anaemia, aneurism, arteriosclerosis, AIDS/HIV, coronary thrombosis, haemophilia, high and low blood pressure, high cholesterol, hepatitis A, B and C, leukaemia, phlebitis, septicaemia, stress, thrombosis, varicose veins, cardiac failure, epistaxis (nosebleeds), heart disease, hole in the heart, myocardial infarction, palpitations, pulmonary embolism, Raynaud's disease, sickle cell anaemia, thalassaemia and varicose ulcers

Common diseases and disorders of the lymphatic system

Taught content

- Hodgkin's disease, non-Hodgkin's lymphoma, Hashimoto's thyroiditis and lymphoma

Common diseases and disorders of the digestive and excretory systems

Taught content

- Digestive system
 - Anorexia nervosa, appendicitis, bulimia nervosa, cancer-stomach, cancer-bowel, cirrhosis of the liver, constipation, coeliac disease, diarrhoea, diverticulitis, flatulence, gall stones, gingivitis, heartburn, hernia (abdominal), hiccoughs, dyspepsia (indigestion), irritable bowel syndrome, jaundice, nausea, obesity, ulcer (aphthous (mouth), duodenal, gastric, peptic), candida, colitis, ulcerative colitis, Crohn's disease, diverticulosis, diverticulitis, enteritis, gastritis, inflamed gall bladder, pernicious anaemia and ulcer esophagela
- Excretory system
 - Cystitis, dysuria, enuresis, glomerulonephritis, incontinence, kidney stones, nephritis (Bright's disease), pyelonephritis or glomerulonephritis, urinary tract infections, urethritis, nephroblastoma, renal failure, renal colic and uraemia

LO4 Demonstrate how to consult, plan and prepare for Ultrasound Cavitation treatment

Use consultation techniques to determine the client's treatment plan

Taught content

- Demonstrate a variety of consultation techniques whilst performing consultation, complete all documentation and agree with the client the treatment plan
- Have a friendly, enthusiastic, polite, confident, supportive and sensitive manner and respect client confidentiality
- Use open questioning with client given time to ask questions
- Achievable outcomes must be advised where client has unrealistic expectations of treatment
- Use appropriate communication for Ultrasound Cavitation treatment
 - verbal (professional voice and terminology and be respectful)
 - non-verbal (visual) – open body language, good eye contact, listening, facial expressions, positive body posture, gestures and space (do not invade personal space)
- Give clear and appropriate advice and recommendations to the client to determine final treatment plan that is agreed
- All information to be written on consultation documents in front of the client to finally obtain informed client consent
- Demonstrate punctuality and respect throughout

Identify the client's medical history, indications for and aims of treatment

Taught content

- Medical history – discuss all areas on consultation documentation including certain medications such as anti-coagulants and skin thinners
- Skin condition – sensitivity, skin laxity and texture, irregularities
- Skin characteristics – level of sensitivity, thickness of skin, epidermal thickness
- Treatment aims – body contouring, improvement in the appearance of cellulite, circumference reduction, improved blood and lymph circulation, detoxification, improved appearance and feel of the skin

Recognise any contra-indications/restrictions and take necessary action

Taught content

- Identify contra-indications that may restrict, prevent or require medical referral. Make note of the contra-indications on the client's record card

Ensure client comfort

Taught content

- Position client and self in a comfortable manner
- Explain the physical sensation of the treatment and the appearance of the skin post-treatment to the client
 - Skin will feel warm and stimulated, any heat should feel comfortable and even
 - The client will hear a loud ringing in their ears during the application of cavitation
- Explain in line with supplier/manufacturer recommendations

Explain the treatment procedures

Taught content

- Explain the positioning required for treatment
- Advise on the physical sensation to be expected during treatment
- Inform about the skin preparation for treatment and the requirement to take pre-treatment photographs (visual media images)
- Explain about the testing of the machine on self and client
- Describe the method of application, that the area will be split into small working zones to allow for thorough coverage
- Explain immediate aftercare and the need to take pre and post-treatment photographs (visual media images)

Finalise and agree the treatment plan

Taught content

- Finalise and agree the treatment plan addressing client needs, expectations (both realistic and unrealistic) and treatment objectives using information from the initial consultation and visual skin/body assessment, decline treatment where applicable

Obtain signed, informed consent

Taught content

- Ensure all documents are signed after treatment plan agreed. The practitioner and client must understand the implications of informed client consent and what is being agreed
- All information from consultation to be written on consultation documents in front of the client at the beginning of every treatment
- Informed client consent to be obtained before every practical treatment, from the client prior to carrying out any subsequent treatments

