Hairstroke Brow Manual

enhance me
Training Academy

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Welcome to Enhance Me Training Academy.
We are so pleased to welcome you into our academy and are looking forward to getting to know you and share our knowledge and expertise with you.

Our academy courses have been planned and created by Aestheticians, Medics, Beauty Therapist's and Skin Care Specialists and are carefully tailored to give you all you need to perform highly skilled treatments with amazing results. All our courses are CPD accredited, meaning they are fully recognised by insurers.

Our team are here to support you throughout your training and are always available to chat at any point during or after your time with us.

We really hope you enjoy your learning experience,
Abi
Clinical Director,
and the Enhance Me Academy Team.

Objectives

This course aims to ensure you; the student understands the basics of health and safety and anatomy and physiology of the treatment. This manual covers the treatment background, benefits, consultation and contra-indications, contra-actions, aftercare and equipment and products required to perform the treatment. The practical techniques will be covered on the practical session to ensure competency in the procedure.

At the end of the course, you will be able to perform a treatment in a professional, safe and hygienic manner in a commercially acceptable time, along with experience in carrying out a thorough consultation with the knowledge of the background, benefits, consultation, contra-indications, contra-actions, aftercare, equipment and the products needed.

Medical Disclaimer

It is advised that you take medical advice if you or any of your clients have a health problem. Any qualification from Enhance Me Training Academy will not qualify you to advise on or diagnose any medical condition.

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Health & Safety

You will need to maintain a high standard of hygiene as well as health and safety, not only for yourself but also for your employees, clients and any visitors to your business.

It is a legal requirement for employees to display an approved health and safety poster or to provide employees with an equivalent leaflet or information.

All businesses are required by law to comply with the following acts, which are monitored and managed by The Health & Safety Executive (HSE). You should also get copies of the following regulations from your local council or off the HSE website.

Health and Safety at Work Act 1974

This protects your rights as an employer or employee. The law states that the employer must provide a safe working environment, provide health and safety training for staff, produce a written policy of the company's health and safety policy and ensure that anyone on their premises is not exposed to any health or safety risks.

Trade Descriptions Act (1968 and 1972)

These Acts prohibit the use of false descriptions of goods or services. The information must always be accurate, false comparisons must not be made, and misleading price comparisons must not be made. A product may not be described as being of a 'reduced' price if it has not been available at a higher price for a minimum of 28 days.

General Data Protection Regulation GDPR/The Data Protection Act 2018

If you are collecting and storing personal data as a therapist, then you will need to comply with GDPR. You will need to decide which of the six lawful bases on which you will collect and store personal data and inform your clients of how and why you will retain their data and for how long. The Independent Commissioners Office will provide you with all relevant information.

Sale and Supply of Goods Act 1994

This states that goods must be as described and of satisfactory quality. They should be fit for purpose and safe for use. It is the responsibility of the retailer to correct a problem where the goods are not as described.

COSHH Regulations and Risk Assessment (Control of Substances Hazardous to Health) 2002

COSHH regulations cover the essential requirements for controlling exposure to hazardous substances, and for protecting people who may be affected by them. You should carry out a COSHH assessment to identify all chemicals, products or other substances which could cause harm.

A substance is considered to be hazardous if it can cause harm to the body. It poses a risk if it is inhaled, ingested, in contact with the skin, absorbed through the skin, injected into the body or introduced to the body through cuts.

Always check the ingredients and instructions of all products to see what they contain and ensure they are correctly stored. If the product could cause harm, it should be listed on your COSHH assessment, together with what the risk is and who is at risk from it.

Next, decide on the degree of risk and who to minimise that risk. If you can, try to replace high-risk products with lower risk ones. Never leave chemicals identified as hazardous in areas accessible to the general public. Do not forget, COSHH substances include both those used for treatments and cleaning.

Local Government (Miscellaneous Provisions) Act 1982

A special treatment licence will be required if you carry out any form of massage, electrolysis or ear piercing and tattooing as they may produce blood and body tissue fluid. Each borough council in the UK has different requirements, so you should contact them to see whether they require you to hold a licence for the treatments you offer.

The Management of Health and Safety at Work Regulations 1999
Employers should make formal arrangements for maintaining and improving safe working conditions and practices. This includes competency training and risk assessments.

The Manual Handling Operations Regulations 1992
This is relevant wherever manual lifting occurs to prevent skeletal and muscular disorders. The employer should undertake a risk assessment for all activities involving manual lifting.

The Health and Safety (Display Screen Equipment) Regulations 1992
This covers the use of display screens and computer screens. This specifies the acceptable levels of radiation emissions from the screen, as well as identifying the correct posture and the number of rest periods.

The Electricity at Work Regulations 1992
Electrical items are potentially hazardous and should be used and maintained properly. You should always ensure that you are fully trained on a piece of equipment before operating it.
All electrical equipment should be regularly PAT tested to ensure it is safe to use. If any equipment is deemed to be faulty or unsafe, you should stop using it immediately and report the problem. Make sure the equipment is clearly marked as faulty until the problem has been corrected to avoid it being used by other members of staff.

Gas Safety (Installation and Use) Regulations 1998 (GSIUR)
This regulation gives guidance on any who may have a duty (managers, building maintenance, landlords) to ensure that gas appliances or fittings, including contractors who install, service and maintain them are in full working order and meet regulations.

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013

These regulations are commonly referred to as RIDDOR, and their main purpose is to alert the enforcing authorities to incidents and causes of ill health that may need further investigation. Their second role is to collate statistics and to assist in the implementation of initiatives to reduce accidents in the workplace.
If any of your employees or trainees suffer a personal injury at work that results in either;

- Major Injury
- Death

Employers should report any such cases to the HSE Incident Contact Centre. This includes loss of sight, amputation, fracture and electric shock. In all cases where a personal injury of any type occurs, it should be recorded in an accident book.

Incident Contact Centre- 0845 3009923.

Less serious injuries have to be reported using form F2508 available on the HSE website. Less serious injuries include:

- More than 24 hours in a hospital
- Incapacity for more than 7 days.

Other incidences that are reportable include:

- A member of the public or client is injured and admitted to hospital.
- Any member of staff that is injured due to an act of violence that is work-related.

All records of injuries, minor or major, must be recorded in your accident book.

Further guidance can be found on the HSE website www.hse.gov.uk/riddor.

Reporting Accidents

All accidents and near misses should be recorded in an Accident Report Book, which should be kept with a first aid kit on the premises.

The following information must be recorded:

- Full name and address of the person(s) involved in the accident.
- Circumstances of the accident.
- Date and time of the accident.
- All details of what may have contributed to the accident.
- The type of injury that occurred and treatment provided on or off-site.
- Details of any witnesses.

The Regulatory Reform (Fire Safety) 2005

All premises must have adequate means of dealing with a fire, and all members of staff should know where these are. This can include fire extinguishers and blankets; however, you should only operate a fire extinguisher if you have been properly trained to do so. All equipment should be checked and maintained regularly.
Fire Drill notices should be clearly displayed and should inform people of what to do in case of a fire. All staff should be trained in the location of alarms, exits and meeting points.

Consumer Protection Act 1987

This Act aims to protect the customer from unsafe or defective services or products. All staff should be trained in using and maintaining products.

The Provision and Use of Work Equipment Regulations 1998

This states the duties of any users of the equipment. It identifies the requirements in selecting and maintaining suitable equipment, as well as the training and safe use of it.

Cosmetic Products (Safety) Regulations 2008

These regulations require that cosmetics and toiletries are safe for their intended purpose and comply with labelling requirements.

The Equality Act 2010

Gives disabled people important rights of access to everyday services. Service providers have an obligation to make reasonable adjustments to premises or to the way they provide a service. Sometimes it just takes minor changes to make a service accessible. What is considered a reasonable adjustment for a large business such as a bank, may be different from what is a reasonable adjustment for a small local salon. It is about what is practical in the service provider's individual situation and what resources the business may have. They will not be required to make adjustments that are not reasonable because they are unaffordable or impractical.

The Botulinum Toxin and Cosmetic Fillers (Children) Act 2021 (Botulinum toxin and cosmetic fillers for under 18s)

A new law came into effect 1st of October 2021 with the purpose of safeguarding under 18s (children) from the potential health risks of botulinum toxins and cosmetic fillers. It is now against the law, therefore illegal, for anyone to inject botulinum toxin (commonly known as 'Botox') or dermal fillers with a treatment plan that is for 'cosmetic purposes' into a person who is under the age of 18. It is important to highlight that a parent or guardian cannot give permission for a person under the age of 18 to have the treatments. Providing the treatment would still be classed as an offense by the person that will be prosecuted. Registered medics (doctors, nurses, dentists, and pharmacists) can still provide the treatments those to under 18, but only in cases where the treatment has been approved by a doctor. Practitioners/businesses must make sure they have systems in place to ensure that sufficient age checks are made. This must be an official photo ID (passport, driving license, age, age cards that are nationally recognised by the proof of Age Standards Scheme (PASS) hologram or digital mark) to ensure that their age can be officially verified.

Health & Safety (First Aid) Regulations 1981 (revised 2013)

Whatever the size of your business, you should always make sure you have a First Aid kit on-site, as well as an eyewash bottle. You should ensure this is fully stocked at all times. You should have at least one 'Appointed Person' on hand to take charge in an emergency who holds an HSE-approved basic first aid qualification. You can contact the HSE on 0845 345 0055 for a list of suitable training providers.

Your environmental health officer may ask if you have a completed First Aid training. The HSE recommends that businesses with fewer than 50 staff members should have at least one qualified and appointed First Aider. First Aid courses can last anything from half a day to 3 days. The half-day courses are not usually accredited, so it is highly recommended to at least complete a full day of First Aid training.

These regulations also require that every employer provides equipment or facilities for providing First Aid to their employees. Even if you do not have employees, having a First Aid Kit to hand when required is good practice.

