



ITEC

Laser and light treatments for skin rejuvenation

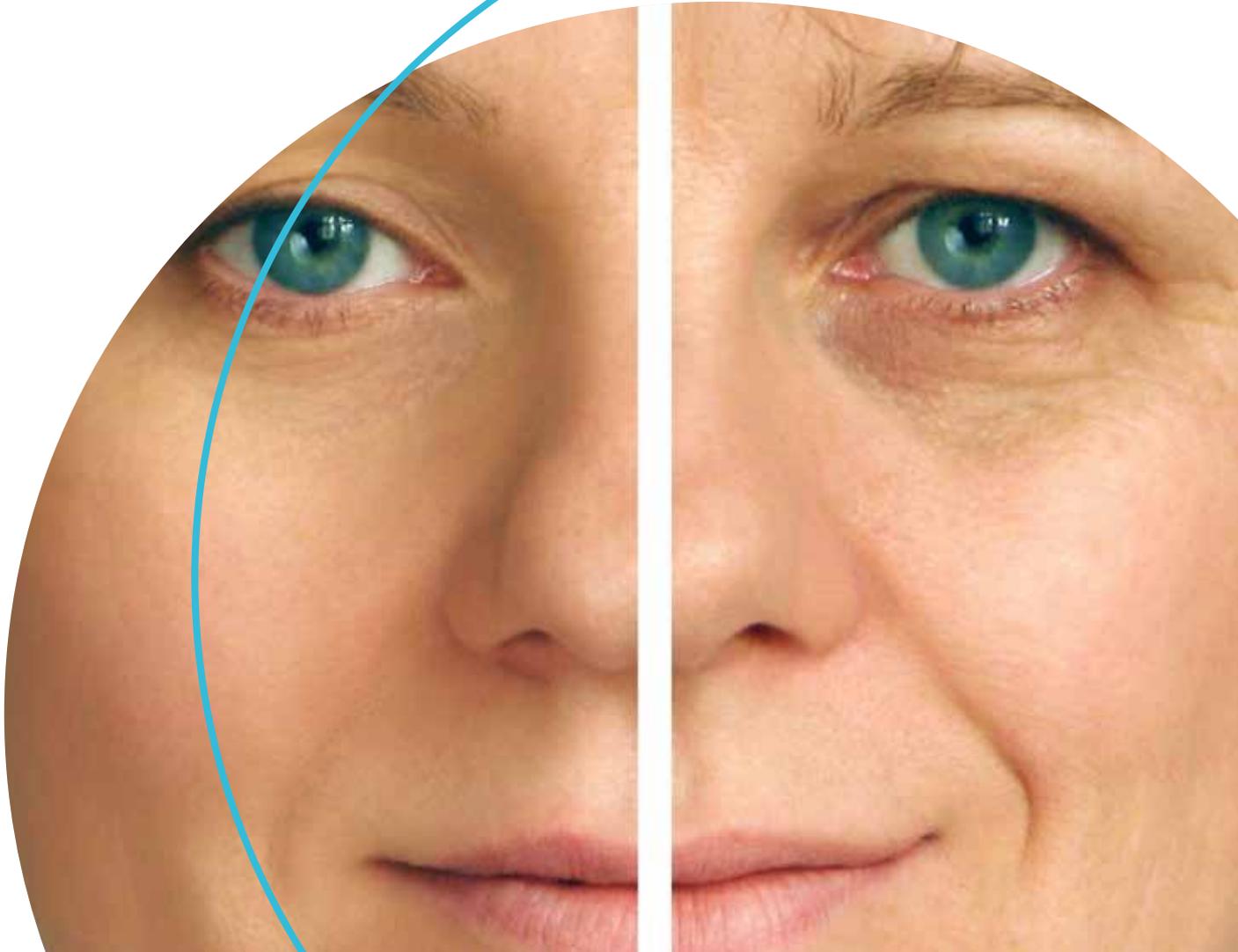
VRQ

Learner name:

UV40414

Learner number:

T/601/5656



Laser and light treatments for skin rejuvenation

UV40414

This unit is about using intense light and laser systems for photo-rejuvenation of the skin. The knowledge and skills gained in this unit include preparing for and providing laser and intense pulsed light treatment to treat skin imperfections including telangiectasia, spider naevi blood spots, fine lines, photo ageing, uneven pigmentation, colour and texture on the face, neck, chest, hands and other body areas with lesions suitable for treatment.

You will need to have knowledge of safe working practice and controlling hazards in the salon. You will be able to identify skin conditions and those clients suitable for intense light and laser system treatments.

Level

4

Credit value

10

GLH

74

Observation(s)

3

External Paper(s)

0



Learning outcomes

On completion of this unit you will:

1. Be able to prepare for skin rejuvenation treatment
2. Be able to provide laser and light treatment for skin rejuvenation

Evidence requirements

1. **Environment**
Evidence for this unit must be gathered in a real or realistic working environment.
2. **Simulation**
Simulation is not allowed in this unit.
3. **Observation outcomes**
Competent performance of 'Observation' outcomes must be demonstrated to your assessor on **at least three occasions**.
4. **Range**
All ranges must be practically demonstrated or other forms of evidence produced to show they have been covered.
5. **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.
6. **Tutor/Assessor guidance**
You will be guided by your tutor/assessor on how to achieve learning outcomes and ranges in this unit. All outcomes and ranges must be achieved.
7. **External paper**
There is no external paper requirement for this unit.

Achieving observations and range

Achieving observation outcomes

Your assessor will observe your performance of practical tasks. The minimum number of observations required is indicated in the evidence requirements section of this unit.

Criteria may not always naturally occur during a practical observation. In such instances you will be asked questions to demonstrate your competence in this area. Your assessor will document the criteria that have been achieved through oral questioning.

Your assessor will sign off an outcome when all criteria have been competently achieved in a single client service.

Achieving range

The range section indicates what must be covered. Ranges should be practically demonstrated as part of an observation. Where this is not possible other forms of evidence may be produced. All ranges must be covered.

Your assessor will document the portfolio reference once a range has been competently achieved.

Maximum service times

There are no maximum service times that apply to this unit.

Learning outcome 1

Be able to prepare for skin rejuvenation treatment

You can:

- a. Prepare yourself, the client and work area for laser or light treatment for skin rejuvenation
- b. Use suitable consultation techniques to identify treatment objectives
- c. Carry out skin analysis and any relevant tests to identify any influencing factors
- d. Provide clear recommendations to the client based on outcomes of skin analysis
- e. Select products, tools and equipment to suit client treatment needs, skin types and conditions
- f. Select personal protective equipment that should be worn by the client and therapist during laser and intense pulsed light treatments

*May be assessed through oral questioning.

Observation	1	2	3
Date achieved			
Criteria questioned orally			
Portfolio reference			
Assessor initials			
Learner signature			

Learning outcome 2

Be able to provide laser and light treatment for skin rejuvenation

You can:

- a. Communicate and behave in a professional manner
- b. Position yourself and the client correctly throughout the treatment
- c. Use products, tools, equipment and techniques to suit client treatment needs
- d. Follow health and safety working practices
- e. Adapt treatment to suit client needs and skin conditions
- f. Complete the treatment to the satisfaction of the client
- g. Record and evaluate the results of the treatment
- h. Provide suitable aftercare advice

*May be assessed through oral questioning.

Observation	1	2	3
Date achieved			
Criteria questioned orally			
Portfolio reference			
Assessor initials			
Learner signature			

Observation range

You must practically demonstrate that you have:

Used a mimum of 1 of the 2 types of equipment	Portfolio reference
Laser	
Intense light	

Covered all specifications and variables	Portfolio reference
Wavelength(s)	
Optical energy	
Optical power	
Fluence	
Pulse duration/width	
Pulse delay	
Pulse repetition frequency (PRF)	
Spot size	
Cooling devices	
Hand-pieces/beam delivery systems/scanners	
Electrical requirements	

It is strongly recommended that all range items are practically demonstrated. Where this is not possible, other forms of evidence may be produced to demonstrate competence.

