



Laser and light treatments for hair removal

VRQ

Learner name:

UV40413

Learner number:

D/601/5652



Laser and light treatments for hair removal

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This unit is about reducing hair growth using intense light and laser systems. You will need to have knowledge of safe working practice and controlling hazards in the salon. You will be able to identify hair and skin conditions and those clients suitable for laser and light system treatments.

To carry out this unit you will need to maintain effective health, safety and hygiene procedures throughout your work.

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 laser and light treatments
2. Be able to provide laser and light treatments

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

The following maximum service times apply to this unit:

Hair reduction approximate treatment times:

Lip	10 minutes
Chin	10 minutes
Cheeks	15 minutes
Underarm	20 minutes
Bikini	30 minutes
Half leg	45 minutes
Full leg	75 minutes
Consultation	20 minutes

The above times may vary depending on equipment used.

Learning outcome 1

Be able to prepare for laser and light treatments

You can:

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

*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 treatments

You can:

- a. Communicate and behave in a professional manner
- b. Follow health and safety working practices
- c. Position yourself and the client correctly throughout the treatment
- d. Use products, tools, equipment and techniques to suit client treatment needs
- e. Adapt treatment to suit client needs and skin and hair 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 all the types of equipment	Portfolio reference
Laser	
Intense light	

Considered all the 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:

Accounted for all factors in laser controlled areas	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	

Covered all types of hair colour	Portfolio reference
Dark pigment	
Medium pigment	

Covered all types of hair density	Portfolio reference
Coarse	
Fine	

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:

Treated all areas	Portfolio reference
Underarms	
Chin	
Upper lip	
Bikini line	
Back	
Legs	
Chest or breast	
Abdomen	

Provided all types of advice	Portfolio reference
Avoidance of activities which may cause contra-actions	
Future treatment needs	
Home care	
Modification to lifestyle patterns	
Hair management	

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 laser and light treatments

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 treatment for hair removal	
i. Explain the different consultation techniques used to identify treatment objectives	
j. Explain the importance of carrying out a detailed skin and hair analysis and relevant tests	
k. Explain how to select laser and light treatment equipment to suit client skin and hair types and conditions	
l. Identify the range of equipment used for laser and light treatment for hair removal	
m. Explain the contra-indications that prevent or restrict laser and light treatment for hair removal	
n. Explain the required legislation for laser and light treatment 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 treatments

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 the principles of electrical currents and basic electricity	
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 and hair 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 a skin condition between treatments	
t. Explain different skin and hair types, conditions, diseases and disorders	

*Assessor initials to be inserted if orally questioned.

Learning outcome 2 (continued)

Be able to provide laser and light treatments

You can:	Portfolio reference/ Assessor initials*
u. Explain the structure and functions of the skin	
v. Explain the principles of skin healing	
w. Explain the structure and function of the endocrine system and its effect on hair growth	
x. Explain growth patterns and causes of hair growth	
y. 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, wear recommended eyewear and disposable gloves.

Prepare the client:

Consultation procedure should take a minimum of 20 minutes and include: an informed consent form (signed by the 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), 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, thought for client's wellbeing and ongoing reassurance), ensure position and posture minimises fatigue and the 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 (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 contra-indications recognised as preventing 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), and ensure the positioning of the client and equipment permits effective access and minimises risk to the practitioner and discomfort to the client.

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

Ensure security of light/laser controlled areas:

Non-reflective surfaces, protective eyewear (according to manufacturer's instructions), enclosed area, suitable entry and exit points, adequate fire precautions and suitable services (e.g. provision for hand sanitation), waste management (e.g. sharps bin), extraction (if required), hazardous warning signs displayed on the equipment and entry/exit points or area. There should be a maximum of one IPL/laser system in operation in the controlled area at any one time, all windows should be covered with blinds/shutters (blackout curtains if necessary), no flammable materials should be stored in the controlled area.

Local rules should be displayed in the controlled area. These are written rules and procedures that must be followed when working with light systems, detailing:

How to turn on/off, how to operate and maintain the equipment safely, what the hazards are, checks, who is responsible, how to prevent use by unauthorised persons and adverse incident procedures, controlled area procedures and access, personal protective equipment required.