Take pre-treatment photographs (visual media images)

Taught content

- Following organisation procedures, industry guidelines and current data protection legislation, ensuring protocols are followed for taking photographs (visual media images) to ensure clarity and consistency. Take photographs (visual media images) in same position as post-treatment photographs (visual media images) and where possible in the same light. Position area to be treated so photographs (visual media images) are taken straight on and from both sides where applicable, zoom in on areas of concern, for example cellulite deposits. Personal devices should not be used to take images of clients
- Gain written/signed client consent for photography (visual media images) and for storage of clinical photographs (visual media images) specific use of photographs (visual media images) for marketing and teaching purposes

Carry out skin sensitivity tests

Taught content

- Carry out sensitivity (thermal/tactile) tests in accordance with manufacturers' guidelines

Select suitable equipment and products

Taught content

- Select suitable equipment and products according to treatment objectives
- Choose the correct equipment and products suitable to treat body conditions identified in the agreed treatment plan

Explain the cooling off period

Taught content

- Provide information to the client regarding the 'cooling off' period of at least 48 hours between initial consultation and first treatment. Book first treatment in line with given directives on cooling off periods. Give client written information regarding the after effects, pre and post-care commitments, homecare/additional routines required, proposed outcomes and agreed treatment plans

LO5 Demonstrate how to provide Ultrasound Cavitation treatments

Maintain own responsibilities for health and safety through the treatment

Taught content

- Ensure working area is set up and a safe working environment created in line with health and safety protocols and legislation. PPE (personal protective equipment) to be worn

Prepare and protect the client and self

Taught content

- Ensure preparation complies with legal and organisational requirements. Prepare and protect client to avoid cross-infection. Protect client's eyes, hair when appropriate, clothing and surrounding areas depending on area of treatment

Maintain client's modesty and privacy at all times

Taught content

- Ensure the working environment is private and secure. Depending on area to be treated provide towels/disposable tissue to protect clothing and protect modesty so the client does not feel exposed and vulnerable

Position the client

Taught content

- Position the client to meet the needs of the treatment without causing them discomfort
- Clearly instruct the client and, if needed, use supports or pillows to ensure the position fits the needs of the treatment, does not compromise the treatment application and does not cause the client any discomfort

Maintain own posture and working methods

Taught content

- Ensure effective, ergonomic positioning of couch, trolley, stool, equipment and products to avoid injury to self, client and others
- Ensure own posture and working methods minimise fatigue and the risk of injury to self, the client and others

Ensure environmental conditions are suitable for treatment

Taught content

- Ensure ventilation, temperature, ambience, lighting, wall and floor coverings are fit for purpose
- Ensure all tools and equipment are available and in safe working order
- Ensure risks and hazards have been checked such as slip and trip hazards in the working area

Ensure the use of clean equipment and materials

Taught content

- Ensure all surfaces are clean and hygienic, trolley tidy and equipment and products set out ergonomically, all expiry dates checked and in date
- PPE (personal protective equipment) available and fit for purpose
- Use of sterilisation and disinfectants for surfaces and equipment as required for treatment

Promote environmental and sustainable working practices

Taught content

- Demonstrate environmental working practices to be effective and energy efficient heating and ventilation to meet the workplace (Health, Safety and Welfare) Regulations 1992 for client and employees
- Demonstrate sustainable working practices – products with ingredients from sustainable sources and using sustainable packaging, efficient storage and waste disposal, record product usage

Safe use of equipment, materials and products

Taught content

- Follow protocols for safe use, including correct use of equipment, application of Ultra Cavitation treatments and selection of application heads for different treatment objectives
- Keep tops on bottles, make sure all products are labelled clearly in line with COSHH information, decant products into sterile pots to ensure correct amount is used prior to treatment where indicated

Prepare the skin

Taught content

- Ensure the client's skin is clean and prepared for Ultrasound Cavitation treatment. Cleanse professionally with an appropriate cleanser to ensure all surface debris and oils, including body lotions are removed thoroughly. Protect vulnerable areas of body as indicated
- Apply sufficient amount of working product during treatment application
- Follow manufacturer protocols/recommendations

Select appropriate PPE

Taught content

- Use of PPE (disposable gloves non-latex) that fit the individual correctly so not to interfere with work, worn correctly each time used and disposed after each use. Stored correctly, checked and maintained so fit for purpose