You must practically demonstrate that you have:

Ensured that laser controlled areas have	Portfolio reference
Minimum reflective surfaces	
Enclosed area	
Suitable window coverage	
Lockable entry and exit points	
Adequate fire precautions and suitable services	
Adequate ventilation	
Signage	

Used all consultation techniques	Portfolio reference
Questioning	
Visual	
Manual	
Referencing to client records	

Treated all areas	Portfolio reference
Face	
Neck	
Chest	
Hands	
Other body areas that have suitable lesions for treatment	

It is strongly recommended that all range items are practically demonstrated. Where this is not possible, other forms of evidence may be produced to demonstrate competence.

You must practically demonstrate that you have:

Met all the treatment objectives	Portfolio reference
Reduction of fine lines	
Evening out of pigmentation, colour tone and texture	
Reduction of superficial telangiectasia, spider naevi and Campbell De Morgan spots (blood spots)	
Improving the appearance of photoaged skin	

Given all the types of advice	Portfolio reference
Avoidance of activities which may cause contra-actions	
Future treatment needs Campbell De Morgan spots	
Home care	
Modifications to lifestyle patterns	
Skin recovery time	

It is strongly recommended that all range items are practically demonstrated. Where this is not possible, other forms of evidence may be produced to demonstrate competence.

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.

*This is not an exhaustive list.

Learning outcome 1

Be able to prepare for skin rejuvenation treatment

You can:	Portfolio reference/ Assessor initials*
g. Explain salon requirements for preparing yourself, the client and work area	
h. Explain the environmental conditions suitable for laser and light treatments for skin rejuvenation	
i. Explain the different consultation techniques used to identify treatment objectives	
j. Explain the importance of carrying out a detailed skin analysis and relevant tests	
k. Explain how to select laser or intense pulsed light equipment to suit client skin types and conditions	
l. Identify the range of equipment used for laser and intense pulsed light treatment for skin rejuvenation	
m. Explain the contra-indications that prevent or restrict advanced laser or intense pulsed light treatment for skin rejuvenation	
n. Explain the required legislation for laser and intense pulsed light treatments and the importance of compliance with regulations	

*Assessor initials to be inserted if orally questioned.

Learning outcome 2

Be able to provide laser and light treatment for skin rejuvenation

You can:	Portfolio reference/ Assessor initials*
i. Explain how to communicate and behave in a professional manner	
j. Explain health and safety working practices	
k. Explain the importance of positioning yourself and the client correctly throughout treatment	
l. Explain the importance of using products, tools, equipment and techniques to suit client treatment needs, skin types and conditions	
m. Explain how to work on different treatment areas	
n. Explain the consequences of inaccurate identification of client skin type/colouring according to the Fitzpatrick scale	
o. Describe how treatments can be adapted to suit client treatment needs and skin conditions	
p. Explain the contra-actions that may occur during and following treatments	
q. Explain the methods of evaluating the effectiveness of the treatment	
r. Summarise the aftercare advice that should be provided to prevent post-treatment damage	
s. Explain the suitable methods of dealing with the reappearance of skin conditions between treatments	

*Assessor initials to be inserted if orally questioned.

Learning outcome 2 (continued)

Be able to provide laser and light treatment for skin rejuvenation

You can:	Portfolio reference/ Assessor initials*
t. Explain the effects and benefits of laser or intense pulsed light on the skin and underlying tissues	
u. Explain different skin types, conditions, diseases and disorders	
v. Explain the structure and functions of the skin	
w. Explain the principles of skin healing	
x. Explain how natural ageing, lifestyle and environmental factors affect the condition of the skin and underlying structures	
y. Explain the structure and function of the endocrine system and its effect on skin conditions	
z. Explain the structure and function of circulatory and lymphatic systems	

*Assessor initials to be inserted if orally questioned.

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.

Learning outcome 1: Be able to prepare for laser and light treatments

Prepare the therapist:

Ensure personal appearance meets accepted industry and organisational requirements. Clean professional uniform, no jewellery, hair tied back from face, sensible footwear, personal hygiene and cleanliness (shower/bath), oral hygiene, and make-up applied correctly. Always maintain the hygiene and safety procedure throughout the treatment. Wear personal protective equipment to avoid cross infection and prevent accidental exposure to light/laser to yourself, the client and others within the controlled area, e.g. recommended eyewear, disposable gloves.

Prepare the client:

Consultation procedure should take a minimum of 20 minutes and should include an informed consent form (signed by client and therapist), medical history (physical and emotional conditions), doctor's referral letter (if required), treatment details (skin classification, sun tanning history, pigmentation, skin condition on area being treated, and a treatment record card (date, area treated, treatment method, patch test methods, equipment settings, time and duration, treatment outcome).

Ensure that the consultation procedure is conducted in a sensitive and supportive manner (i.e. privacy, modesty, trust and confidentiality); check the client's wellbeing and give ongoing reassurance where necessary, ensuring position and posture whilst working (minimises fatigue and risk of injury to yourself and the client); actively encourage the client to ask questions and clarify any points of which they are unsure; tactfully advise achievable

outcomes of the treatment where clients have unrealistic expectations or hair colour and types that are unsuitable for treatment; use assessment techniques which identify the condition and skin classification of the client; explain the physical sensation created by the equipment being used; refer clients with contra-indications which are suspected of requiring medical treatment to their general practitioner, prior to any treatment and without reference to a specific condition; clearly and tactfully explain to the client recognised contra-indications which prevent treatment; recommend alternative treatments which are suitable for the client's condition and needs if contra-indicated for light/laser treatments; clearly explain and agree with the client, the projected cost, likely duration and frequency of treatment and recovery time.

Preparation of work area:

Prepare the IPL/laser controlled area to meet safety, legal, hygiene and treatment requirements, ensure equipment is switched on and in standby/safety mode, make sure that the environmental conditions are suitable for the treatment, client and practitioner (lighting, heating, ventilation and general comfort), ensure that positioning of the client and equipment permits effective access, minimising the risk to the practitioner and discomfort to the client.

Learning outcome 1: Be able to prepare for laser and light treatments (continued)

Light/laser controlled areas must have:

- non-reflective surfaces
- protective eyewear worn (according to manufacturers' instructions)
- enclosed area
- suitable entry and exit points
- adequate fire precautions and suitable services (i.e. provision for hand sanitation)
- waste management (i.e. sharps bin)
- extraction (if required)
- hazardous warning signs displayed on equipment and entry/exit points or area
- maximum of one IPL/laser system in operation in the controlled area at any one time
- all windows covered with blinds/shutters (blackout curtains if necessary)
- no flammable materials stored in the controlled area
- local rules displayed in the controlled area (these are written rules and procedures that must be followed when working with light systems)
- equipment procedures detailing how to turn on/off, operate safely and maintain the equipment
- safety procedures – what are the hazards? Checks? Who is responsible? Know how to prevent use by unauthorised persons and adverse incident procedures
- controlled area procedures and access
- PPE (Personal Protective Equipment).

Consultation techniques to identify treatment objectives:

Communication – private comfortable area to carry out consultation, positioning of the client (no barriers between the therapist and client), positive body language, eye contact, enthusiasm, act in a professional manner, keep confidentiality, open questions, listening.