Consultation techniques to identify treatment objectives:

Communication – private comfortable area to carry out consultation, position client so no barriers between therapist and the client, positive body language, enthusiasm, professionalism, confidentiality, eye contact, open questions, listening.

Develop client profile – client lifestyle, commitment to treatment, history of hair removal methods used by client, client's requirements and expectations of treatment. Impart to the client a brief explanation of treatment to include how the treatments works (ensure client understands results are achieved according to individual's hair growth, for

realistic goals) and 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)).

Skin and hair 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 (making accurate recommendations for treatment, skin typing, Fitzpatrick's photo scale, relevant questions regarding history of skin tanning) and the client has signed an informed consent form. Carry out patch tests according to skin types, understand and explain the reasons and procedure for patch testing (to include the procedure for the test), sensation, to record settings, skin response (i.e. depending on skin type, 24 hours for skin type (1,2,3) and 6 weeks for skin types (4,5,6), recognise adverse reactions.

The patch test should preferably be carried out in the area to be treated, as this will give the truest indication of the reactions; if this is not possible a discrete area with similar hair and skin type 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 (a bikini line may react differently to the face, due to the difference in hair density, skin type and amount of UV exposure).

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

Carry out patch tests for tactile and thermal safety tests – Client's skin sensation too hot/cold, sharp/soft (understand and explain reasons and procedure for each). Thermal test to ascertain whether the client feels the burning sensation of heat. Tactile test is used to ascertain if the client can tell the difference between sharp and soft sensation. Visual check for contra-indications, skin conditions, any identifying skin lesions, moles.

NB. Patch test procedure should follow treatment protocol with emphasis on the importance of applying a minimum factor 30 sun block post-treatment. Know the importance of test shots and how to recognise skin reactions, determining the correct treatment parameters.

Recommendations to the client based on outcomes of skin and hair analysis:

Based on the outcomes of skin and hair analyses, the therapist can accurately identify the condition and skin classification of the client, determine the suitability for treatment from the outcome of the patch, design a treatment plan for the client (tactfully advising the achievable outcome of the treatment where clients have unrealistic expectations of hair colour and types unsuitable for treatment), clearly and tactfully explain to the client recognised contra-indications that prevent treatment, refer client with contra-indications (suspected of requiring medical treatment to their GP, prior to any treatment and without reference to a specific condition), recommend alternative treatments suitable for the client's condition and needs (if contra-indicated for IPL/laser treatments), explain in a clear manner to the agreement of the client the projected treatment plan (to include: number of treatments required, treatment intervals, treatment cost and percentage reduction

goals), ensure client wellbeing by giving ongoing support, give reassurance where necessary, explain the importance of client commitment to the treatment, and the importance of aftercare/home care advice (to ensure maximum efficiency of treatment).

Recommended treatment intervals:

Hair growth patterns differ on all areas of the body and so will determine treatment interval times for the success of the hair reduction. Hair on the face is the most difficult to treat.

Face – growth patterns are at quicker intervals (i.e. anywhere between 2-4 weeks, there is a much higher percentage of hair follicles present at any one time). Hair colour may vary on the face depending on skin type (i.e. from blonde, grey, red, light brown, dark brown and black). Lighter hair is much more difficult to treat.

Body – hair growth on the body tends to lean towards a 6-8 week cycle and should be treated accordingly. The only exception to this rule is the leg area where the growth cycle tends to be a lot slower.

After the initial two treatments on the legs of 6 weeks apart it is advisable to push your client to a treatment plan of between 9-12 weeks to achieve optimal satisfactory results for hair reduction.

NB. It is important to advise your client that at any one stage of treatment there is approximately between 10-70% of hair in the anagen phase at any given time. This is why you should advise your client to give up to 1 year and between 6-8 treatments to achieve the level of reduction required. The therapist has a responsibility to achieve maximum hair reduction result for her client by constantly monitoring ongoing reduction and adjusting her treatment times as required.

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

Suggested treatment plan for hair reduction

– lip/chin/face (2-4 weeks), underarm/bikini (6-8 weeks), back/chest/arms (6-8 weeks), legs (initial two treatments, 6 weeks apart, extending from 9-12 weeks for subsequent treatments).

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

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

Tools and equipment – recommended protective eyewear, IPL/laser equipment of hair reduction treatment, appropriate applicator/hand piece required for treatment, red marker to mark out treatment area (if required), white stickers to cover skin conditions (i.e. 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, sharps bin (for disposal of razors) and bin for general waste, appropriate warning signs attached to IPL/laser equipment.