Apply the Ultrasound Cavitation treatment

Taught content

- Using adequate skin support and following techniques to avoid discomfort to the client
- Split treatment area into zones, select starting point
- Follow recommended protocol, ensure application demonstrates adequate zone coverage
- Pressure should be adapted for all areas
- Adjust the intensity of the treatment to suit area being treated, density of fat and treatment objectives

Work systematically

Taught content

- Cover the areas to be treated using the required movements in the direction recommended
- Avoid uneven treatment by ensuring zones do not overlap
- Application techniques – follow manufacturer protocols
- Keep hand piece in full contact with treatment area
- Do not keep hand piece stationary
- Move hand piece slowly but consistently

Calculate the duration and intensity of the application

Taught content

- Adjust the treatment duration to suit the client's treatment plan, density of fat and desired results

Monitor the skin reaction and client response

Taught content

- Check the client response and feedback of feeling comfortable
- Observe skin reaction and know when to discontinue treatment if any adverse reactions occur

Verbally communicate with the client

Taught content

- Continually discuss sensation and gain client feedback throughout treatment. Know when to stop treatment if appropriate

Apply post-treatment products

Taught content

- Suitable body creams containing active ingredients to enhance treatment results

Take post-treatment photographs

Taught content

- Follow protocols for taking of clinical photographs to ensure clarity and consistency. Take photographs in same position as pre-treatment photographs and where possible in the same light. Position area to be treated so photographs are taken straight on and from both sides where applicable, zoom in on areas of concern such as cellulite deposits
- Personal devices should not be used to take images of clients
- Gain client's consent for storage of clinical photographs and specific use of photographs for marketing and teaching purposes

Provide post-care advice and homecare

Taught content

- Follow with recommended homecare products
- Avoid alcohol for 24 hours before and after treatment
- Eat a well-balanced diet on the day of treatment
- Avoid eating a heavy meal 2 hours before and after treatment
- Avoid caffeine 2 hours before and after treatment
- Drink 2 litres of water daily
- Provide general advice on recommendations for healthy diet and exercise to maximise body treatments
- Provide advice on suitable post-treatment products
- Provide advice for ongoing/further Ultrasound Cavitation treatments and treatments which may be used in conjunction
- Follow manufacturers' guidelines in respect of treatment intervals

Dispose of waste materials to meet legal requirements

Taught content

- Waste – disposed of in an enclosed foot pedal controlled waste bin fitted with disposable, durable bin liner
- Hazardous waste – correct disposal of hazardous waste in line with local council regulations and disposed of following COSHH procedures

Complete the treatment in a commercially viable time

Taught content

- Ensure treatment is completed in a commercial time frame

Update client records

Taught content

- Accurate completion of treatment details, recording equipment settings used, length of time worked over each area, skin reaction, skin preparation, application techniques and duration of treatment, client skin sensation and skin response, observation of skin after treatment. Signature from client to be obtained accepting treatment results and agreeing to follow aftercare/post-treatment advice. Practitioner signature to take responsibility of treatment and records completed
- Follow manufacturers' protocols for treatment intervals – 8 treatments, one treatment each week

Provide and manage post-treatment communications and outcomes

Taught content

- Communicate with the client regarding post-treatment care and concerns
- Inform the client how to manage complications/adverse reactions at home and when to refer to a medical practitioner
- Provide and inform the client of protocol for formal complaints
- Document post-treatment complications and adverse reactions in line with organisation guidelines
- Protocol for escalating a formal complaint to management prior to a medical practitioner

Assessment requirements

Learners are required to complete all assessment requirements related to this unit:

1. Case studies
2. Theory examination
3. Practical examination

1. Case studies

Learners must produce a treatment portfolio which is required to be completed under the supervision of a lecturer who must monitor the quality of the treatments performed throughout the learner's training, to ensure that they meet the given criteria. All case studies must be completed and marked prior to the learner completing the practical and theory examinations.

Learners must complete a minimum of 6 case studies. Each case study needs to include a full medical history of the client, advanced skin/body assessment, before and after pictures and a full description of the area to be treated including body type and conditions. A detailed description of the application techniques used, machine settings, current intensity and duration of treatment must also be provided. Each case study must also include an evaluation of the treatment and its outcomes.