A First Aid box and an eyewash station with single-use pods should be enough, with extra items kept aside for restocking.

Your First Aid box should contain the following:

Number of Employees	1-5	6-10	11-50
Contents	QTY	QTY	QTY
First Aid Guidance Notes	1	1	1
Individually wrapped sterile adhesive dressings	20	20	40
Sterile Eye Pads, with attachment	1	2	4
Sterile triangular bandages	1	2	4
Safety Pins	6	6	12
Medium sized sterile unmedicated dressings	3	6	8
Large sterile unmedicated dressings	1	2	4
Extra Large sterile unmedicated dressings	1	2	4

First Aid boxes must not include any form of medication, such as Paracetamol or Ibuprofen

The Personal Protective Equipment at Work Regulations 2022

This act covers your requirements under the COSHH regulations. You are required to wear or provide to your employee's protective clothing or equipment (PPE) to ensure their health and safety when handling chemicals or coming into contact with bodily fluids.

What PPE will you need?

- Powder-free non-latex Gloves that must be changed for each new client.
- Disposable aprons.

- Face Masks
- Eyewear (optional)

Some therapists like to wear eye protection, although the risk is very low from spillages or splashes. However, a new apron, facemask and gloves should be worn before each new client.

The Environmental Protection Act 1990

Under this act, anyone that disposes of waste has a duty of care to ensure that waste is disposed of safely. Subjects covered by the Environmental Protection Act 1990 are as follows:

- Waste management
- Noise pollution
- Neighbourhood pollution
- Radioactive substances
- Genetically Modified organisms
- Nature Conservation

Under the Environmental Protection Act 1990, it is unlawful to deposit, recover or dispose of controlled (including clinical) waste without a waste management licence, contrary to the conditions of a licence or the terms of an exemption, or in a way which causes pollution of the environment or harm to human health. Contravention of waste controls is a criminal offence. Section 34 of the act places people concerned with controlled (including clinical) waste under a duty of care to ensure that the waste is managed properly, recovered or disposed of safely and is only transferred to someone who is authorised to keep it. Householders are exempt for their own household waste.

Hazardous healthcare waste is subject to the requirements of the Hazardous Waste Regulations 2005. ***[Extract is taken from Gov.UK website*** https://www.gov.uk/healthcare-waste 30th June 2014***]***

All commercial businesses must have a waste removal contract with either the council or a private waste removal company. If you produce less than one bin bag full of clinical waste per collection, then you can dispose of clinical

waste such as cotton wool and tissues in with a normal waste collection. If you produce more than this per collection, then a suitable clinical waste contract must be obtained.

Working with Sharps
Health and Safety (Sharp Instruments in Healthcare) Regulations 2013

The Health and Safety (Sharp Instruments in Healthcare) Regulations 2013 Prior to the publication of European Directive 2010/32/EU, a framework agreement was developed that brought together a number of existing health and safety requirements in order to make the legal framework to protect workers from sharps injuries more explicit. The UK went down the legislative route, and The Health and Safety (Sharp Instruments in Healthcare) Regulations 2013 came into force on the 11th May 2013.

The regulations apply to employers whose primary activity is to organise, manage and provide treatment to others that involve the use of sharps. Those covered under the act include not only those that undertake the procedure but all others that may come into contact with any sharps, which will include all employees, servicemen and cleaners.
The main requirements of the regulations mean Employers need to assess the risk of sharps injuries under the COSHH regulations. Where risks are identified, the regulations require the employer to take specific risk control measures detailed below:

- where the employer has identified a risk, steps must be taken to avoid the unnecessary use of sharps (Regulation 5 (1)(a))
- where it is not reasonably practicable to avoid the use of medical sharps, the sharps regulations require employers to: -
- use safe sharps (incorporating protection mechanisms) where it is reasonably practicable to do so (Regulation 5(1) (b)) –
- prevent the recapping of needles (Regulation 5 (1) (c))
- place secure containers and instructions for safe disposal of medical sharps close to the work area (Regulation 5 (1) (d)
- Provide information to employees on the risks from injuries, relevant legal duties of employers and employees; good practice in preventing injuries; the benefits and drawbacks of vaccination and the support available to an injured person from their employer.
- Provide appropriate training to ensure employees know how to work safely. The training must cover the correct use of safe sharps, safe use and disposal of sharps, what to do in the event of an injury and the employer's arrangements for health surveillance. (Regulation 6 (4))
- Have arrangements in place in the event of an injury, which includes keeping a record of the incident, investigation of the circumstances of an incident and to take action to prevent a reoccurrence. The HSE advise that records of the incident should include details of the type of sharp involved, at what stage of the procedure the incident occurred and the severity of the injury.
- ensure that injured employees who may have been exposed to a blood-borne virus have immediate access to medical advice; are offered post-exposure prophylaxis or other treatment as advised by a doctor and offered counselling where appropriate. (Regulation 7 (2))
- Review, at suitable periods, the effectiveness of procedures and control measures (Regulation 5 (2)).

Sharps Disposal

Anything sharp that could pierce or has pierced skin should be put into the correct category of sharps disposal. We can give you a hand if you're not sure what kind of sharps disposal you need. Any of the below should be disposed of in a sharps bin:

- Needles
- Scalpels
- Stitch cutters
- Glass ampoules
- Sharp instruments
- Shards of bone and teeth
- Syringes

- Lancets
- Razor blades

Your Sharps waste needs to be disposed of in a dedicated sharps bin of a suitable size which we will provide you with as part of your contract. From there, it is incinerated.
If you're producing hazardous waste, you have a duty of care to ensure that it's housed and disposed of in the most appropriate way.

You will need to employ the services of a specialist waste disposal company that will safely remove your sharps boxes when full, along with any other hazardous waste.

Work practice controls

These controls aim to change the behaviour of workers to reduce exposure to occupational hazards. Examples include:

- no needle recapping or resheathing
- safe construction of sharps containers
- placing sharps containers at eye level and within arm's reach
- disposing of sharps immediately after use in designated sharps containers
- sealing and discarding sharps containers when they are three-quarters full
- establishing means for the safe handling and disposal of sharps devices before the beginning of a procedure.
- Safe storage of full sharps containers, which should be stored in a safe place and carried away from the body with the lid firmly closed.

Ergonomics

Two position of the pelvis during sitting.
Sitting posture essentially depends on the relationship of the body's center of gravity to the chair.
Left, it is far posterior; *right*, it is well balanced over the chair prominences.

Posture is important, whether you are sitting or standing up to do a treatment. Try to find a working position that is comfortable for you and reduces the need to lean over to just one side.

Using height adjustable treatment couches and chairs. Choose a height that reduces your need for bending over the client. Ideally, your back should be at a 90-degree angle. Your chair should be comfortable to avoid pressure point sores or injury.

Try to avoid twisting the neck, keep your head upright and keep your shoulders relaxed.

Never ignore pain; look at ways to alleviate the symptoms. If you cannot take a break during treatment, then you can adopt gentle stretching techniques.

Repetitive strain injuries can be caused by using the same movements over and over again. Try to avoid repetitive flexing of the wrist and instead alternate by bending elbows or shoulders instead. Equipment should feel comfortable in your hand and have as minimal vibration as possible.

Insurance

There are several types of insurance that are potentially relevant to you as a therapist. The most important is the 'Professional Indemnity Insurance' and 'Public Liability Insurance'. Both of these are necessary in the unlikely event that a client decided to sue you.

Public Liability Insurance - This covers you if a member of the public, i.e. a client or passer-by is injured on your premises or if their personal property is damaged in any way.

Professional Indemnity Insurance - This protects you should a client decide to sue you claiming personal injury or damage as a result of treatments carried out by you.

Employer's Liability Insurance - This is only necessary if you hire others to work for you. This type of insurance would cover you should a member of your staff have an injury on your premises.

Product Liability Insurance - This insurance is important if you plan to use, manufacture or sell products as part of your business. This will protect you in the event that a client is dissatisfied with the product or experiences a reaction to using the product.

Car Insurance - If a car is used for business purposes, ensure that this is covered by the policy and that theft of equipment is included.

Salon Hygiene, Health & Safety

- The salon should be cleaned thoroughly every day.
- The working area must be cleaned before and after every client.
- Fresh towels and linen should be used for every new client that has been laundered at a minimum of 60°C.
- Couch roll, disposable plastic sheeting or waterproof bed sheets need to be used to protect the couch and keep the area as clean as possible.
- Products should be dispensed from purpose-specific pump or spray bottles. Creams can be removed from jars or bottles with clean spatulas.
- Replace all lids on products securely after use.
- All tools that are non-disposable should be sterilised prior to use.
- Bins should be metal and have foot pedal operations and be emptied every day. Bins should be collected by an appropriate commercial waste disposal company.
- All fire exits should be clearly marked and accessible at all times.
- Read all labels and follow manufactures instructions.
- Know the hazardous warning signs on products.
- Store products safely and in accordance with safety data sheets.
- Ensure equipment is placed on a sturdy surface and cannot fall off.
- Check wires and plugs regularly on any electrical equipment. Ensure electrical equipment is PAT tested annually. Faulty equipment should not be used.
- A first aid kit that complies with the Health and Safety (First Aid) Regulations 1981.

Appearance of the practitioner

A practitioner should ensure that they look well presented at all times as they will be working in close contact with a client, and it is important that a professional image is observed.

They should:

- Wear clean, freshly laundered and ironed uniform each day.
- Wear clean, flat, closed-toe shoes.
- Have short, clean, manicured nails.
- Have a fresh breath.
- Wear antiperspirant.
- Apply modest makeup for a natural look or have a clean well presented skin.
- Wear hair up and away from the face.
- Wear minimal jewellery.