Personal protective equipment that should be worn by client and therapist during laser and light treatment for hair removal:

Intense Pulsed Light and Laser emits 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 +).

Insurance:

Appropriate level of cover for treatment risk/medical malpractice/professional indemnity is strongly recommended.

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

Salon requirements – registration with a voluntary regulator may be required.

Fitness of premises – salon will need to appoint a laser protection advisor (who will guide the salon/clinic on layout of the controlled area i.e. room layout, window protection, safety measures, warning signs etc.), appoint a fire protection advisor (safety, use of fire extinguishers, must be CO2 (black label) extinguishers, must be inspected and certified by the fire office on an annual basis, placed near the controlled area).

Fitness of equipment – salon/clinic must ensure that the selection of equipment meets treatment requirements and outcomes. The salon will need to appoint a GP to write up treatment protocols for correct use of equipment and these protocols need to be updated on a yearly basis. All equipment must be regularly maintained and serviced, and correct methods must be used to sterilise equipment (according to manufacturer's instructions) to keep equipment in proper working order and safe to use on clients. The salon must 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 (i.e. all paperwork should be correct), the salon/clinic should have written policies in place (i.e. health and safety policy, fire protection policy, complaints policy, policy for creating and storing confidential information according to data protection legislation).

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

Fitness of persons – the salon/clinic is responsible for providing suitable staff to carry out services offered. It is the salon's/clinic's responsibility to ensure that all staff have relevant training and qualifications in order to carry out the services provided and that all staff are insured to carry out services provided.

Therapist's responsibilities – work in accordance with the salon/clinic policies and procedures, carry out proper client care pre-/post-treatment, ensure all paper work completed/signed by client and therapist at each treatment, follow health, hygiene and safety procedures at all times, respect and uphold client's privacy, confidentiality according to the data protection act, be honest in all dealings with clients, work colleagues, and 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, all equipment should have identifying labels on them (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 must be worn by everyone in the controlled area. These must be to the required standard of the manufacturer's 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 (local rules are the 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 (the hazards, checks, who is responsible, how to prevent use by unauthorised persons and adverse incident procedures), controlled area procedures and access, the personal protective equipment required.

Environmental conditions suitable for laser and light treatment for hair removal:

Lighting – must be suitable and sufficient 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 regularly cleaned tested and maintained. In the case of laser equipment being used, proper extraction must be. When using IPL equipment ensure that the manufacturers recommended gap is observed at the rear of machine. This allows air to circulate freely and protects the mains lead from excessive bending.

General comfort – the size of the workplace must provide sufficient room to allow employees to work in a safe and healthy manner. Workstations should allow ease of movement so that all tasks may be carried out safely and comfortably. The workplace should be kept clean and 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- and post-care advice form, doctors note 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).

Carrying out a detailed skin and hair analysis and relevant tests:

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

Patch test procedure – apply a small number of shots to the treatment area or area with similar hair and skin type, record settings, wait for skin response (i.e. 24 hours for skin types 1, 2, and 3, and 4 weeks for skin types 4, 5, and 6), recognise normal/adverse reactions.

Range of equipment used for laser and light treatment for hair removal:

Laser (i.e. laser diode, alexandrite, ruby), broadband spectrum systems (i.e. Intense Pulsed Light and Light Heat Energy).

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

Contra-indications that prevent or restrict laser and light treatment for hair removal:

Epilepsy (flashing of light could bring on a fit), hepatitis, long term diabetes (client skin more sensitive to IPL/laser treatment and could result in severe bruising), haemophilia (bleeding disorder), clients taking anti-coagulant medication (aspirin, warfarin, phenediene, hapazin), clients sensitive to light within the range of 500nm–900nm, clients 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, molasma 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, herbal supplements that cause photo sensitisation (i.e. St John's Wort), beta carotene, sunburn, suntanned skin at time of treatment, artificial tan until the product has worn off (approx' 7-10 days before treatment), pace maker/defibrillators, metal pins/plates, fever, contagious or infectious diseases, herpes/skin diseases, loss of skin sensitivity (test with tactile and thermal methods), cuts/bruises/abrasions, undiagnosed lumps and bumps, allergies to products or materials used, under the influence of drugs or alcohol, gold injections, fillers, botox.