Range to be included in case studies:

- Met the needs of a variety of client/patients
 - New
 - Existing
- Carried out all consultation techniques
 - Questioning – verbal
 - Listening – non-verbal
 - Visual – non-verbal
 - Manual
 - Written
 - Pre-treatment photographs (visual media images) taken
- Carried out skin sensitivity test
 - Thermal
 - Tactile
- Covered the following conditions
 - Fat removal/inch loss
 - Treatment of cellulite
- Treated 6 case studies to include minimum of 4 different body areas and 2 cellulite treatments
- Considered characteristics of treatment area
 - Level of sensitivity
 - Condition of skin
 - Hydration levels

- Hard fat
- Soft fat
- Cellulite
- Taken all courses of necessary action if required
 - Explaining why treatment cannot be carried out
 - Encouraging the client to seek medical advice
 - Modification of treatment
- Used all types of equipment
 - Suitable Ultrasound Cavitation machine and application head(s)
- Recorded all types of information
 - Current intensity
 - Duration of current flow
 - Areas of modification
 - Reaction levels
- Given all advice and recommendations
 - Suitable pre and post-care products and their uses
 - Avoidance of activities which may cause contra-actions
 - Modification of lifestyle patterns
 - Post-treatment contra-actions and how to deal with them
 - Future treatments recommended
 - Treatments which could be given in conjunction with/after Ultrasound Cavitation treatment
 - Issuing of written post-care advice
 - Recording before and after photographs (visual media images)

2. Theory examination

Learners must complete a theory examination for this unit. This will consist of a multiple choice question paper which is mapped to the relevant assessment criteria stated below.

The theory examination will test knowledge and understanding from across learning outcomes 1, 2 and 3. Learners should use the unit content sections of this unit to aid revision since exam questions will test the full breadth of this content over time.

Learning Outcome	Assessment Criteria
LO1 Interpret safety considerations when providing Ultrasound Cavitation treatments	1.1. Safety of product and equipment sourcing
	1.2. Insurance guidelines
	1.3. Hygiene considerations
	1.4. Hygiene and infection control
	1.5. Hazards and risks
	1.6. Suppliers' and manufacturers' instructions for safe use
	1.7. Treatment of minors
	1.8. Timing for treatment
	1.9. Contra-indications that would prevent or restrict treatment
	1.10. Referring contra-indicated clients
	1.11. When to consult with other aesthetic professionals

Learning Outcome	Assessment Criteria
LO2 Comprehend how to perform Ultrasound Cavitation treatments	2.1. Treatment planning
	2.2. Factors to consider when treatment planning
	2.3. Assessing skin characteristics and body conditions
	2.4. Treatment advice to provide to the client
	2.5. Pain threshold and sensitivity variations
	2.6. Skin sensitivity testing prior to treatment
	2.7. Pre-treatment preparatory programmes
	2.8. Cleansing the skin prior to treatment
	2.9. Ultrasound waves
	2.10. Preparation of equipment and products for treatment
	2.11. Selection of equipment for treatment
	2.12. Methods of application
	2.13. Adaptations to treatment
	2.14. Areas to avoid
	2.15. Benefits and effects of Ultrasound equipment
	2.16. Benefits and effects of Ultrasound Cavitation of removal
	2.17. Effects and risks associated with the treatment
	2.18. Contra-actions that may occur
	2.19. Pre and post-treatment products
	2.20. Treatment progression and further treatment recommendations

Learning Outcome	Assessment Criteria
LO3 Comprehend the relevant anatomy, physiology and pathologies for Ultrasound Cavitation treatments	3.1. Structure and functions of the skin and its relevance to Ultrasound treatments
	3.2. Structure and functions of the circulatory and lymphatic systems and relevance to Ultrasound treatments
	3.3. The principles and functions of the digestive and excretory systems and relevance to Ultrasound treatments
	3.4. Common diseases and disorders and relevant terminology of the skin
	3.5. Common diseases and disorders of the circulatory system
	3.6. Common diseases and disorders of the lymphatic system
	3.7. Common diseases and disorders of the digestive and excretory systems

3. Practical examination

Learners must complete a practical examination for this unit which will be externally set by the awarding organisation and examined and marked by an external examiner. The practical examination will take place at the end of the period of learning.

In preparation for the practical examination, centres are advised to ensure learners have carried out a series of formatively assessed case studies, comprising complete practical treatments, in accordance with the practical assessment criteria for the qualification.

It is essential centres use the Practical Assessment Criteria document in order to prepare learners for the Practical Examination. This can be found on the VTCT and ITEC websites.

The Practical Examination must take place under controlled conditions, in a realistic working environment on a real client and in a commercially acceptable time frame for the practical treatment being examined.

Document History

Version	Issue Date	Changes	Role
v1.0	12/02/2024	First published	Product and Regulation Manager