Professional Ethics and Standards of Practice

They should:

- Maintain the highest possible standards of professional conduct.
- Always be courteous and show respect for clients, colleagues and other professionals.
- Never gossip or criticise another therapist, salon or brand.
- Never talk across a client to another member of staff.
- Not to engage in conversations about politics, religion or race that may cause offence.
- Maintain a good reputation by setting an example of good conduct in all your communication with clients, team members and visitors to the business.
- Ensure to make the treatment or service special for every client.
- Respect client confidentiality.
- Explain the treatment to the client and answer any questions and queries prior to carrying out the treatment.
- Treat all clients in a professional manner at all times regardless of their race, colour, religion, sexual orientation or ability.
- Not to treat minors or clients with limited mental capacities, such as those with Alzheimer's or dementia without prior written consent from a parent or carer.

Practising good ethics is essential for the reputation of the business and the welfare of the clients. The following is an example of standards and ethics for practitioners:

- Conduct yourself in a professional, honest and ethical manner.
- Promote professionalism
- Establish a treatment plan with your client and evaluate the outcome at the end of every session.
- Truthfully represent your credentials, qualifications and education, experience, training and competence relevant to practice.
- Maintain the confidentiality of the client.
- Take a full medical history of the client and ensure that they are suitable for treatment and the treatment is the best solution for their concerns.
- Give full aftercare advice.

Precautions Taken in the Salon to Prevent Contamination and Cross-Infection

Hands

Wash with soap/disinfectant and warm water before and after each client—dry hands with a paper towel or blower.

Surfaces

Wipe over with disinfectants, e.g. Alcohol, Surgical spirits.

Treatment of Wounds

If the skin bruises or bleeds after the insertion of a needle, a small pad of dry cotton wool should be used over the area to cover it and apply pressure until the bleeding stops. Apply aftercare solution to the area and work in a different area. The same applies to extractions or any other form of skin piercing. Use disinfectant to clean area.

Disposal

Sharp metal instruments, e.g. Scalpels, should be placed in a sharps box after use. When the box is about 3/4 full, it may be disposed of by special arrangement. Usually collected by local health office and incinerated at a local hospital.

Metal Instruments

Sterilised before and after each client in Autoclave or in Glass bead steriliser, and wipe with Chlorhexidine Gluconate or Methylated spirits.

Skin Preparation

Do not use sharp or pointed instruments on or at least near areas of a client's skin that are obviously diseased, infected or inflamed. Except in facial treatments during the extracting phase (a tile with a lancet and cotton wool

dampened with methylated spirits and an antiseptic solution containing Chlorhexidine Gluconate must be prepared, hands should be washed before and after extractions and finger cots or gloves must be used).

Cuts on your Hands
Cover existing wounds with a waterproof dressing, wash fresh cuts and encourage bleeding under running water and then cover with a waterproof dressing. Clean with an antiseptic. Always have a box of plasters/waterproof dressing available. No salon should be without a first aid kit.

Needles
Do not test needles on yourself. Needles should only be used once and must not be used on more than one client.

Creams
Tubes are better than jars. Always use a spatula to obtain creams from containers. Never use fingers and always close a container after use. Excess product must not be returned to containers.

Blood
Anything that has come into contact with blood must be disposed of in the correct manner. Pay attention to the following: Hands, lancets, tweezers, surface, disposal gloves, bin liners, cotton wool or gauze and needles)

Colds/Flu/COVID 19
Wear a surgical mask. Wash your hands regularly, especially after sneezing or blowing the nose. Also, wash hands in general after touching other surface areas. General advice - stay at home when feeling ill or send employees home if they develop cold/flu symptoms at work.

Waste Bins
Bin liners. Emptied regularly. Bins should have lids.

Gloves
Surgical gloves can be used, e.g. epilation or, to prevent contamination. Used always when performing any procedure that breaks the skin and any action that may come into touch with blood.

Instruments
Must be cleaned, sanitised and sterilised or where appropriate disposable tools should be used.

Sterilisation Methods

Autoclave

- Works like a pressure cooker.
- Consists of 2 chambers. Water in the lower chamber and instruments on the upper chamber.
- The principle of sterilisation is moist heat.
- The water boils in the lower chamber and steam is released towards the upper chamber. Instruments are left in the unit for 10 - 20 min. Afterwards, instruments must be placed in a sterile and clean container.
- The moist heat autoclave operates at 121°C and is considered a very effective means of sterilisation.
- Other types available, e.g., dry heat autoclave, vacuum autoclave, flash instrument autoclave.
- The time and temperature of dry heat autoclave is 160°C (320°F) for 2 hours or 180°C (356°F) for one hour.
- Consult manufacturer's instructions and local government laws and regulations on sterilisation times and temperatures.

Advantages of an Autoclave

- Economical and very effective
- Non-toxic on instruments
- Easy to operate

Disadvantages of an Autoclave

- Sharp instruments can become blunt.
- Metal instruments might rust. Recommend use of stainless-steel instruments.
- Expensive
- Plastic instruments will be damaged.
- Autoclaves will need to be kept clean.
- Regular servicing and calibration are required of the device.

Glass Bead Steriliser

- Operates at approximately 300°C.
- Metal instruments will thus be completely sterilised within minutes.
- Only the parts covered with beads will be sterilised.
- The unit takes + 20 - 30 minutes to warm up before sterilisation can take place.
- If more than one instrument is placed in the container, a longer time must be added for sterilisation.
- Consult manufacturers` instructions and local government laws and regulations on sterilisation times and temperatures

Wet Sterilisation (Chemical)

Asepsis can be obtained by washing down all surfaces, walls, floors, treatment beds, tiles, trolleys, work surfaces, basins etc. after basic cleaning with an antiseptic solution. EG: Antiseptic solution concentrates, diluted according to manufacturers' instructions. Towels can also be disinfected in this method. If metal tools are sterilised by this method, the liquid must contain a rust inhibitor.

UV Cabinet

- They are used for the maintenance of your sterilisation process.
- Basically, used as a storage unit.
- They are not used for sterilisation only for sanitation.
- This cabinet will keep your item as clean as it was when you first inserted it.

Antiseptics and Disinfectants

Antiseptic

A diluted disinfectant that is safe to apply to the skin. Its' task is to slow down multiplication, growth and in some cases may destroy/kill micro-organisms if the strength of the solution is correct, e.g. some soaps (hands), alcohol and hydrogen peroxide etc.

Disinfectant

A chemical agent which destroys or kills all micro-organisms. Safe to apply on surfaces but too toxic to be applied directly onto the skin, e.g. Quaternary Ammonium compound/Quats, formalin, ethyl or grain alcohol.

Storage

- Make sure you receive a copy of Material Safety Data Sheets (MSDS) from your suppliers.
- All staff must be trained on the use of products and equipment.
- Training manuals and information leaflets should be accessible to all staff.
- Store your products correctly by following the guidance on the MSDS.
- Carry out a risk assessment on each product or COSHH report if required.
- Keep products in original containers where possible and ensure any decanted products are fully labelled in smaller, purpose-built containers.
- Keep all flammable products out of direct sunlight and at room temperature or below.
- Mobile therapists must make suitable travel arrangements to avoid spillage and ensure safe working practice and be professional in appearance.

Bloodborne Pathogens

What are bloodborne pathogens?

Bloodborne pathogens are infectious microorganisms in human blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). Needle sticks and other sharps-related injuries may expose workers to bloodborne pathogens. Workers in many occupations, including first aid team members, housekeeping personnel in some industries, nurses and other healthcare personnel, may be at risk of exposure to bloodborne pathogens.

What can be done to control exposure to bloodborne pathogens?

In order to reduce or eliminate the hazards of occupational exposure to bloodborne pathogens, an employer must implement an exposure control plan for the worksite with details on employee protection measures. The plan must also describe how an employer will use a combination of good work practice and ensure the use of personal protective clothing and equipment, provide training, medical surveillance, hepatitis B vaccinations, and signs and labels, among other provisions. Engineering controls are the primary means of eliminating or minimising employee exposure and include the use of safer medical devices.

AIDS – Acquired Immune Deficiency Disease:

AIDS is caused by a human immune-deficiency virus (HIV). The virus attacks the body's natural immune system and makes it vulnerable to infections, which will eventually cause death. Some people are known to be HIV positive, which means that they are carrying the virus without any symptoms of AIDS. HIV carriers are able to pass on the virus to someone else through infected blood or tissue fluid, for example, through cuts or broken skin.
The virus does not live for long outside the body. Advancements within treating HIV has now created a drug regime that can significantly reduce the risk of cross contamination, often campaigns use the U=U logo as the virus becomes undetectable (due to the drugs) therefore the virus is untransmittable. Denying someone a treatment due to their HIV status can be classed as discrimination.

Hepatitis B:

Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic disease. The virus is most commonly transmitted from mother to child during birth and delivery, as well as through contact with blood or

other body fluids, including sex with an infected partner, injection-drug use that involves sharing needles, syringes, or drug-preparation equipment and needle sticks or exposures to sharp instruments.

As of 2016, 27 million people (10.5% of all people estimated to be living with hepatitis B) were aware of their infection, while 4.5 million (16.7%) of the people diagnosed were on treatment. According to the latest WHO estimates, the proportion of children under five years of age chronically infected with HBV dropped to just under 1% in 2019, down from around 5% in the pre-vaccine era ranging from the 1980s to the early 2000s.

Hepatitis B can be prevented by vaccines that are safe, available and effective.

Hepatitis C:

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV): the virus can cause both acute and chronic hepatitis, ranging in severity from a mild illness lasting a few weeks to a serious, lifelong illness.

The hepatitis C virus is a bloodborne virus: the most common modes of infection are through exposure to small quantities of blood. This may happen through injection drug use, unsafe injection practices, unsafe health care, transfusion of unscreened blood and blood products, and sexual practices that lead to exposure to blood.

Globally, an estimated 71 million people have chronic hepatitis C virus infection. A significant number of those who are chronically infected will develop cirrhosis or liver cancer.

There is currently no effective vaccine against hepatitis C; however, research in this area is ongoing.