Develop client profile – client lifestyle, commitment to treatment, skin rejuvenation methods used by client, client's requirements and expectations of treatment. Impart to the client a brief explanation of the treatment to include: how the treatment works (this gives realistic goals), how many sessions are required, appointments and frequency, re-growth, skin reaction, sensation, contra-indications, aftercare advice, consent, special precautions prior to treatment, when to refer to a dermatologist or medical practitioner to include: consultation records, patch test, before and after pictures (visual).

Carry out skin analysis and any relevant tests to identify any influencing factors:

You should not carry out a patch test until you have carried out a thorough consultation and the client has signed the informed consent form. Skin treatments should only be carried out on skin types 1, 2 and on type 3 with caution.

Make accurate recommendations for treatment, skin typing, Fitzpatrick's photo scale, relevant questions regarding history of skin tanning. Carry out patch tests according to skin types, understand and explain the procedure of and reasons for patch testing, to include: the procedure for the test, the sensation, record settings, skin response (depending on skin type, 72 hours for skin types 1, 2, and 3. Skin types 4, 5, and 6 should not be treated unless by a medical practitioner), recognise adverse reactions.

Learning outcome 1: Be able to prepare for laser and light treatments (continued)

The patch test should preferably be carried out in the area to be treated, as this will give the truest indication of the reaction. If this is not possible a discrete area with a similar skin issue may be selected. The ideal outcome of the patch test is that the skin and hair will respond “normally” – there will be no excessive erythema, blistering, swelling or pigmentation changes.

If you intend to carry out treatment on more than one area, it may be necessary to patch test on each of the proposed treatment sites i.e. facial areas differ from décolleté, hands due to skin/bone density, skin type and amount of UV exposure.

Carry out patch tests for tactile and thermal safety tests (client skin sensation to hot/cold, sharp/soft). You must understand and explain the procedure and reasons for each, i.e thermal – to ascertain whether the client feels the burning sensation of heat, tactile – to ascertain if the client can tell the difference between sharp and soft sensations. Perform visual check for contra-indications, skin conditions, any identifying skin lesions (e.g. moles), carry out the patch test to ensure safety procedures are in place (patch test procedure should follow treatment protocol with emphasis on the importance of application of a minimum factor 30 sun block post-treatment).

Understand and explain the importance of test shots and how to recognise skin reactions, to include: determining the correct treatment parameters, per follicular oedema clients comfort levels and suitability for treatment, treatment objectives (i.e. pigmentation, vascular or anti-ageing issue). During skin treatments, be particularly aware of erythema in the treatment area.

Understand and explain different skin types, colours, tones and textures to include:

Skin types – caucasian (pallor, midtone, tanned), African descent (pallor, midtone, tanned), Asian descent (pallor, midtone, tanned), young skin, mature, dry, oily, combination.

Skin conditions – sensitive, milia, comedones, dehydrated, broken capillaries, pustules, papules, open pores, hypo/hyper-pigmentation, dermatosis, papulosa, nigra, pseudo folliculitis, keloid, ageing of skin, muscle tone, crows feet etc. Fitzpatrick photo scale, skin types 1, 2, and 3 only to be treated. Skin types 4, 5, and 6 only to be treated by medical professionals.

Provide clear recommendations to the client based on outcomes of skin analysis:

Based on the outcomes of skin analyses the therapist should be able to:

- identify the condition and skin classification of the client and ensure that the patch test determines the suitability for treatment
- design a treatment plan for the client, advising achievable outcomes of the treatment where clients have unrealistic expectations of hair colour and types that are unsuitable for treatment
- clearly explain to the client any recognised contra-indications that prevent treatment
- refer clients with contra-indications to their GP, prior to any treatment and without reference to a specific condition
- recommend alternative treatments which are suitable for the client, if contra-indicated for IPL/Laser treatments
- agree with the client a projected treatment plan to include: the number of treatments required, treatment intervals, treatment cost and percentage reduction goals to client satisfaction

Learning outcome 1: Be able to prepare for laser and light treatments (continued)

- ensure the client's wellbeing and satisfaction by giving ongoing support and reassurance where necessary
- explain to the client the importance of their commitment to the treatment and the importance of listening to aftercare and home care advice, to ensure maximum efficiency of treatment
- recommend treatment intervals.

For skin rejuvenation it is recommended to treat between 3–4 weekly intervals:

Vascular/veins/rosacea – it is very important to ascertain the severity of the condition, client lifestyle, hereditary factors and client suitability to treatment. It is possible to treat your client at 3-4 weekly intervals. Once you have achieved a satisfactory result for your client they may require maintenance treatments to uphold the result. This is particularly relevant with rosacea clients as they must identify the trigger in their lifestyles that causes the rosacea to reoccur. IPL will only help in the maintenance of rosacea as there is no permanent cure for this condition.

The same may apply for veins, which can also appear due to lifestyle and heredity factors. Clients must work closely with their therapist to achieve a realistic outcome for their condition (home care/aftercare advice must be followed in order to achieve the best possible results). 3-4 treatments may be required before you can see a result, depending on the severity of the problem. The more severe the problem, the longer the treatment cycle will be.

Pigmentation – normal pigmentation problems may be treated (i.e. sun damage, freckles, age spots), however the most important thing to remember when determining suitability for treatment is what not to treat. Under no circumstances should you treat a raised mole, melasma, chlosama, dermal pigmentation,

skin cancers or any pigmentation caused by hormonal issues. Saver hyper-pigmentation will occur and this is irreversible. If in any doubt do not treat, instead refer your client to their GP or dermatologist.

When treating normal pigmentation you may do so between 3-4 weekly intervals. The client must work closely with their therapist to achieve a realistic outcome for their condition – Home care and aftercare advice must be followed in order to achieve the best possible results, and continual use of sun block must be adhered to in order to keep pigmentation under control.

Photo-rejuvenation – can be used to treat a combination of vascular and pigmentation conditions, however, the primary function of photo rejuvenation is to reduce fine lines and wrinkles. The stimulation of fibroblasts, improves the tone and texture of the skin giving the skin an overall glow. Treatments should not be carried out less than three weeks apart to allow for skin recovery. It is recommended to carry out a course of 3-5 treatments for maximum results. Maintenance can be ongoing, depending on client preference and budget.

Approximate skin treatment times – as skin treatments vary hugely in size and severity, it is not possible to give accurate treatment times. Please always allow a minimum of 20 minutes per area.

Products, tools and equipment to suit client treatment needs, skin types and conditions:

Products – anti-bacterial wipes, hand sanitisers, cotton wool, tissues, spatulas, facial cleanser, soothing aftercare, SPF 30 (minimum), aprons, gloves, ultrasound-cooling gel, couch roll, towels, gowns.

Learning outcome 1: Be able to prepare for laser and light treatments (continued)

Tools and equipment – recommended protective eyewear, appropriate applicator/hand piece required for skin treatment, red marker to mark out treatment area (if required), white stickers to cover skin conditions (e.g. moles), camera for before and after pictures, consultation forms, aftercare forms, IPL/laser warning signs in controlled area, non-reflective surfaces in controlled area, trolley, couch, bin for general waste, appropriate warning signs attached to IPL/laser equipment. It may be necessary to use smaller protective eyewear for skin treatments, particularly in the case of photo rejuvenation as you will be working around the eye area.

Select personal protective equipment that should be worn by the client and therapist during laser and intense pulsed light treatments

– Intense Pulsed Light and Lasers emit light which has the potential to damage unprotected eyes, both the operator and client must wear the manufacturer's recommended eyewear before commencement of treatment, overall recommended grade 5 laser protection goggles. Type of eyewear (blackout), wavelength range (complete optical protection), IPL (Grade 5+), laser OD (Optical Density 4+).

Salon requirements for preparing the therapist, the client and work area:

Salon requirements – registration with the healthcare commission or other voluntary regulator may be required to provide IPL/laser treatments. Medicines and health care products regulatory agency document, guidelines on the safe use of lasers, intense light source systems and LEDs in medical, surgical, dental and aesthetic practices, local rules applicable to the laser controlled area, insurance is required.