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.

Learning outcome 2: Be able to provide laser and light treatments

Communicate and behave in a professional manner:

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

Health and safety:

Ensure that the light/laser controlled area is set up to meet legal and safety requirements; ensure that the equipment selected meets treatment requirements and outcomes; check that the treatment settings are correct to carry out the treatment and ensure systems are in place to prevent accidental damage to client, therapist and other people in the controlled areas; check that the equipment is safe and working correctly; follow manufacturer's 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; do not operate the equipment if a safety problem is known to exist; warning signs must be displayed on equipment and on the outside of doors to controlled areas; protective eyewear is to be worn by everyone in the controlled area; windows must be covered by blinds or shutters; surfaces should be non-reflective; doors should be lockable or interlocked; no flammable materials are allowed in the controlled area; 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; always ensure the crystal of

the applicator is cleaned regularly, the system should not be used if there are excessive amounts of gel on the surface; the fluids used to clean the applicator should be non-corrosive/non-alcohol products.

Fire precautions – only the recommended gels are 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 ensure eye protective goggles are worn by the client and therapist when carrying out a treatment; always sanitise equipment and applicators before and after treatment; maintain hygiene and safety throughout hair removal treatments; sanitise hands and use disposable gloves pre-/during treatment; ensure the 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, instead disconnect the system and call for an engineer; wear recommended eyewear (therapist and client must wear protective eyewear to ensure eyes are protected from exposure to IPL/laser light to avoid damage to eyes (health and safety requirement)); wear disposable gloves, masks, use spatulas (to maintain hygiene standards during treatment and prevent cross infection occurring).

Learning outcome 2: Be able to provide laser and light treatments (continued)

Use the red/white pen (if required) to help mark out the treatment area as these colours will reflect light and will not cause any surface reaction or burns – using a darker pen to mark out areas will always result in burning the skin and should never be used. Use a white sticker or cotton to cover any skin conditions present at the time of treatment (e.g. 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 the practitioner and discomfort to the client; ensure your position and posture whilst working minimises 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 (stretching and manipulating the skin where necessary – according to treatment); maintain client modesty and privacy throughout the treatment.

Products, tools, equipment and techniques to suit client treatment needs:

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

Tools – recommended protective eye wear, disposable gloves, underwear, aprons, masks, spatulas.

Equipment – ensure the selection of appropriate IPL/laser equipment meets the treatment requirements and outcomes, ensure the equipment settings, specifications and variables are correct to carry out the treatment, ensure that the correct applicator is chosen for the hair reduction treatment. Use a magnifying lamp (for accessing the area to be treated, and ensuring all surface hair has been removed), sharps bin (for disposal of used razors after treatment – the disposal of sharps and waste to meet legal and organisational requirements), couch/trolley for positioning client and storage of tools/products for use in treatment, camera (before and after pictures – to provide a record of growth prior to treatment and to allow the therapist and client to monitor the treatment progress, accurately record the condition of the skin, avoid any misunderstandings after the treatment, and record and monitor any adverse reactions).

Treatment safety – use pre-cooling gel prior to treatment; apply pressure on the skin during treatment; possible to use two passes during treatment depending on skin type (1, 2 and 3 with caution, never on higher skin types 4, 5 and 6); overlapping technique should apply during treatment (approx 10%); if skin is sensitive (when treating facial area for hair reduction) apply a layer of gel to area and shave, then remove excess gel, cleanse area, apply fresh gel to area and treat; don't direct light into any open orifices e.g. eyes, nostrils, ears, mouth) plug with damp cotton as a precaution if necessary; in case of braces/ fillings place damp cotton wool over area (i.e. in the mouth) to reduce sensitivity when treating.

Learning outcome 2: Be able to provide laser and light treatments (continued)

NB. It is recommended to shave large areas like legs and backs 24 hours prior to treatment in case of contra-action. 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. It is advisable not to apply any pre-epilation cleanser or alcohol based product 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.