Dealing with body fluids:

If blood or body fluids have to be mopped, ensure that disposable gloves, apron and disposable paper are used. All disposable items should then be placed in a yellow plastic sack and destroyed by incineration.

Neat chlorine bleach should be used as the sterilising agent on blood spills. The bleach treatment will destroy the viruses, which will cause AIDS and Hepatitis B.

Anaphylaxis

Some allergies can lead to a severe allergic reaction - known as anaphylaxis. Anaphylaxis can be life-threatening.

Symptoms can occur quickly or within hours following contact with an allergen. Prompt treatment can save a life.

Common causes

Common causes of anaphylaxis are **wasp and bee stings** as well as **food**, such as peanuts, nuts, sesame seed, fish and shellfish, dairy products and egg. Other causes include **latex, penicillin and some other medications**.

For some, fatigue or exercise may cause anaphylaxis - alone or in combination with other triggers like food or medication. Cold can also be a cause. In rare cases, a reaction can occur without apparent cause.

Symptoms

- Itching, especially under the feet, in the hands or on the head
- A stinging feeling in the mouth
- Swelling in the mouth, throat, lips or eyes
- Itching, redness or nettle-rash anywhere on the body
- Dizziness, anxiety, cold sweating
- Abdominal pain, nausea or vomiting
- Shortness of breath or asthma symptoms
- Sudden fatigue, decreased blood pressure or fainting
- Disorientation or loss of consciousness

Critical symptoms: difficulty to breath, mouth and throat swell, sudden fatigue or dizziness, experiencing a steady worsening of symptoms.

Adrenaline is the first-line treatment for anaphylaxis. It is the only medication available for the immediate treatment of severe allergic reactions. Some sufferers may carry an Epi- pen that THEY can administer in the event of an anaphylaxis reaction

Antihistamine and steroid tablets. Antihistamine reduces hives, itching and irritation. Cortisone reduces the risk of late-onset reactions that can occur some hours following contact with allergens.

Who is at risk of anaphylaxis?

A person who has previously experienced anaphylaxis - irrespective of cause - is at risk in the future.
If the reaction was caused by peanuts, shellfish or fish, it should not be ignored, even if mild. This is especially important if the reaction was caused by peanuts. This is also the case for certain drugs, insect stings or latex. Your doctor will give you essential information and prescribe suitable medication.

When your client suffers from anaphylaxis

Do not underestimate the severity of an allergic reaction.

Alert a first aider, if it is not yourself. You can assist the first aider and call 999 and say suspected "anaphylaxis."

If possible, someone should wait outside to show the ambulance crew where you are.

Let ambulance personnel know about the client's medical history and treatment undertaken.

Managing Complications

Anyone working in aesthetics or undertaking treatments that break the skin or potentially break the skin, e.g. injectables or involve the injection of application of a product that could cause an allergic reaction, should undertake appropriate training in managing complications. Training should be taken regularly to ensure you stay up to date with current regulations and feel confident in dealing with any issues that should arise.

Complication's training is usually in addition to first aid and anaphylaxis training.

Understanding the array of issues that could be presented from aesthetic procedures will allow you to confidently provide treatments to your clients.

Invasive procedures always carry more risk than other treatments in a salon, and it is important that we are able to identify risk and know how to avoid it.

Emergency Plan

The emergency plan is the responsibility of the regulated independent prescriber. The emergency plan includes the appropriate onsite response, healthcare referral process and access to an emergency kit suitable to deal with adverse reactions or incidents. The regulated independent prescriber has a duty of care to their patients to follow regulatory guidelines set by their Professional, Statutory and Regulated Body.

The client may contact you directly with any issues, and you must also raise any concerns to the prescriber to arrange a care plan for the client.

The Local Authority Licensing Regulation

The registration and bye-law requirements vary from council to council. We offer you the best guidance to ensure a smooth application for any area that you may live in. However, it is important that you call the Environmental Health department and ask them what their requirements are prior to application.

There are currently no license requirements needed for microneedling but be aware of any changes that may happen in the future. The advice below is something to be aware of in case changes are made.

Why should I register?

It is a legal requirement for anyone offering invasive treatments (that break the skin) to register for a Licence with their Local Authority. More councils are now cracking down on Tattooists, PMU artists and aesthetic practitioners that have not registered, and the fines can be quite high.

Having a licence and displaying it for your clients to see will only add to your professionalism. Councils are there to work with you, not against you. Don't be afraid of speaking to them; they will give you all the advice you need and allow you to put things in place.

How should I prepare for a council visit?

You should be as prepared as possible for a visit from the council. The following is just a basic list of what they will expect to see:

Your Room

You room must be able to be kept sanitised to the highest possible level. Things to consider when setting up your business/treatment room is what type of flooring you have. Wipe clean flooring is necessary. Your room should be free from curtains, drapes, towels and cushions and anything else such as absorbent woods and material. Access to running water is also necessary. Also, you need to consider client access (any disabilities) and toilet facilities. No smoking signs should also be clearly displayed.

Keeping Records

Make sure record cards/consultation sheets are stored correctly with regards to GDPR. Keep information with full security measures (lockable cabinet or biometric/password measure electronically). Make sure you store it for at least 3 years.

Cleaning

Obviously, all work areas need to be cleaned between clients and a through clean at the end of the day.

Preventing Cross-Contamination

- You protect your trolley with fresh barrier film or dental bibs before every new client.
- You use a new scalpel each client, and you should open this up in front of them before starting the procedure.
- Use a new scalpel for each new appointment.
- You get out everything you need, so you have it to hand, such as wet wipes, cotton wool etc.
- Use a new pair of powder-free latex-free gloves on each new client. Make sure you wash your hands before and after putting on or removing gloves.

Anatomy and Physiology

Skin Anatomy

The skin makes up around 12% of an adult's body weight. The skin has several important functions which include:

S	Sensation	The main sensory organ for temperature control, pressure, touch and pain.
H	Heat Regulation	The skin helps to regulate the bodies temperature by sweating to cool the body down when it overheats and shivering when the body is cold.
A	Absorption	Some creams, essential oils and even much-needed water can be absorbed through the skin.
P	Protection	Overexposure to UV light may harm the skin; the skin protects itself by producing a pigment, called melanin, which we see when we tan. Bacteria and germs are also prevented from entering the skin by a protective barrier called the Acid Mantle. This barrier also helps to protect against moisture loss.
E	Excretion	Waste products and toxins are eliminated from the body through sweat glands.
S	Secretion	Sebum and sweat are secreted onto the skin's surface. The sebum keeps the skin lubricated and soft, and the sweat combines with the sebum to form the acid mantle.
V	Vitamin D Production	Absorption of UV rays from the sun helps with the formation of Vitamin D, which is needed by the body for the formation of strong bones and good eyesight.

Skin is made up of 3 major layers known as the Epidermis, Dermis and the Subcutaneous.

The Epidermis

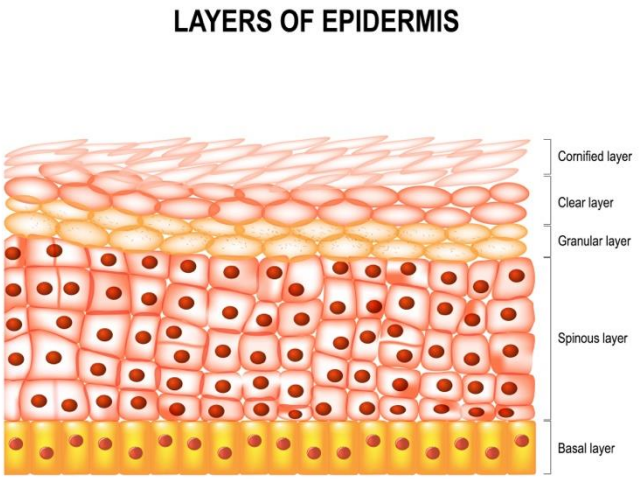
This is the outermost layer of the skin. There are various layers of cells within the epidermis, the outermost of which is called the stratum corneum (or horny layer). The layers can be seen clearly in the diagram of the skin. The surface layer is composed of twenty-five to thirty sub-layers of flattened scale-like cells, that are continually being exfoliated off by friction and replaced by the cells beneath.

The surface layer is considered the real protective layer of the skin. Cells are called keratinised cells because the living matter within the cell (protoplasm) has changed to form a protein (keratin) which helps to give the skin its protective properties.

New skin cells are formed in the deepest layer of the epidermis. This layer is known as the stratum basale. New cells being to gradually move from this layer towards the stratum corneum to be shed. As they move towards the surface, the cells undergo a process of change from a round, living cell to a flat, hardened cell.

The layers of the epidermis from top to bottom are known as:

- Stratum Corneum/Horny Layer
- Stratum Lucidum/Clear Layer (only found in the palms on the hands and soles of the feet)
- Stratum Granulosum/Granular Layer
- Stratum Spinosum/Prickle Cell Layer
- Stratum Basale/Basal or Germinative Layer

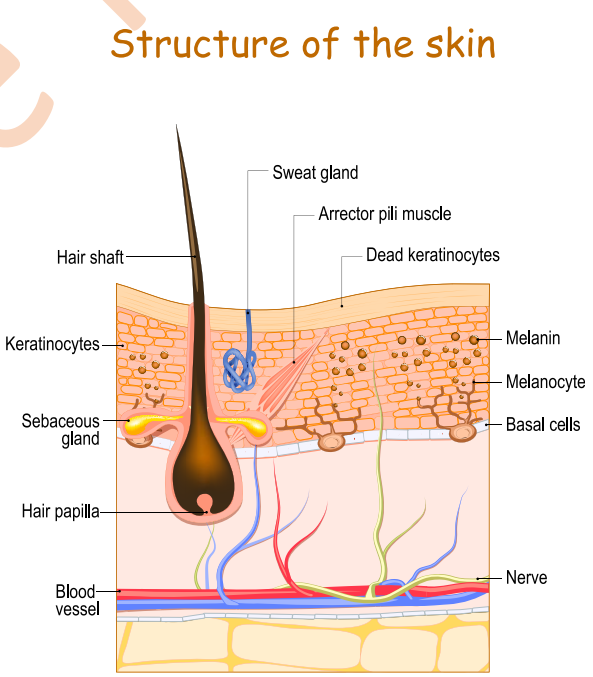


Dermis Layer

The dermis is a tough and elastic layer containing white fibrous tissue interlaced with yellow elastic fibres.