Fitness of premises – the salon may be required to appoint a laser protection advisor, who will guide the salon on layout of the controlled area (i.e. room layout, window protection, safety measures, warning signs etc.). The salon may be required to appoint a fire protection advisor who will advise on safety, use of fire extinguishers (must be CO2 with black label), these should be placed near the controlled area.

Fitness of equipment – the salon must ensure that the selection of equipment meets treatment requirements and outcomes and may need to appoint a GP to write up treatment protocols for the correct use of equipment (these protocols need to be updated on a yearly basis). All equipment must be regularly maintained and serviced, correct methods used to sterilise equipment according to manufacturers' instructions (to keep equipment in proper working order and safe to use on clients), ensure that systems are in place to prevent accidental exposure to the client or therapist within the controlled area. There should be a quality system in place (all records should be accurate, stored properly and verifiable), the salon should have written policies in place (health and safety policy, fire protection policy, complaints policy, policy for creating, storing confidential information according to data protection legislation).

Fitness of persons – the salon is responsible for providing suitable staff to carry out services offered, all staff should have relevant training and qualifications in order to carry out the services provided and all staff should be insured to carry out services provided.

Learning outcome 1: Be able to prepare for laser and light treatments (continued)

Therapists responsibilities – to work in accordance with the salon/clinic policies and procedures, to carry out proper client care pre-/post-treatment, to ensure all paper work completed/signed by client and therapist at each treatment, to follow health, hygiene and safety procedures at all times, to respect and uphold client privacy and confidentiality according to the data protection legislation, to be honest in all dealings with clients, work colleagues, and be respectful of working environment.

Preparation of treatment area – the preparation of light/laser 'controlled area' must meet safety, legal, hygiene and treatment requirements in addition to normal health and safety standards. The area must meet the following criteria:

- the room should be dedicated to light treatments only
- only authorised personnel should have access
- there should be no more than one IPL/laser operating in a room at the same time
- identifying labels should feature on all equipment, (indicating their wavelengths and maximum output power radiation emitted)
- warning signs must be displayed on equipment and on/over the outside of doors to the controlled area. On or over these doors there must be a red light that is switched on when the IPL/laser is in use
- protective eyewear (PPE) must be worn by everyone in the controlled area (to the required standard of the manufacturers' of equipment selected).

Recommended eyewear for IPL – Grade 5+ for operator and client.

Recommended eyewear for laser – OD (Optical Density) superior to 4+ for operator and total block for client. Light speed shutters may be used providing they are of the standard required for equipment being used:

- windows must be covered by blinds/shutters during treatment
- if foot pedal is used for application of treatment this must be covered
- doors to the controlled area should be lockable or interlocked
- no flammable materials in the controlled area
- proper fire protection in place near the controlled area
- local rules should be displayed near the light source, read and signed by all operators: these are written rules and procedures that must be followed when working with light systems in the salon/clinic
- equipment procedures – how to turn on/off operate safely and maintain the equipment
- safety – what are the hazards? What checks must be made? Who is responsible? Know how to prevent use by unauthorised persons and adverse incident procedures
- controlled area procedures and access
- the PPE required.

Environmental conditions suitable for laser and light treatment for skin rejuvenation:

Lighting – must be sufficient enough to enable treatments to be carried out. Windows should have blinds/shutters in the controlled area.

Heating – the temperature in the work place should provide reasonable comfort at least 16oC, to maintain a comfortable temperature heating or cooling may be used. In extremely hot weather, fans or increased ventilation would be an option.

Learning outcome 1: Be able to prepare for laser and light treatments (continued)

Ventilation – ventilation must be effective with sufficient quantities of purified air particularly in an enclosed workspace, windows may provide sufficient ventilation but mechanical methods may be used when appropriate and should be regularly cleaned, tested and maintained. In the case of laser equipment, proper extraction methods must be used. When using IPL equipment ensure that the manufacturers recommended gap is observed at the rear of the machine. To allow air to circulate freely and protect the mains lead from excessive bending.

General comfort – the size of the work place must provide sufficient room to allow the employee to work in a safe and healthy manner. Work stations should allow ease of movement so that all tasks may be carried out safely and comfortably. The work place should be kept clean, waste materials should be kept in enclosed bins and disposed of according to health and safety protocols.

Different consultation techniques used to identify treatment objectives:

Building a client profile – expectations of treatment and treatment plan.

Consultation – should be a minimum of 20 minutes to include correct procedure and protocol i.e. medical history form, patch test consent form (to include test shots on the treatment area), pre-/post-care advice form, GP referral letter if necessary.

Test shots – determine the treatment parameters, client comfort level, adverse/normal skin reaction.

Photographs before and after – visual (record of treatment, record of condition of skin/skin conditions present).

Importance of carrying out a detailed skin analysis and relevant tests:

- to enable the therapist to identify the condition and skin classification of the client
- to assess the outcome of the patch test as necessary, to determine the suitability for treatment
- to assess the skin and client response to determine suitable reactions and avoid adverse reactions
- to adjust variables as necessary, whilst monitoring skin client response and discontinuing treatment where adverse reactions occur
- to explain the physical sensation created by the IPL/Laser equipment being used

Remember to apply a small number of shots to the treatment area or with similar skin type, record settings, wait for skin response, i.e. 72 hours (skin types 1, 2, and 3). Treat skin type 3 with caution. Under no circumstances should you treat skin types 4, 5, 6.

How to select laser and light treatment equipment to suit client skin types and conditions:

MHRA guidelines, lasers used for skin treatments (tattoo removal) are: Q switched ruby (green tattoos), Alexandrite (blue/black tattoos), and ND Yag (red tattoos).

When treating the skin the following has to be taken into account – only skin types 1, 2 and 3 (with caution) are suitable for treatment. Skin types above this tend to contain a high amount of skin melanin and therefore the risk of burning and pigmentation change is higher. It is important to carry out patch tests and wait a minimum of 72 hours before treating.

Learning outcome 1: Be able to prepare for laser and light treatments (continued)

Identify the range of equipment used for laser and light treatment for skin rejuvenation:

Intense Pulsed Light (IPL) systems, fractional non-ablative lasers. Ablative lasers are not recommended for beauty therapy and should be operated by medical professionals.

Examples of contra-indications that may prevent or restrict laser and light treatment for skin rejuvenation:

- epilepsy (flashing of light)
- hepatitis
- long term diabetes (the client skin more sensitive to IPL/laser treatment and could result in severe bruising)
- haemophilia (bleeding disorder)
- clients taking anti-coagulant medication (aspirin, waferan, phenediene, hapazin)
- clients sensitive to light within the range of 500 nm - 900 nm
- client with keloid scarring
- skin cancers
- pregnancy (this alters the hormones and therefore could affect hair growth/pigmentation) client could be treated 3-4 months after childbirth
- pigmentation problems (vitiligo, melasma moles, pigmented naevi moles)
- clients taking photosensitising medication (including drugs or medication that cause skin thinning effects)
- cardiovascular conditions (thrombosis, phlebitis, hyper-tension, hypo-tension, heart conditions)
- connective tissue disorders (scleroderma)
- tattoos, permanent and semi permanent make-up (micropigmentation)
- herbal supplements that cause photo sensitisation i.e. St. John's Wort, beta carotene
- sun burned, sun tanned skin at time of treatment, artificial tan/self tanning products; until the product has worn off (approx 7-10 days before treatment)
- pacemaker/defibrillators
- metal pins/plates
- fever
- contagious or infections diseases
- loss of skin sensitivity (test with tactile and thermal methods)
- cuts, bruises, burns, abrasions
- undiagnosed lumps and bumps
- allergies to products or materials used
- under the influence of drugs or alcohol.