Recommended treatment procedure (first treatment):

Pre-treatment – greet client, ask them to slip off shoes and lie on a semi-reclining couch, cover client's feet with couch roll and place a towel across client's chest, complete client's consultation and consent forms (Doctor's note if required), excuse yourself and wash your hands, choose appropriate application head required for treatment, clean application head and goggles, wipe hands with sanitiser, apply disposable gloves, prepare client's skin for treatment (cleansing 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), ensure the area is hair free and shave if necessary (if blood spotting occurs, remove gloves, wash hands, re-apply sanitiser and apply fresh gloves).

During treatment – apply ultrasound gel with spatula (dispose of spatula), give client goggles and apply your own (it is essential that if a chaperone is in the room, they also wear goggles), check settings and carry out one shot, assess client reaction and decide whether energy levels need increasing. 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 access the client tolerance. NB. At no time should the client feel unduly uncomfortable.

Post-treatment – on completion of treatment, clean the applicator head and place the applicator back in the holder, switch off machine, remove the ultrasound gel, apply the aftercare lotion to soothe the areas just treated (aloe vera, antiseptic cream), apply SPF factor 60 to exposed areas (e.g. facial areas), remove and dispose of gloves, give aftercare advice, get client to sign form and keep this with the records, give client their part of the home care advice form, if happy with patch test, book treatment for 24 hours (skin type 1, 2, 3) or 4 weeks (skin types 4, 5, 6), fill in treatment record card.

Adapt treatments to suit client needs and skin and hair conditions:

Correct skin/hair typing according to Fitzpatrick's 'photo' scale, set equipment according to skin/hair types, work to individual growth patterns (face is treated at different intervals to body areas), monitor each treatment and change treatment timings as hair growth diminishes, change treatment times if results are not being achieved, stop treatment if desired result is not forthcoming (i.e. doesn't work on 1 in 20 people, client has to have a realistic expectation of success of treatment – never can say 100% hair removal due to dormant follicles in the body which can be activated at any time due to hormonal changes or if taking medication). After course of treatments is complete it is recommended to have 1 follow up treatment per year as dormant follicles may appear at any time (this will always depend on the individual).

Learning outcome 2: Be able to provide laser and light treatments (continued)

Complete the treatment to the satisfaction of the client:

Ensure the treatment is carried out within an acceptable time frame (be punctual at all times and aim to carry out appointments to the specified time the client has booked), check the clients 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 client response to determine suitable reactions and avoid an 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 the client's comfort and used according to treatment protocols, maintain health and hygiene when carrying out the treatment, give 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 safely and securely storing information in accordance with data protection legislation.

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, updated at the end of each treatment and signed, treatment should

be monitored to determine percentage of hair reduction achieved at each treatment to determine future treatment interval timings (if a good/significant reduction is seen then treatment intervals may need to be revised, e.g. instead of treating an area every 6 weeks the therapist can extend to 8 weeks for maximum result, for higher client satisfaction in both treatment and economic outcomes). Any changes to the skin or hair condition or poor results should be noted and recorded so the therapist can adapt the treatment to get better results or discontinue treatment if necessary. Record and monitor any adverse reactions, take before and after pictures (photo evidence of condition of skin and hair at time of treatment).

Should you have a client with hormonal problems (i.e. polycystic ovarian syndrome), you will have to advise her that the treatment will be successful after approximately 8 treatments to achieve a manageable reduction but she will require ongoing maintenance. This maintenance interval is individual depending on the level of hormone activity and can be anywhere between 8-12 weeks depending on the severity of the problem.

Once you have achieved a satisfactory level of hair reduction for your client, you should advise them that they may require maintenance of approximately 1-2 sessions a year due to the growth of dormant follicles. It is possible for dormant follicles to become present at any time, however this is usually due to a hormonal issue (i.e. menopause or increased/new medication taken by the client). You can recognise dormant follicles as they are usually present as finer hair.

Learning outcome 2: Be able to provide laser and light treatments (continued)

Aftercare advice:

Ensuring the treated area is cooled and soothed using suitable cooling methods, taking pre-/post-treatment photographs according to organisational requirements, ensure aftercare and recommendations are accurate, constructive and based upon up-to-date knowledge of the treatment and products available, ensure client and equipment records are accurate, legible and complete, ensure the IPL/laser controlled area is left in a clean, safe and tidy condition, give the client accurate information on complementary services, home care products and the recovery process and likely duration. Because 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.

Verbally – after each treatment is carried out.

Written – an aftercare leaflet to be given to client to take away with them (signed by client and therapist).