The dermis is an expanse layer and contains:

- Blood vessels
- Lymphatic capillaries and vessels
- Sweat glands and their ducts
- Sebaceous glands
- Sensory nerve endings
- The erector pili – which involuntary activates tiny muscles attached to the hair follicle in cold weather to trap heat.
- Hair follicles, hair bulbs and hair roots



Subcutaneous Layer

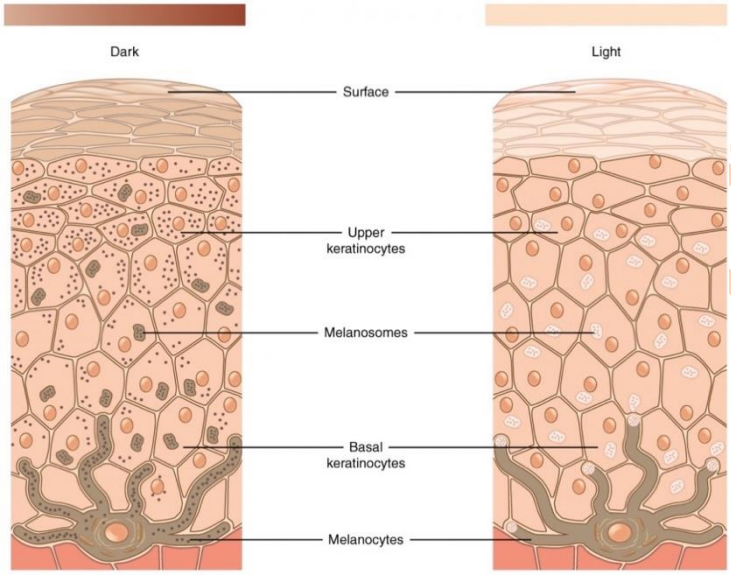
This is the deepest layer of the skin and located beneath the dermis. It connects the dermis to the underlying organs. The subcutaneous layer is mainly composed of loose fibrous connective tissue and fat (adipose) cells interlaced with blood vessels. This layer is generally around 8% thicker in females than in males. The functions of this layer include insulation, storage of lipids, cushioning of the body and temperature regulation.

The Skin

The skin comprises of 3 layers, the epidermis, the dermis and the subcutaneous layer.

The epidermis is the outermost layer of the skin and comprises of four cell types, keratinocytes, melanocytes, Langerhans cells and Merkel cells. The epidermis is also divided into layers comprising of living and non-living cells comprising of the stratum corneum, stratum granulosum, stratum spinosum and stratum basale.

The stratum corneum is made up of corneocytes and lipids and referred to as the epidermal barrier. It functions as an evaporative barrier that maintains the skin's hydration and suppleness and protects the body from microbes, trauma, irritants and UV radiation by acting as a physical barrier. Corneocytes contain the skins natural moisturising factor (NMF), which maintains the hydration of the stratum corneum. Corneocytes are bound together to each other by corneodesmosomes. A lipid bilayer surrounds the corneocytes, which comprise two layers of phospholipids that have hydrophilic heads and two hydrophobic tails. The epidermis requires a constant cell turnover to maintain its integrity and to function effectively. Young, healthy skin renews every 28 days, which is the time it takes for the keratinocyte to migrate from the living basal layer of the epidermis to the stratum corneum's surface and desquamate during the renewal process.



Melanin pigment, which determines the skin's colour and causes hyperpigmentation, is primarily concentrated within the epidermis and, in some conditions, is found within the dermis (in cases of melasma). There are two types of melanin pigment, pheomelanin and eumelanin. Pheomelanin is yellow to red in colour and is found in lighter skin tones. Eumelanin is brown to black in colour and is the predominant type of melanin in darker skin types. Melanin synthesis (melanogenesis) occurs when melanocytes in the basal layer of the epidermis. The key regulatory step is the initial enzymatic conversion of tyrosine to melanin by tyrosine. Melanin is packaged into melanosomes, intracellular organelles within the melanocyte; these are then distributed to surrounding epidermal keratinocytes. Melanin has a protective physiologic role in the skin to protect the nuclei of the keratinocytes by absorbing harmful UV radiation: and eumelanin has the greatest UV absorption capabilities. When the skin is exposed to UV radiation, melanin synthesis is upregulated, which is observed by the darkening of the skin as we tan. The number of melanocytes for both light and dark skin tones are similar; however, the quantity and distribution of melanin within the epidermis differ. Lighter skin tones have less melanin per square centimetre and smaller melanosomes that are closely aggregated in membrane-bound clusters. Darker skin tones have more melanin and larger melanosomes that are distributed singularly.

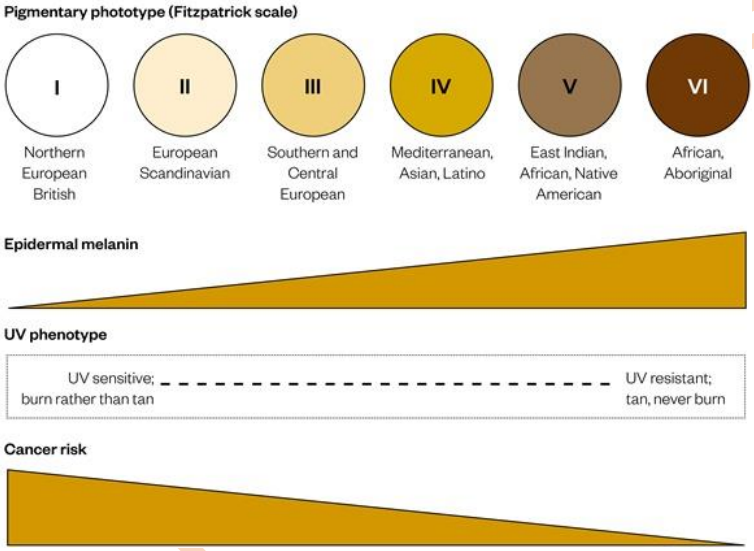
The dermis lies beneath the epidermis and divided into the more superficially dermis and deeper reticular dermis. The most predominant cell in the dermis is the fibroblast, which is abundant in the papillary dermis and sparse in the reticular layer. Fibroblasts synthesize most components of the dermal extracellular matrix (ECM), which includes structural proteins such as collagen and elastin, glycosaminoglycans such as hyaluronic acid, and adhesive proteins such as fibronectin and laminins.

Beneath the dermis and above the underlying muscle is the subcutaneous layer or superficial fascia. This layer mainly comprises both fatty and fibrous components.

Skin Analysis: Skin colourings & Ethnicity

Skin colour is due primarily to the presence of a pigment called melanin. Both light and dark complexioned people have this pigment. The number and size of melanin particles differ will in individuals.

The Fitzpatrick scale (also Fitzpatrick skin typing test; or Fitzpatrick photo typing scale) is a numerical classification schema for human skin colour. It was developed in 1975 by Thomas B. Fitzpatrick as a way to estimate the response of different types of skin to ultraviolet (UV) light.



Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Highly sensitive •Always burns •Never tans Example; a person with red hair and freckles.	Very sun sensitive •Burns easily •Tans minimally Example; a person who is fair skinned. Fair haired	Sun sensitive skin •Sometimes burns •Slowly tans to a light brown Example; a darker Caucasian	Burns minimally •Always tans well •Tans to moderate brown – think	Sun reactions rarely occur •Minimal freckles •Almost never burns •Always tans	Has dark brown or black skin •Tans easily •Almost never burns •This skin type is more prone to keloid scarring

The following table can used as a guide for determining someone Fitzpatrick.

To use this, circle the answer that relates to you for each category. The column that has the most circled answers will be the Fitzpatrick that best fits you.

	Fitz 1	Fitz 2	Fitz 3	Fitz 4	Fitz 5	Fitz 6
Eye Colour	Light blue, grey or green	Blue, grey, or green	Blue, grey, green or hazel/brown	Brown	Dark Brown	Brownish Black
Natural hair colour	Strawberry blonde, red	Blonde or light brown	Chestnut or dark blonde	Brown	Dark brown	Black
Colour of visible skin	Reddish tones Very pale	Pale with a beige tint	Olive tones	Light brown	Brown	Dark brown
Freckles on the skin	Plenty	Several	A few	Incidental	None	None
Burn reaction	Painful, redness, blistering and peeling	Redness followed by peeling	Sometimes burn with a little peeling	Rarely burn	Never burn	Never burn
Short term tendency to tan	Hardly or never tans	Light colour to the skin	Reasonably good tan	Tans easily	Go dark brown quickly	Go dark brown
Long term tendency to tan	Never	Rarely stays long	Sometimes stays for a bit	Lasts well	Stays for some time	Stays for some time
Photosensitivity	Very sensitive	Some sensitivity	Normal	Rarely have a problem	Never have a problem	Never have a problem

Photosensitivity occurs when the skin reacts in an abnormally sensitive way to light from the sun or an artificial source of ultraviolet (UV) radiation, like a tanning bed. Photosensitivity generally presents as a rash, It may look like a sunburn or eczema. Blistering may be present and affected areas may be hot or painful.