Contra-indications requiring medical referral or the client to indemnify their condition in writing prior to treatment:

Medical oedema, osteoporosis, diabetes, asthma, arthritis, acute rheumatism, bells palsy, inflamed/trapped pinched nerve, any condition already being treated by GP/dermatologist.

Explain the required legislation for laser and light treatment and the importance of compliance with regulations:

It is important to comply with regulations that reduce the risk of injury to the practitioner and clients when using IPL/laser equipment. Contact the Care Quality Commission for more details. Local authority regulations may also apply.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation

Communicate and behave in a professional manner:

Positive body language, eye contact, good communication skills, open questions, enthusiastic, friendly, confident and knowledgeable, punctuality, client loyalty and confidentiality, respectful of colleagues, clients and work environment, adhere to salon etiquette regarding health and hygiene practices.

Follow health and safety working practices:

Health and safety at work to include safety precautions in the salon when dealing with the general public (i.e. safe working areas, maintenance and safe use of equipment), electricity at work to include the therapist's responsibilities to the client, care and maintenance of equipment, calibration and safety checks.

- ensure the light/laser controlled area is set up to meet legal and safety requirements
- ensure the equipment selected meets treatment requirements and outcomes
- check that the treatment settings are correct to carry out the treatment
- ensure systems are in place to prevent accidental damage to the client, therapist and any other people in the controlled areas
- check that the equipment is safe and working correctly
- follow manufacturers' and organisational instructions for the start up and shut down of equipment.

General safety protocols:

Equipment use – there should be no more than one IPL system or laser source operating in a room at the same time, the room should be dedicated to light treatments only, and only trained personnel authorised to use equipment should have access. When using equipment, you must ensure that:

- you do not operate the equipment if a safety problem is known to exist
- warning signs are displayed on equipment and are on the outside of doors to controlled areas
- protective eyewear is worn by everyone in the controlled area
- windows are covered by blinds or shutters
- surfaces are non-reflective
- doors are lockable or interlocked
- there are no flammable materials in the controlled area
- you do not attempt to operate the equipment if the applicator is not connected
- the applicator has a dedicated holder to avoid damage to the applicator
- the crystal of the applicator is cleaned regularly, the system isn't used if there are excessive amounts of gel on the surface
- the fluids used to clean the applicator are non-corrosive/non-alcohol products.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Fire precautions –

- only the recommended gels to be placed between the applicator and the target skin
- always use the equipment on the target skin area only
- never use the equipment on anything other than the target skin area
- do not use the equipment in presence of flammable anaesthetics
- do not use flammable chemicals to clean the equipment or its applicators
- use a covered foot pedal.

Operator related precautions –

- never treat bare skin
- always sanitise equipment, applicators before and after treatment
- maintain hygiene and safety throughout the skin photo rejuvenation treatments
- sanitise hands and use of disposable gloves pre-/during treatment
- applicator is in full contact with the treatment area and pressure is applied
- dispose of sharps/waste to meet legal and organisational requirements
- do not use the system if there is any obvious damage to the applicator or the main unit, disconnect the system and call for an engineer
- recommended eyewear – therapist and client must wear protective eyewear to ensure eyes are protected from exposure from IPL/laser light to avoid damage to eyes (health and safety requirement)
- disposable gloves, masks, spatulas (to maintain hygiene standards during treatment and prevent cross infection occurring)

- red/white pen (if required) to help mark out treatment area as these colours will reflect light and will not cause any surface reaction or burns. Using darker pen to mark out areas will always result in burning the skin and should never be used
- white sticker or cotton to cover any skin conditions present at time of treatment (i.e. moles) – white will always reflect the light away from the area.

Position client and therapist correctly throughout the treatment –

- ensure the positioning of the client and equipment permits effective access and minimises the risk to practitioner and discomfort to the client
- ensure position and posture whilst working to minimise fatigue and risk of injury to yourself and the client
- ensure the hand piece/applicator is used at the correct angle and pressure according to treatment protocols and client comfort
- stretch and manipulate the skin where necessary, according to treatment
- maintain client modesty and privacy throughout the treatment.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Use products, tools, equipment and techniques to suit clients treatment needs:

Products –

- products for carrying out skin treatment – pre-cooling gel
- products used on the skin during skin treatment – hand sanitisers, facial cleanser (if required), soothing aftercare, SPF factor 30 (minimum)
- products for equipment – anti-bacterial wipes (non-alcoholic) for cleaning of machine and applicators before and after treatment, de-ionised water (if using water cooling systems).

Tools and equipment –

- recommended protective eyewear, disposable gloves, aprons, masks, spatulas
- IPL/laser equipment, appropriate applicator for skin treatment, couch, trolley, magnifying lamp, woods lamp, bin for general waste, camera (before and after pictures) IPL/laser safety signs at exit points of controlled areas.

Treatment techniques – positioning (semi-reclining couch, work either side of treatment area), preparation of area (cleanse treatment area, remove surface oil debris and make-up).

Application of treatment – (important)

the following are suggested treatment recommended guidelines (please always refer to specific manufacturer's guidelines on use of equipment):

- pre-cooling gel prior to treatment
- no pressure, touching the skin lightly
- it is possible to use two passes during treatment depending on skin issues, always look at erythema before doing a second pass (on bony areas i.e. neck, décolleté, only one pass is recommended)
- do not direct light into any open orifices (i.e. eyes, nostrils, ears, mouth), plug with damp cotton as a precaution if necessary
- in case of braces/fillings, place damp with cotton wool over area (i.e. in the mouth) to reduce sensitivity when treating
- when treating around the eye area, never treat beyond the bone area, always keep the applicator/hand piece tilted away from the eye
- it is advisable to fire a safety shot in the direction of the ground from your applicator prior to treatment to ensure that all air bubbles are cleared from the applicator
- (important) it is advisable not to apply any pre-epilation cleanser or alcohol based products prior to treatment, as this will cause an adverse reaction and heighten the risk of burning to the skin. if you need to use cleanser for any area to remove surface oils, make-up or deodorant residue it is important to cleanse the area with damp cotton, directly before and after treatment.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Suggested treatment procedure (please refer to manufacturers guidance for specific machinery:

- (important) only to be carried out on skin types 1, 2 and 3 (with caution)
- applicator heads/wavelengths used – green/yellow filter 515 nm–950 nm (for vascular and pigmentation); yellow/orange filter 550 nm–950 nm (for collagen stimulation)
- patch test – it is advisable to do a patch test on all skin types, with only skin types 1,2 and 3 being treated, caution should be taken with skin type 3. As we are working using shorter wavelengths they are working at a more superficial level in the skin and can cause pigmentation damage.
- (important) all patch tests for skin treatments should be given 72 hours before commencing treatment to make sure that there is no change in pigmentation. If there is any lightening in colour, then this is an indication that permanent damage may occur if treatment is carried out again. Do not treat this client.

Procedure –

- a. greet client, ask them to slip off shoes and lie on a semi-reclining couch
- b. cover client's feet with couch roll and place a towel across client's chest
- c. complete client consultation and consent forms (doctor's note if required)
- d. excuse yourself and wash your hands
- e. choose appropriate application head required for treatment
- f. clean application head and goggles
- g. wipe hands with sanitiser
- h. apply disposable gloves
- i. prepare client skin for treatment
 - cleanse and tone (if wearing make-up for a facial area) wipe over with damp cotton wool
 - cleanse all other areas with damp cotton wool
 - blot with tissue
- j. set machine for skin treatments
- k. apply ultrasound gel with spatula (dispose of spatula)
- l. give client goggles and apply your own (you may apply white eye pads to eye area to give extra protection against the light)
- m. check settings and carry out one shot
- n. float the applicator head in the gel, and do not press into the skin, resting pressure only.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

It is important to explain to the client that the light will be very bright and the feeling during skin treatment will be much snappier and intense on the skin due to the fact that the light is only penetrating the surface levels of the skin.