Cooling gel – water-based gels are applied to the skin pre-treatment, and if necessary after treatment. The gel cools the skin by evaporation.

Cold air or cryogen spray – cold air is generated and directed onto the treatment, 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 which use a cryogen spray, timed to be delivered just prior to a laser pulse.

Simultaneous contact cooling – this system is available on lasers which operate through a scanner (a device which speeds up treatment time by allowing a series of laser pulses to be

emitted in quick succession and in a controlled area of approximately 3x3 cm²). The laser beam is emitted through a sapphire (glass) window, which provides a vehicle for cooled water. This 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. Ice packs can be applied to the treatment area, pre- and post-treatment, but cannot 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', they should instead be wrapped in a disposable thin covering such as a couch roll.

Aftercare advice post IPL/laser treatment:

Use soothing gels, damp cotton pads or aloe vera to cool the area if the hot sensation or feeling of warmth remains after treatment; avoid sun exposure in the treatment area and always wear a high factor sun protection cream (SPF 30 minimum) after and between treatments; stop using sun beds and fake tanning products in the treatment area (fake tan can be applied 48 hours after treatment. However, before the next treatment is carried out fake tan should not be applied a minimum of 10 days prior to treatment); stop waxing, plucking or using any other form of epilation in the treatment area (IPL and laser require hair to be in the follicle during 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; do not put ice directly onto the skin's surface or a freezer burn may occur; wear loose clothing to avoid friction on treated areas such as bikini-line, legs, arms, chest, abdomen etc; contact the clinic or salon if excessive blistering, crusting or swelling in the treatment area is experienced.

Learning outcome 2: Be able to provide laser and light treatments (continued)

Principles of electrical currents and basic electricity:

Measurement of electricity (volts, watts, amperes, ohms and ohms law and the relevance), fuses (how to identify correct fuses used with electrical appliances, 3 amp – appliances up to 700 watts, 5 amp – appliances between 750-1000 watts, 13 amp fuses – appliances between 1000-1300 watts), resistor, switch, capacitor or condenser, potentiometer, rectifier, circuit breaker, types of currents used in beauty therapy, direct, alternating, function of a transformer, protons, neutrons, electrons, nucleolus, functions, correct wiring of a plug.

Consequences of inaccurate identification of client skin type/colouring according to 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 the following: burns, blistering, hyper pigmentation, hypo pigmentation, scarring, ineffective treatment, physiological damage.

Describe how treatments can be adapted to suit client treatment needs and skin and hair conditions:

When working with IPL/laser systems for hair reduction it is important for the therapist to impart to the client that the success of the treatment depends not on the operation of the machine itself but of each person's individual hair growth cycle. Therefore the treatment plan needs to be adaptable in order to maximise the results and client satisfaction. The therapist must identify skin/hair type according to Fitzpatrick's 'photo' scale in order to set equipment to the correct level required for treatment (incorrect skin/hair typing will result in goals not being achieved for client).

The therapist must work closely with the client and monitor the reduction of growth achieved at each treatment. As hair growth diminishes it is important to extend the time intervals between treatments in order to try and catch the hair in the active stage of growth (i.e. anagen).

N.B. At any one time there is between 10-70% of activity. When carrying out a treatment ensure that the treatment pressure is uniform over each area. If a client is getting a poor result on one side of the body compared to the other, the therapist may have to treat each area at different intervals. If getting a poor result even after changing and adapting the treatment, stop the treatment (1/20 people do not get a result). The therapist and client must be aware that 100% reduction is impossible due to dormant follicles in the body which can be activated at any time due to hormonal changes or taking medication. Medical changes must be checked at each treatment as this will impact on how the treatment is going to be carried out. If the client is taking medication, the treatment may need to be deferred until medication is finished (medication can cause hormonal or pigmentation changes in the hair/skin). Due to the presence of dormant follicles a top-up treatment 1-2 times annually will be required to monitor results after a course of treatment is completed.

Learning outcome 2: Be able to provide laser and light treatments (continued)

Contra-actions that may occur during and following treatments:

Understanding the principles and practice of hair removal – (i.e. target for treatment, melanin in the follicle and on the epidermis making the skin sensitive to exposure from IPL/laser systems). Successful treatment relies on raising the temperature of the hair follicle high enough and long enough to disturb the hair cycle. This means that we need a balance between the heat in the treated hair follicle and in the absorbing skin layers TRT (Thermal Relaxation Time). Understanding the type of hair/skin combination that is ideally suited to these treatments (i.e. dark/light skin). The hair will strongly absorb the light compared to the skin, making the skin less susceptible to heat damage.