Skin Ageing

The visible signs of ageing are a combination of physiologic and environmental factors known as intrinsic and extrinsic factors. Over-exposure to ultraviolet (UV) radiation is one of the main factors responsible for skin damage, commonly referred to as sun damage, photoaging, actinic damage and UV-induced ageing. Other extrinsic factors that contribute to the ageing process include smoking, diet, sleep habits and the consumption of alcohol. Photoaging will present in the clinic with one or more of the following conditions:

Textural changes

- Wrinkles
- Dry or rough skin
- Solar elastosis
- Dilated pores
- Sagging and lax skin

Pigmentation

- Hyperpigmentation such as lentigines, darkened freckles, mottled pigmentation
- Poikiloderma or civatte
- Hypopigmentation
- Sallow discolouration

Vascular changes

- Telangiectasias
- Erythema

Degenerative changes

- Benign such as seborrheic keratoses, sebaceous hyperplasia, cherry angiomas
- Preneoplastic and neoplastic, actinic keratoses, basal and squamous cell cancers and melanomas

Photoaged skin has slower, much more disorganised keratinocyte maturation and increased cellular adhesion relative to younger skins. These factors reduce the desquamation process and result in a rough and thickened stratum corneum that has an impaired barrier function. The stratum corneum also has a poor light reflectance which presents as sallow, dull skin. Water escapes more easily from the skin, causing dehydration. This disrupted barrier also allows an increase in penetration of irritants which can be associated with skin sensitivity and erythema. Sun-damaged skin has signs of pigmentary changes due to overactivity melanocytes and disorganised melanin deposition in the epidermis. Areas with excess melanin are evident as hyperpigmentation, and areas with melanin deficits are shown as hypopigmentation.

In the dermis, chronic UV exposure is very damaging to the ECM. Structural proteins such as collagen are degraded due to the upregulation of enzymes (e.g. matrix metalloproteinases) and weakened due to cross-linkage. This accelerated collagen degradation combined with reduced collagen synthesis that occurs over time contribute to the formation of fine lines and wrinkles. In some cases of advanced sun damage, solar elastosis occurs, which consists of tangles masses of damaged elastin proteins in the dermis, seen as deep wrinkling, sallow complexion and thickening of the skin. Abnormal dilation of dermal blood vessels is also common, leading to visible erythema and telangiectasias

Glycosaminoglycans

Glycosaminoglycans (GAGs), also known as mucopolysaccharides, are polysaccharides that deal with the support and maintenance of skin structural proteins such as collagen and elastin. Frequently occurring glycosaminoglycans include hyaluronan and chondroitin sulphate, which function as water-binding molecules that can hold nearly 1000 times their own weight. This ability may serve to provide moisture for other skin components (i.e., collagen and elastin). For this reason, the use of glycosaminoglycans in skincare are renowned for being excellent ingredients for increasing overall hydration. Lastly, glycosaminoglycans may also inadvertently supply anti-ageing benefits.

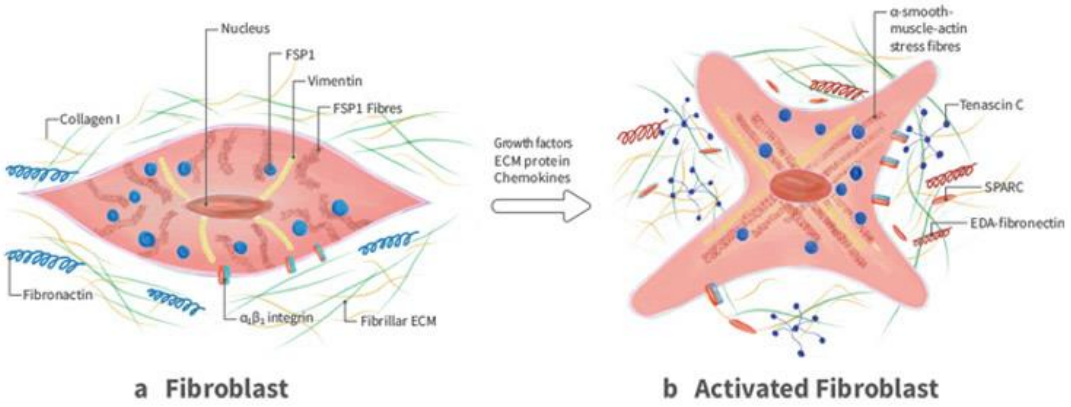
Examples of common glycosaminoglycans are chondroitin 6-sulfate, keratan sulphate, heparin, dermatan sulphate, and hyaluronate.

Glycosaminoglycans (GAGs) have widespread functions within the body. They play a crucial role in the cell signalling process, including regulation of cell growth, proliferation, promotion of cell adhesion, anticoagulation, and wound repair.

The GAG's retain water and form a gel substance through which ions, hormones and nutrients can freely move.

The main component of this gel is hyaluronic acid, which is a large polysaccharide made of glucuronic acid and glucosamine that attract water and is increased in tissues under repair or growth.

Fibroblast



a Fibroblast **b Activated Fibroblast**

A fibroblast is a type of cell that is responsible for making the extracellular matrix and collagen. Together, this extracellular matrix and collagen form the structural framework of tissues in humans and plays an important role in tissue repair. Fibroblasts are the main connective tissue cells present in the body.

Elastin

The same as collagen, elastin is present in many structures in the body, not just in the skin. Elastin makes up only around 3% of the skin, whereas collagen makes up 70% of the dry mass of skin. Degradation of elastic fibres is associated with UV exposure, and elastosis is one of the key features of photo-aged skin.

The fact that new elastin fibres are not produced is a challenge in the aesthetic industry.

Collagen

Collagen is an abundant protein; it is the main component of connective tissue and is found not only in fibrous tissue like the skin but also in tendons, ligaments, cartilage, bones, corneas and blood vessels.

There are 18 collagen subtypes, 11 of which are in the dermis of the skin.

Types of collagen

The basal lamina serves as structural support for tissues and as a permeable barrier to regulate movement of both cell and molecules.
The dermal-epidermal junction contains type IV collagen, laminin and highly specialised type VII collagen.
During wound healing, type III collagen appears in the wound about four days after the injury. Wound collagen or type III is immature collagen tissue and does not provide a great deal of tensile strength. It is initially deposited in the wound in a seemingly random fashion.

It will take approximately three months for type III collagen to mature into type I collagen.

As skin ages, reactive oxygen species, associated with many aspects of ageing, lead to increased production of the enzyme collagenase, which breaks down collagen. Then fibroblasts, the critical players in firm, healthy skin, lose their normal stretched state. They collapse, and more breakdown enzymes are produced. People in their 80s have four times more broken collagen than people in their 20s.

Immune functions of the skin

Langerhan cells are 'guard' cells, found mainly in the Stratum Filamentosum (Spinosum) but start in the dermis. They move across the skin and are stimulated to action by the entry of foreign materials, acting as macrophages to engulf bacteria.
If someone has a bad immune system, any micro wound treatment will not be as effective.

Skin Analysis & Skin Types

Skin analysis must be carried out before treatment. Ask the client to attend their appointment wearing no make-up.

Skin Type

- *Skin type* is how our skin behaves or looks due to the different genetic and hormonal make-up of our bodies.
- It cannot be changed by external treatments but can change over time internally. For example, oily skin may become lipid dry due to the reduction in oil production caused by the menopause
- It can only have its appearance improved and made more manageable – the skin type will still remain
- Products will only have an effect on skin type for as long as your client maintains a good routine

Skin Types are categorised as

Oily Skin - experiences an excessive production of sebum due to an excess of the androgen hormone dihydrotestosterone (DHT)

- Sebum prevents water-loss
- The skin will have widespread sebaceous filaments, which are little pockets mainly composed of solidified sebum, inside the tiny hair follicles of the face.
- A greasy sheen can be seen on the skin.
- There are visible enlarged or thickened pores and an uneven texture.
- The skin will have some slip to it, especially on the t-zone.
- Puberty results in an increase in androgens, and this, in turn, increases sebaceous activity. It may result in enlarged pores as sebum fills up the follicles. The results are most pronounced on the t-zone, which is in the shape of a capital T starting at the chin, proceeding up the nose with the top across the forehead.
- The increase in sebum usually results in comedones.
- During the menstrual cycle, progesterone rises, and so do DHT levels; which is why the skin becomes oily and spot-prone at certain times, stopping progesterone rise.

Lipid (oil) Dry - has an underproduction of sebum and therefore a lack of lipids.

- Dry skin can easily become dehydrated as the Natural Moisturising Factor in the skin can evaporate easily without a protective barrier of lipids.
- Low levels of sebum combined with dehydration leads to cells not functioning properly.
- Results in premature ageing if not treated.
- Clients complain of flakiness and the fact that nothing seems to keep their skin supple.
- Their skin may feel tight.
- Skins look scaly and flaky.
- Look thickened, and milia may be present.
- A client may suffer from eczema or psoriasis elsewhere on the body.
- Fine lines and deep wrinkles are more prominent on these skin types.
- May be some evidence of sun-damage, with sunspots or broken capillaries visible through the skin.
- It feels very rough to the touch.
- Sebaceous filaments are minimal.

Sensitive Skin - skin that is sensitive is categorised and treated as so, regardless of whether it is oily, lipid dry or a combination. This is because products normally used to treat other skin types will cause irritation to a sensitive skin

- Sensitive skin has reduced barrier function, making the skin more vulnerable, easily irritated, and easily dried and dehydrated.
- Sensitivity means that it has an overactive immune response to ingredients – causing the skin to attack healthy cells, breaking down collagen, elastin and hyaluronic acid, making the skin become further dehydrated.
- This results in premature ageing if left untreated.
- Sensitive skin also reacts in an exaggerated manner to friction and pressure, causing the skin to flush easily.
- Widespread broken capillaries (telangiectasia, also called couperose skin) found particularly across the nose, cheeks and forehead in a butterfly pattern. Skin can look purple in places.
- The skin may produce erythema (redness) on seemingly unaffected areas at the lightest touch.

- It feels rough, slightly sandpapery and hot in flushed areas.
- May see lumps that look sore. Severe cases include a swollen and red nose.
- The client's skin feels bumpy and hot to the touch.