- assess client reaction and decide whether energy levels need to be increased. If there is little sensation or erythema, it is possible to put the machine up 1 joule and re-test. This may be performed again to assess the client tolerance, (important: at no time should the client feel excessively uncomfortable)
- a mild erythema is acceptable, but be careful that you are working within your client's comfort levels. Remember that the heat may build up afterwards within the skin
- on completion of treatment clean the applicator head and place the applicator back in the holder, switch off machine
- remove the ultrasound gel and apply the aftercare lotion to soothe the areas just treated (aloe vera, witch hazel, antiseptic cream).

It is important to apply SPF to exposed areas (i.e. facial areas – apply factor 30).

- a. remove and dispose of gloves
- b. give aftercare advice, ask client to sign form and keep this with the records
- c. give client their part of the home care advice form
- d. if happy with patch test, book treatment for 72 hours
- e. fill in treatment record card.

It is important to avoid use of UV light or self tanning products during treatment. Always check any medical history change with client prior to each treatment to avoid possible contra-indications. Check that the client is following recommended aftercare and home care advice.

Adapt treatments to suit client needs and skin type:

- only skin types 1, 2 and 3 (with caution) is recommended for IPL skin treatments
- identify what client treatment needs are i.e. pigmentation, telangiectasia, rosacea, rejuvenation
- carry out relevant patch test procedure to note client tolerance levels when doing the treatments
- if results are not seen, the fluence/energy levels may have to be raised to get maximum results
- treatments are carried out at 3–4 weekly intervals
- the treatment is more superficial compared to hair reduction so sensation on the skin may be more uncomfortable for the client.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Complete the treatment to the satisfaction of the client:

- ensure the treatment is carried out within an acceptable time frame
- punctuality at all times, aim to carry out appointments to the specified time the client has booked
- check the client's wellbeing and give ongoing reassurance where necessary
- ensure your client wears protective eyewear at all times
- ensure all jewellery is removed from client and therapist before treatment
- continuously assess the skin and listen to client response to determine suitable reactions and avoid adverse reaction
- where necessary stretch or manipulate the skin according to treatment protocols
- ensure the applicator is used at the correct angle and pressure to suit client comfort, according to treatment protocols
- maintain health and hygiene when carrying out the treatment
- give an accurate follow up, home care/ aftercare advice at completion of treatment
- ensure the treated area is cooled and soothed, during and after treatment
- ensure client records are up-to-date, legible and complete
- protect client privacy by storing information safely and secure in accordance with the Data Protection Act.

Record and evaluate the results of the treatment:

- treatment can only begin following consultation, completion of record card, informed consent and a normal patch test response
- details of the treatment should be accurately recorded on the client record card, to include: date, time of treatment, area treated, skin type, energy settings noted, skin response immediately after treatment, therapist's signature, and client's signature
- any medical changes should be noted and signed
- information should be clearly and accurately written up, and updated at the end of each treatment and signed
- treatment should be monitored to determine percentage of reduction on pigmentation/vascular areas to determine future treatment interval timings i.e. if a good/significant reduction is seen then treatment intervals may need to be revised. this will result in overall client satisfaction for both treatment and economic outcome
- any changes to skin condition or poor results to be noted and recorded, so therapist can adapt treatment to get better results or discontinue treatment if necessary
- record and monitor any adverse reactions
- take before/after pictures – photo evidence of condition of skin and hair at time of treatment
- once you have achieved a satisfactory level of reduction for the particular skin treatment, the client may need maintenance to uphold the level of reduction i.e. rosacea will always need maintenance as the client's lifestyle can be a trigger.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Record and evaluate the results of the treatment:

As the treatment puts light energy into the skin, it is important to advise your client not to do anything that will add to the sensation of heat or irritate the area. You must stress to your client the importance of post-treatment care. Aftercare advice should be given either verbally (after each treatment is carried out) or written (an aftercare leaflet to be given to client to take away with them, signed by client and therapist).

- Cooling gel (cools the skin by evaporation) – water-based gels are applied to the skin pre-treatment, and if necessary post-treatment
- Cold air or cryogen spray – cold air is generated and directed onto the treatment area either by the laser operator (or occasionally the client is asked to direct the air if they feel discomfort both pre- and post-treatment). This method means that the cool air can be precisely directed to the required area. Cryogen cooling is built into some laser systems, timed to be delivered just prior to a laser pulse
- Simultaneous contact cooling – this system is available on lasers which operate through a scanner to speed up treatment time by allowing a series of laser pulses to be emitted in quick succession and in a controlled area of approximately 3 x 3 cm². The laser beam is emitted through a sapphire (glass) window, providing a vehicle for cooled water which facilitates easy pre- and post-treatment cooling, as well as simultaneous cooling with the lasing
- Ice packs – cooling with ice packs is an economical method, and can be applied to the treatment area pre- and post-treatment. They cannot, however, be used simultaneously with the lasing. Great care should be taken not to apply ice packs directly to the skin as this could cause an ‘ice burn’. Packs should be wrapped in a disposable thin covering such as a couch roll.

Aftercare advice post IPL/laser treatment:

You should advise the client to:

- cool the area with soothing gels, damp cotton pads or aloe vera if the hot sensation or feeling of warmth remains after treatment
- avoid sun exposure in the treatment area and to always wear a high factor sun protection cream (SPF 30 minimum) after and between treatments
- stop using sun beds and self tanning products in the treatment area (fake tan can be applied 48 hours after treatment. However, before the next treatment is carried out self tan should not be applied a minimum of 10 days prior to treatment)
- keep the area free from deodorants, make up, aromatherapy oils or perfumed products for 24 hours
- avoid hot baths, showers or heat treatments (sauna, steam rooms, heavily chlorinated swimming pools and hot tubs) for 24 hours
- avoid vigorous exercise for 12–24 hours
- not put ice directly onto the skin surface or a freezer burn may occur
- wear loose clothing to avoid friction on treated areas (such as neck, décolleté)
- contact the clinic or salon if they experience excessive blistering, crusting or swelling in the treatment area.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Explain how to work on different treatment areas:

The treatments are more surface than in hair reduction treatments, therefore there is a higher risk of burning the skin. As we are working on the surface layers, the sensation for the client tends to be very uncomfortable and the fluence levels need to be applied within client comfort and tolerance levels.

- a. the applicators are applied using a different technique when performing skin treatments
- b. the applicator is glided over the skin, there is no pressure applied
- c. the yellow–green applicator is used for the reduction of pigmentation, telangiectasias, and rosacea
- d. the wavelength applied is 525 nm and goes 1 mm into the skin targeting the surface damage (i.e. pigmentation, veins, vascular problems)
- e. the yellow–orange applicator is used for the rejuvenation of skin tissue, the wavelength applied is 550 nm and it penetrates 2mm into the skin targeting the fibroblasts, collagen and elastin.

General guidelines when performing IPL skin treatments:

- one or two passes per session (depending on the skin damage)
- when treating vascular issues the treatment should be kept at room temperature/ cold gel applied afterwards to cool area if necessary
- when treating pigmentation issues the treatment gel may be kept chilled/cold gel applied after treatment if necessary
- hover/glide as the neck and chest use a weaker fluence and perform one pass only
- in the proximity of bones (forehead, shoulder blades etc.) reduce the fluence as bone structure reflects back the energy and light
- start at lowest useful energy levels and work up according to client comfort levels
- always keep applicator tilted away from the eye area
- do not treat eyes beyond the bone area
- check the temperature of the applicator head, cool with damp cotton when hot
- treatment gel should be applied slightly thicker than for hair removal treatment (approx 1-2mm)
- post-treatment – apply cooling gels, cold water spray, cold masks (if required) factor 30 minimum sun block
- never apply ice packs after skin treatment as this will cause surface burns.