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

Methods of evaluating the effectiveness of the treatment:

Visual – visible reduction of hair in the treatment area.

Practical – ensuring that treatment settings are set accordingly to ensure maximum effectiveness of treatment (lowering an energy level will get a slower result), client satisfaction.

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

If a skin condition continuously reappears between hair reduction treatments, then there is some underlying cause for this. The client may have become contra-indicated, stop treatment and refer client to a doctor/dermatologist for further examination.

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

Combination skin – coarse texture, 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).

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).

Epidermis skin – structure (stratum germinativum, stratum spinosum, stratum granulosum, stratum lucidum, stratum corneum, process of keratinisation).

Learning outcome 2: Be able to provide laser and light treatments (continued)

Dermis skin – 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.

Hypodermis skin – structure (subcutaneous layer, adipose tissue, adipocytes).

Skin functions – secretion, heat regulation, absorption, protection, elimination, sensation, vitamin D formation, melanin production, acid mantle formation.

Diseases and disorders of the skin:

Allergy – dermatitis, urticaria.

Bacterial – impetigo, furuncle, carbuncle.

Fungal – tinea (capitis, corporis, sycosis, favosa, unguium, pedis).

Hypertrophies – keratoma, mole, polyps, seborrhoeic warts, skin tags, verruca, xanthoma.

Infestations – pediculosis, scabies.

Inflammations – eczema, psoriasis.

Pigmentations – albinism, broken capillaries, chloasma, erythema, lentigo, leucoderma, liver spots, naevus (portwine/strawberry), vitiligo.

Sebaceous glands – acne vulgaris, acne rosacea, comedones, cysts, furuncle, milia, seborrhoea, steatoma, steatosis.

Skin cancers – basal cell carcinoma, squamous cell carcinoma, malignant melanoma, tumour. Sudoriferous glands (anhidrosis, bromidrosis/osmidrosis, hyperhidrosis, miliaria rubra).

Viral – herpes simplex/herpes zoster, warts, verrucas.

Lesions – bulla, crust, fissure, macule, papule, pustule, scale, tubercle, tumour, ulcer, vesicle, wheal.

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, monilithrix, 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.

Learning outcome 2: Be able to provide laser and light treatments (continued)

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), (fsh) follicle stimulating hormone, (lh) luteinising hormone, prolactin.

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

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

Hormones secreted by the parathyroid glands – parathormone.

Hormones secreted by the pancreas – insulin, glucagon.

Hormones produced by the adrenal medulla – adrenalin, noradrenalin.

Hormones produced by the adrenal cortex – adrenocortical, 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, auxiliary, 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.

Lymphatic system:

Functions of the lymphatic system – subsidiary circulation (lymph formation), immunity, return of lost plasma proteins to the blood, transport dietary lipids.

Lymphatic components – structure and function, lymph, lymph capillaries, lymphatic vessels, lymph nodes, lymphatic trunks, lymphatic ducts (thoracic and right lymphatic duct), subclavian veins.

Learning outcome 2: Be able to provide laser and light treatments

Lymphatic nodes – location of auxiliary, cervical (superficial and deep), inguinal, intestinal, occipital, popliteal, post-auricular, pre-auricular (parotid), supratrochlear.

Other lymphoid tissue – structure, location and function (appendix, peyers patches, spleen, tonsils, thymus).

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 follows, with the release of cellular substances and mediators. Angiogenesis (growth of blood vessels) and re-epithelization occurs and the deposition of new cellular and extra cellular components ensues.

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 4th 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.

In relation to IPL/laser treatments for hair reduction an underpinning knowledge of light tissue interaction and light according to the electromagnetic radiation is necessary.

Light Tissue Interaction and its effects on skin and eyes – reflection, transmit ion, scattering, absorption, elective photothermolysis, thermal relaxation time, haemoglobin, oxyhaemoglobin.

Light according to the electromagnetic radiation (EMR) – 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).

Notes

Use this area for notes and diagrams



Notes

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