Combination Skin – has a slightly oily t-zone which contributes to the silkiness of the rest of the skin

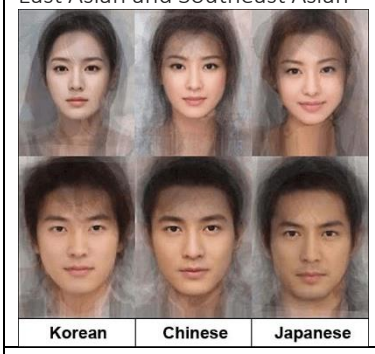
- Oils are needed to keep skin supple.
- The term 'combination' is useful when you are explaining to clients; they may need to treat the t-zone differently from the rest of the skin, and those occasional breakouts can still occur on good skin due to a surge in hormones when under stress, during menstruation or if the wrong product is used.
- Combination skin leans slightly over to the oily skin type category, not the lipid dry one.
- Confusion arises when people think skin type can be a combination of oily and lipid dry. But an excess of oil production on one part of the skin on the face does not make it possible to have a dry skin type on another.
- Oily skin type is an overproduction of oils.
- Dry skin type is an underproduction of oils.
- Combination skin can quickly become dehydrated with the use of products. For oily skin, these products strip away the protective barrier of lipids, leading to the Natural Moisturising Factor in the skin (which keeps it supple) evaporating much more easily.
- When treating a combination skin, you should consider its separate parts. A typical combination product usually focuses on only the oily part. It is, therefore, usually sebum-reducing and lacking in hydrating ingredients to balance out its oil reducing properties. The product may make an oily t-zone less oily, but, inadvertently, it will also make the rest of the skin (that was previously in good condition) become lipid dry or dehydrated.
- Treat the different areas of the skin with products that are designed specifically for them.

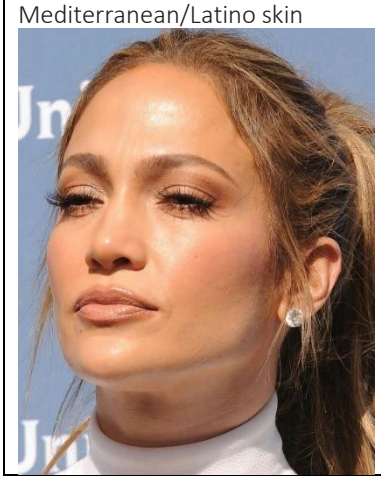
Skin Type	Causes	Treatment
Normal = well balanced sebum secretions	If neglected, the skin can become dry around the eyes, cheeks and neck	Because this skin rarely has problems it can be neglected Advise on good skin care routine
Dry = lacks oil or sebaceous secretions	Climate. Skin ageing – sebaceous secretions decrease with age. Hereditary. Medication. Diet lacking in fat/oil	To nourish and soften. To protect and rebuild the hydro- lepidic film. To provide a feeling of comfort and wellbeing.
Sensitive = reacts rapidly to aggressions	Excessive exposure to sun, wind, cold and pollution. Stress and fatigue. Illness and medication. Diet. Repeated use of unsuitable products.	To soothe, soften and desensitize To reinforce the skin's natural defences To provide a feeling of comfort and well being
Dehydrated = lack of moisture in the epidermis	• Central heating, air conditioning • Climate i.e. sun, wind • Diuretics • Not drinking enough water	To help skin maintain its moisture level by rebuilding the hydro-lepidic film
Oily produces excess oil or sebum	Hormones. Climate, sun exposure dries the skin initially but stimulates production of sebum after a few days. Use of strong cosmetic products. Food rich in fat or sugar Hereditary	To re-balance production of sebum To purify To soften and soothe
Combination	• T zone has greater number of sebaceous glands which are more active. • Inadequate cleansing programme • Use of strong cosmetic products	To balance over dry or over oily areas
Mature	Accelerated aging. Environment e.g. pollution, climate, central heating, air conditioning. Poor diet Alcohol, smoking, Illness and medication, stress and fatigue.	To improve condition of skin Lessen appearance of lines and wrinkles Hydrate and nourish

Pigmentation

The main difference between darker skin tones and Caucasian skin tones is the dispersal of melanocytes. In dark skins melanosomes (melanin pigment granules) are large and scattered singly, in lighter skins they are smaller and packed together. Melanin has the ability to absorb free-radicals, harmful particles in the environment, thus helping to fight against premature ageing. As the melanin is bigger and more widely distributed in darker skin colours this, scientifically, proves that darker skins will age slower than Caucasian skins.

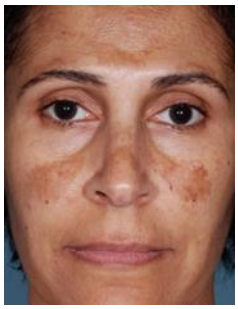
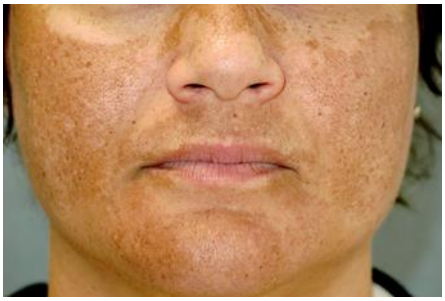
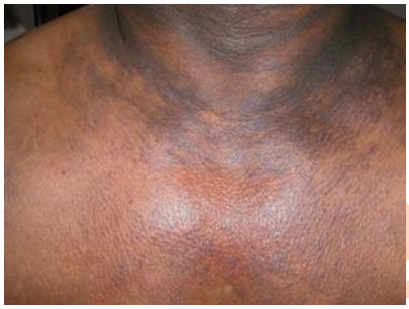
The table below is just a guide of typical characteristics linked to skin colour and ethnicity. Also mixed ethnicity may have many traits linked across a variety of ethnicities.

White/Caucasian skin 	• Relatively thin skin – blood capillaries visible – also prone to broken capillaries • Fewer and less sebaceous glands – therefore fine in texture • Prone to burning in the sun due to less melanocytes • Also ages and wrinkles prematurely • Blue / pink tones • Some skin tones can be darker, particularly if the parents have brown or black hair • Red haired and blonde haired people have quite sensitive skin
East Asian and Southeast Asian  	• Skin rarely shows blemishes, but can develop hyper-pigmentation, scarring and unevenness – therefore be careful if extracting blackheads. • Ages slower than white skin – good tolerance to UV light • Sebaceous glands are more active in the T-zone area, but not excessive • Yellow and olive undertones
South Asian and Middle Eastern 	• Melanin is quite high and skin tone can be yellow to dark • More sweat glands – which can give a sheen – not to be mistaken for oiliness • A strong skin, with supporting fibres – therefore ages well • Pigmentation problems – particularly around and under the eyes • Excess dark hair can be visible on the face and body

Black skin  	• This skin has the most melanocytes– therefore has more protection from UV light and sun damage • Sebaceous activity gives good lubrication and moisture, resulting in a slower aging process • Cell renewal is fast, as the skin desquamates well • Collagen and elastin fibres are strong with good support preventing poor muscle tone • Keloid scarring can occur when skin is damaged • Although the epidermis is thicker, harsh products should be avoided. • Dermatosis apulose nigra occurs exclusively in black skins and more so in women. The condition forms brown to black lesions that resemble moles. • Pseudofolliculitis barbae hairs are susceptible to growing back into the follicle, due to the natural curls, this can cause an inflammatory reaction (PIH) which results in tender spots. These spots often become infected and filled with pus and can be mistaken for acne. Shaving is a main cause of this condition, waxing can also be a cause.
Mediterranean/Latino skin 	• Darker, olive skin tones – for people who live along the Mediterranean coast line – Spain, Italy, Portugal, Greece, France • Sebaceous glands produce more oil to lubricate skin in the heat and rarely suffers from blemishes • Hair tones are darker, which makes facial hair more visible • Skin is strong and robust with good protection from melanocytes and tans well in the sun

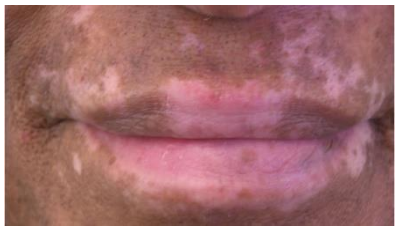
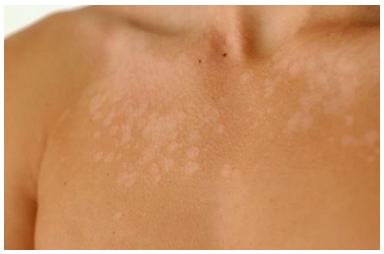
Hyper-pigmentation= too much pigment in an area

Hyperpigmentation is where the skin has created too much melanin. This can be triggered by many different things hormone imbalances, sun exposure, photo-sensitivity to products, acne and scaring.

Unfortunately, the damage is often done before the pigmentation is seen and affects all skin colours. The increased distribution of melanin pigment means hyper-pigmentation is greatly increased in darker skins. Post inflammatory hyper-pigmentation, also known as PIH, can develop after the skin has been irritated or sensitised. This can occur from harsh beauty treatments, over-abrasion of the skin e.g. strong soaps, products with high alcohol content and squeezing spots. Hyper-pigmentation can occur in all skin colours but darker skins develop dark patches of pigmentation and Caucasian skins will appear red, this is referred to as post-inflammatory erythema (PIE). This occurs as a result of the healing process from injury. Irregular pigmentation can be a problem and is hard to treat.

Hypo-pigmentation= Lack of pigment in the skin


Hypopigmentation is a lack of melanin in the skin caused by depletion of melanocyte cells. This can be caused by numerous reasons, frequently in people suffering from thyroid conditions, addisons disease and pernicious anaemia. Other causes can include injury to the skin. Loss of pigment is highly visible in darker skins but can occur on any skin colour.

Post-inflammatory hyperpigmentation

History can include infestation, allergic reactions, mechanical injuries (picking acne lesions) or reactions to medications, phototoxic eruptions, burns, bruising and inflammatory skin diseases from eczema/dermatitis family.