NB. The guideline for treatment will vary according to manufacturers' guidelines.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Consequences of inaccurate identification of client skin type/colouring according to the Fitzpatrick scale:

Inaccurate identification of correct skin type will result with the client being treated with the wrong treatment settings. The consequences of which are: burns, blistering, hyper-pigmentation, hypo-pigmentation, scarring, ineffective treatment, physiological damage.

Contra-actions that may occur during and following treatments:

Understanding of principles and practice of skin treatments i.e. target for treatment, melanin/haemoglobin in the skin. Greater care and caution is required when using IPL for skin treatments.

Understand the skin types that are ideally suited to these treatments i.e. only skin types 1, 2 and 3 with caution as there is less melanin in these skin types making the skin less susceptible to skin damage.

Possible adverse reactions to treatments

– excessive redness of the skin (erythema), excessive localised swelling (perifollicular oedema), excessive urticarial reactions (i.e. cold sores/herpes), blistering (which may be only temporary but indicates treatment settings are not appropriate), long term complications such as hyper-pigmentation or hypo-pigmentation (tanned skin being at greater risk of pigment changes), scarring (which is rare but clients must be warned of the risks).

Advice to prevent post-treatment damage:

- apply an aloe vera or tea tree soothing cream for 48 hours after treatment
- avoid sun exposure or sun beds for the duration of IPL/laser treatments

- apply an SPF30 (minimum) after and between treatments (exposed areas only)
- avoid the use of tanning products for a minimum of 48 hours after treatment
- keep the area free from deodorants, make-up, aromatherapy oils or perfumed products for 24 hours
- avoid hot baths, showers or heat treatments (saunas, steam rooms, swimming pools and hot tubs) for 24 hours
- do not put ice directly onto the skin surface or a freezer burn may occur
- loose clothing is recommended to avoid friction on treated areas i.e. neck/décolleté
- contact clinic/salon if any adverse reaction occurs after treatment.

Suitable methods of dealing with reappearance of skin condition between treatments:

Pigmentation – if pigmentation occurs between skin treatments (i.e. the reappearance or appearance of pigmentation), the operator has to identify the underlying cause. Ask open questions about the client's current medical history (are there any changes? Is the client having any hormonal issues (i.e. menopause)? Is there any medication being taken?).

Possible causes of reappearance of pigmentation – post/home care advice not being adhered to (i.e. not adhering to use of sun block, non-exposure to UV/sun light, medication prescribed causing a photosensitive reaction, use of St John's Wart) will cause pigmentation changes. Beta carotene will cause pigmentation changes – stop treatment until out of client's system for approximately 4-6 weeks. For normal hormonal changes (i.e. menopause) stop treatment and refer to GP or dermatologist.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Possible causes of reappearance of vascular/telangiectasia – hereditary, possible ongoing problem, veins around nose are the most difficult to treat and may reoccur, therefore client needs to be aware of ongoing maintenance to uphold result. Lifestyle, diet and skin care, all affect telangectasia reappearing on the skin. Give advice to clients regarding this to prolong the effects of the IPL treatments. Auto-immune deficiencies (stress) – depletion in these areas can trigger hypo-/hyper-pigmentation, stop treatments, refer to GP/Dermatologist for further investigation.

Effects and benefits of laser or intense pulsed light on the skin and underlying tissues:

The effects and benefits of Intense Pulsed Light on the skin and underlying tissues offer the following four benefits:

- stimulates collagen production
- improves the quality and texture of the skin
- minimises surface damage (improving the look and tone of the skin, thread vein and capillary reduction)
- reduces rosacea (keeps the condition under control, this is triggered by internal factors), Intense Pulsed Light will reduce the outbreaks, however diet and home care are needed to enhance the effect.

How does IPL treatment work:

Use of wavelengths from 515nm - 550nm for this type of treatment. When using IPL for skin treatments absorption by certain chromophores will allow skin to regenerate. The energy levels administered in photo rejuvenation treatment with IPL will allow sufficient energy to be absorbed into the dermis to increase blood flow.

There are different theories for the stimulation of collagen:

- it is believed that the light causes slight trauma to the dermis and epidermis which stimulates the fibroblasts
- stimulation of blood flow brings fresh oxygen and nutrients to the area whilst removing waste
- cells absorb more water therefore hydrate the tissues – NMF (Natural Moisture Factor) depletes as we age
- cross fibres regenerate targeting the collagen and elastin.

Photo-rejuvenation:

IPL photo rejuvenation is the process of removing sun damage, stimulating new cell growth and increasing collagen production. It gives the skin a “blank canvas”, a more even tone and appearance.

Three distinctive issues as we age – vein/vascular issues, pigmentation issues (slowing down the production of melanin results in production of irregular melanocytes), fine lines wrinkles (cross linkages of collagen and elastin become more brittle and weak, resulting in loss of tone and texture in the skin).

Veins and vascular treatment:

Green/yellow applicator at 515 nm, penetrates 1 mm into the skin, surface penetration. In the case of skin treatments the light targets a certain chromophore (i.e. haemoglobin), without damaging the surrounding skin structures. The light creates a heat which is strongly absorbed into the targeted blood vessels, causing them to coagulate and break down, white blood corpuscles rush to the area and carry the particles away through the lymphatic system. The thicker the blood vessel the more treatments are required.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Pigmentation:

Age spots/freckles will give patches of pigmentation that are darker to the ambient skin colour due to an inconsistency in melanocytes. These patches of pigment can be treated without affecting the ambient skin colour. The light is absorbed into these patches and the melanocytes are caused to shatter. They dissipate and break-up over a period of time. A sun block is recommended to be used at all times, avoidance of further sun/UV light exposure, otherwise pigmentation will reoccur.

Treatment intervals:

Rejuvenation – 3-5 sessions at 3 weekly intervals. 3 weeks is considered the optimal to get collagen at peak levels, results are accumulative. Maintenance is required to keep skin at optimal levels, lifestyle and diet are also important to maintain results.

Veins/rosacea – treat at 3-4 weekly intervals between 3-4 sessions, more if vascular damage is more intense.

Pigmentation – 3-4 treatments at 4 weekly intervals (must avoid UV exposure, constant use of sun block minimum of factor 30 to avoid reappearance).

(Important) – clinical trials have proven that the treatment will reduce the skin age by 2 years, hence 5 sessions can give a visual reduction of up to 10 years off the skin's texture and tone. It is a non-invasive therapy without the down time or the risk of surgery.

Explain different skin and hair types, conditions, diseases and disorders:

Skin conditions – sensitive, milia, comedones, dehydrated, broken capillaries, pustules, papules, open pores, hyper-pigmentation, keloid, in-growing hairs, dermatosis papulosa nigra and pseudo folliculitis.

Skin diseases and disorders – infestations (scabies, lice), congenital (eczema, psoriasis, dermatitis), bacterial (acne vulgaris, impetigo, acne rosacea, boils, folliculitis), viral (warts, herpes simplex, herpes zoster), fungal (tinea/ringworm), pigment disorders (vitiligo, albinism, chloasma, epilates, lentigo, moles/papilloma, port wine stain/Nevus Flammeus, leucoderma), general disorders (UV damage, urticaria, allergic reaction), skin cancers (basal cell carcinoma, squamous cell carcinoma, malignant melanoma).

Skin:

Skin types and recognition factors – Dry, oily, sensitive, dehydrated, mature.

Normal skin – smooth texture, thick epidermis, refined skin, tight pores, even moisture supply.

Dry skin – flaky rough texture, thin epidermis, sensitivity, dull complexion, fine lines, tight skin.

Oily skin – course texture, open pores, thick epidermis, shiny appearance, sallow colouring, blemishes may be present.

Combination skin – coarse textured, open pores, shiny appearance, tendency to blemish.

Sensitive skin – fine texture, thin epidermis, red appearance, reacts to heat and abrasion, possible capillary damage (split capillaries).

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Mature skin – loose soft skin, network of superficial lines, lack of supporting adipose tissue, poor muscle tone (neck and eye areas), loss of elasticity.

Blemished skin – glandular imbalance, allergies, bacterial infection (proceed with caution).

Skin-epidermis – structure, stratum germinativum, stratum spinosum, stratum granulosum, stratum lucidum, stratum corneum, process of keratinisation.

Skin-dermis – structure, blood/lymph supply, papillary layer, reticular layer, collagen, elastin, macrophages, adipocytes, mast cells, fibroblasts, hair, dermal papilla, sebaceous glands and sebum, arrector pili muscle, sweat glands (eccrine and apocrine), sensory nerve endings.

Skin-hypodermis – structure (subcutaneous layer), adipose tissue, adipocytes.

Skin functions:

Secretion, heat regulation, absorption, protection, elimination, sensation, vitamin D formation, melanin production, acid mantle formation.

Hair:

Hair structure – arrector pili muscle, hair follicle, inner root sheath (Henle's layer, Huxley's layer, cuticle layer), outer root sheath, vitreous membrane, connective tissue sheath, root (bulb/matrix, dermal papilla), sebaceous gland, shaft (medulla, cortex, cuticle).

Hair growth cycle – anagen, catagen, telogen.

Hair functions – insulation and protection.

Diseases and disorders of the hair:

Signs and causes of asteatosis, canities, discoid lupus erythematosus (DLE), fragilitis crinium, hypertrichosis, keloids, monilethrix, ringed hair, trichoptilosis, trichorrehexis nodosa. Scalp (pityriasis capitis simplex, pityriasis capitis, steatoids, seborrhea oleosa), fungal (tinea favosa, tinea capitis, tinea sycosis), parasite (scabies, pediculosis capitis), bacterial (furuncle, carbuncle, stye), alopecia (androgenetic, adnata, areata, follicularis, premature, senilis, totalis, universalis, traction/traumatic, postpartum, telogen effluven).

Growth patterns and causes of hair growth:

Factors which effect hair growth – congenital, topical, drugs/medication, systemic, stress, anorexia, polycystic ovaries, hirsutism.

Previous hair removal methods and their effects on hair growth to include: shaving, plucking, waxing, depilatory creams, electrolysis (short-wave and blend).

Endocrine system:

Structure and function of the endocrine system – responsible for the secretion of hormones, pituitary gland, pineal gland, gonads (the sex glands), adrenal glands, thyroid gland, para-thyroid glands, pancreas gland, thymus gland.

Other glands – Sweat or sudodiferous glands, ceruminous or wax producing glands, pancreas.

Hormones secreted by the anterior pituitary – somatotrophin (growth hormone), thyroid stimulating hormone (TSH), adreno-cortico tropic hormone (ACTH), gonado tropic hormone (GTH), follicle stimulating hormone (FSH), (LH) luteinising hormone, prolactin.

Hormones secreted by the posterior lobe – vasopressin (anti-diuretic hormone ADH), oxytocin.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Hormones secreted by the thyroid gland – thyroxine and triiodothyronine, calcitonin.

Hormones secreted by the parathyroid glands – parathormone.

Hormones secreted by the pancreas – insulin, glucagons.

Hormones produced by the adrenal medulla – adrenalin, noradrenalin.

Hormones produced by the adrenal cortex – andrenocortical, adrenocorticotrophic (steroid hormones), mineral corticoids, glucocorticoids, gonadotrophic.

The gonads (sex glands) – ovaries (oestrogen, progesterone), testes (testosterone).

Circulatory system:

Heart structure – heart wall (endocardium, myocardium, pericardium), aorta, atria, bicuspid (mitral) valve, chordae tendineae, inferior and superior vena cava, papillary muscles, pulmonary artery, pulmonary vein, semilunar valves (aortic and pulmonary), septum, tricuspid valve, ventricles. Functions of cardiovascular system: transport, defence, clotting, regulation and homeostasis.

Blood vessels – Structure and function: arteries, arterioles, veins, venules, capillaries.

Circuits – Structure and function: pulmonary circulation, portal circulation, coronary circulation, systemic circulation.

Major arteries of the head and neck – carotid, facial, occipital, temporal.

Major veins of the head and neck – jugular, occipital, temporal, maxillary, facial.

Major arteries of the body – aorta, descending aorta, subclavian, carotid, pulmonary, hepatic, splenic, renal, mesenteric, iliac, vertebral, axillary, brachial, ulnar, radial, palmar arch, femoral, popliteal, anterior tibial, plantar arch.

Major veins of the body – vena cava (inferior and superior), pulmonary, hepatic, splenic, renal, iliac, axillary, brachial, basilic, cephalic, subclavian, saphenous (long and short), venous arch, femoral, popliteal, posterior tibial, anterior tibial.

Composition of blood – plasma, leucocytes (granulocytes and agranulocytes), erythrocytes, thrombocytes.

Principles of skin healing:

- wound healing is a complex and dynamic process of restoration of skin cell structures and tissue layers
- wound healing – bleeding generally follows a tissue injury via an incision. The cascade of vasoconstriction and coagulation begins with clotted blood immediately impregnating the wound, leading to hemostasis, and after dehydration a scab forms
- an influx of inflammatory cells follow, with the release of cellular substances and mediators. Angiogenesis (growth of blood vessels) and re-epithelisation occurs and the deposition of new cellular and extra cellular components ensues.

Learning outcome 2: Be able to provide laser and light treatment for skin rejuvenation (continued)

Phases of skin healing:

- inflammatory phase – occurs immediately following the injury and lasts approximately 6 days
- fibroblastic phase – occurs at the termination of the inflammatory phase and can last up to 4 weeks
- scar maturation phase – begins at the fourth week and can last for years.

Factors which interfere with wound healing:

Trauma (initial or repetitive), scalds and burns (both physical and chemical), animal bites or insect stings, pressure, vascular compromise, arterial, venous or mixed, immunodeficiency, malignancy, connective tissue disorders, nutritional deficiencies, psychosocial disorders, adverse effects of medications.

Theories underpinning IPL and laser technology:

- light tissue interaction and its effects on skin and eyes to include reflection, transmission, scattering, absorption
- elective photothermolysis, thermal relaxation time, haemoglobin, oxyhaemoglobin
- light according to the electromagnetic radiation (EMR) to include the spectrum of electromagnetic radiation, the types of light used by lasers and intense pulsed light, the wavelengths and depth of penetration, photons, joules. Pulse repetition rate. Pulse duration, fluence, the size of the treatment beam (spot size).

How natural ageing, lifestyle and environmental factors affect the condition of the skin and underlying structures:

Natural ageing – chronological ageing and wrinkles, effects of the sun and wrinkles, sunlight affect on the epidermis and dermis, explain what and how to recognise basal cell carcinoma and what are the risk factors. Free radicals and their effects on the skin, hormone effects, muscle tone and gravity as we age.

Lifestyle and ageing skin – sun exposure, smoking, lack of exercise, exposure to cold water, alcohol, lack of sleep, stress, preventative measures (i.e. sun screens avoidance of sun exposure, diet, moderate/no alcohol, avoid smoking, good skin care).

Notes

Use this area for notes and diagrams



Notes

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