This type of pigmentation can darken with exposure to UV light and with the use of various chemicals and medications, such as tetracycline, bleomycin, doxorubicin, 5-fluorouracil, busulfan, arsenicals, silver, gold, anti-malarial drugs, hormones and clofazimine.

Dermal pigmentation caused by trauma

A combination of the inflammatory response and ultraviolet causes the inflammation to disrupt the basal cell layer, a combination of melanin pigment being released and subsequently trapped by macrophages in the papillary layer. Once the wound healing has completed and the junction repaired, the melanin pigment granules caught within the dermal layer have no way of escape and thus a more difficult type of pigment granule to eliminate.

Post-Inflammatory hyperpigmentation is a darkening of the skin that's the result of acne scarring or skin injury due to inflammatory response in the skin. The cells associated with melanin production are closely linked with the skin immune system cells, meaning you can't stimulate one without stimulating the other.

Post-inflammatory hyperpigmentation can be seen after endogenous or exogenous inflammatory conditions. Essentially any disease with cutaneous inflammation can potentially result in post-inflammatory hyperpigmentation in individuals capable of producing melanin.

Several skin disorders such as acne, atopic dermatitis, allergic contact dermatitis, incontinenti pigmenti, lichen planus, lupus erythematosus, and morphea have post-inflammatory hyperpigmentation as a predominant feature. Exogenous stimuli, both physical and chemical, can cause injury to the skin, followed by PIH. These include mechanical trauma, ionizing and non-ionizing radiation, heat, contact dermatitis, and phototoxic reaction.

Optimal treatment for PIH includes prevention of further pigment deposition and clearing of the deposited pigment. Chemical peels work best when used in combination with topical bleaching regimens. Laser therapy should be used with extreme caution and care. Given the propensity of darker-skin types to develop post-inflammatory hyperpigmentation, superficial peels work best while minimizing complications.

Tyrosinase inhibitors, such as Vitamin C, arbutin, kojic acid and mulberry, have been favoured for their ability to inhibit melanin by targeting the tyrosinase enzyme, which covers the amino acid phenylalanine into the melanin precursors.

Effective topical vitamins include niacinamide and several forms of vitamin C, including L-ascorbic acid, magnesium ascorbyl phosphate (MAP) and tetrahexyldecyl ascorbate, an oil-soluble version.

In addition to having a direct skin-lightening effect, Vitamin C can help protect against sun damage by neutralizing free radicals that contribute to hyperpigmentation. Studies have shown that Vitamin C and E, in combination, can improve the efficacy of sunscreen. A great all-around skin vitamin, Vitamin A, helps pigmentation problems by treating slight discolouration and evening skin tone. Vitamin A can be taken orally as well as applied topically in the form of a retinol cream or other retinol.

The sex of the client

Males tend to have a more acidic skin surface and their stratum corneum/horny layer is thicker than that of females. Males also have coarse facial hair and shaving regularly removes the stratum corneum cells before they are ready to desquamate naturally. This can cause skin dryness and sensitivity, especially with males using after shave lotions which are very high in alcohol and are applied directly to the skin. It is important that moisturiser is applied to protect the skin

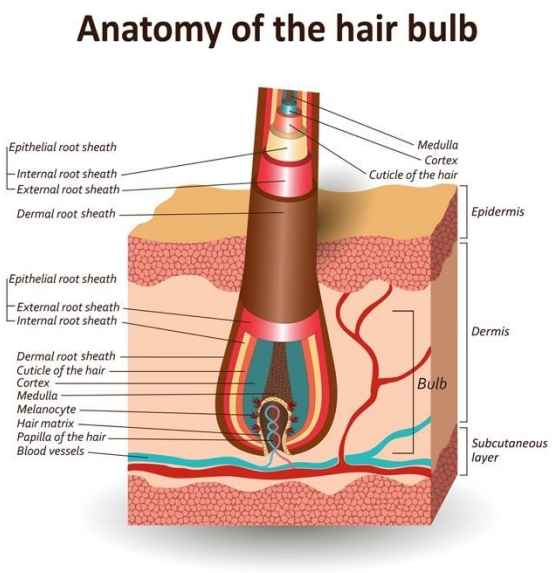
Also the male collagen structure is different from that of females. Sebum and collagen production slows down in menopausal females causing the skin to age. Skin in the male does not seem to age as quickly because their sebum and collagen production remains constant.

Males tend to have a facial to induce relaxation as well as improving their skin condition.

Key technical words that are associated with facials and skin care

Term	Definition
Elastin	A tissue in the dermis which allows the skin to stretch and return to shape
Collagen	A tissue in the dermis which provides strength
Keratin	The protein found in the skin (also hair and nails) which provides strength
Melanocyte	A cell which produces melanin
Melanin	Also known as pigment, gives the hair and skin its natural colour and provides protection against UV light
Arrector pili muscle	The muscle attached to the hair follicle and epidermis, which causes the hair to stand upright when the skin is cold
Comedone	Technical name for a blackhead
Pustule	Technical name for a whitehead
Papule	Technical name for a spot that has no head
Congestion	Polite way of saying a variety of spots on the skin
Milia	Milia occur when keratin becomes trapped beneath the surface of the skin. Often around the eyes where the pores can be tighter and the skin is thinner
Papillary layer	The wavy layer with a rich blood supply; joins the epidermis to the dermis
Reticular layer	The part of the dermis that holds everything in place
Sebaceous gland	Sacs attached to the hair follicle which produce the oil sebum
Desquamation	The process by which skin cells are shed
Humectant	Ingredient that attracts and retains moisture
Sebum	The oil produced by the sebaceous gland, which lubricates the skin and hair
Excretion	A function of the skin; the sweat glands excrete waste products in sweat
Secretion	A function of the skin; sebum is secreted onto the skin
Acid mantle	A layer made up of sweat and sebum, which makes the skin acidic (pH 4.5–5.5) and deters bacteria and germs from entering the body
Antioxidant	Antioxidants protect the skin by reducing and counteracting free radical production. Common antioxidants are ascorbic acid, benzoic acid.
Free radical	Free radicals can damage the skin by trying to grab an extra electron from atoms in the skin. When atoms are taken away from molecules in the skin, it causes damage to our skin's DNA that can speed along skin ageing.
Emulsion	2 liquids mixed together. In skin care this is often oil and water
Adipose	Technical name for fat cells

Structure of the hair



Below the surface of the skin is the hair root, which is enclosed within a hair follicle.

At the base of the hair follicle is the dermal papilla. The dermal papilla is supplied with nourishment from the bloodstream to produce new hair. The dermal papilla structure is vital to hair growth because it contains receptors for male hormones and androgens.

Androgens regulate hair growth. In scalp hair, the androgens may cause the hair follicle to become progressively smaller, causing the hair to become finer in individuals who are genetically predisposed to this type of hair loss.

Hair Growth Cycle

Hair follicles grow in repeated cycles. One cycle consists of three phases:

Anagen	Growth Phase
Catagen	Transitional Phase
Telogen	Resting Phase

Each hair passes through the phases independent of neighbouring hairs.

Anagen Phase

Approximately 85% of all hairs are in the growing phase at any time. This growth phase can vary from 2 years to six years. Hair will grow approximately 10cm per year, and any individual hair is unlikely to grow more than one meter long.

In the anagen stage, the hair receives nourishment from the blood supply from the dermal papilla. This enables the cells to reproduce. Cells move upwards to form the different structures of the hair shaft. Melanin is also produced to form the hair colour.

Catagen Phase

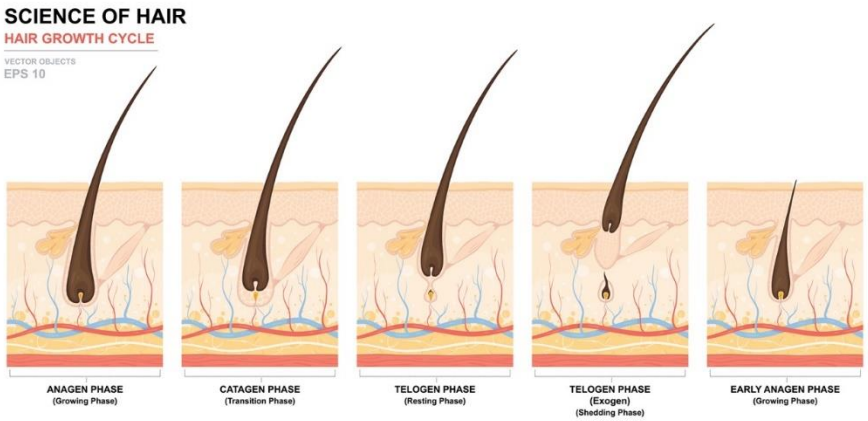
This is the transitional phase that follows the growth phase. The catagen phase lasts around one to two weeks. During the catagen phase, the hair follicle shrinks to about 1/6 of the normal length. The lower part is destroyed, and the dermal papilla breaks away to rest below.

This is the inactive or resting stage of hair growth. In this stage, the dermal papilla breaks away to make the lower end of the hair become loose from the base of the follicle. The hair is still being fed from the follicle wall and is sometimes known as club-ended hair. The hair starts to become drier and continues to move up to just below the sebaceous gland. At this stage, it can be easily brushed out.

Telogen Phase

This resting phase follows the catagen phase and lasts around five to six weeks. During this time, the hair does not grow but stays attached to the follicle whilst the dermal papilla stays in a resting phase below. Around 10-15% of hairs are in this phase at any time.

The hair follicle re-enters the anagen phase. The dermal papilla and the base of the follicle join together again, and a new hair begins to form. If the old hair has not yet been shed, the new hair pushes the old one out, and the growth cycle starts over again.



Hair Types

Vellus hair is the fine, non-pigmented hair that covers the body of children and adults. It does not usually grow longer than 2cms in length. Vellus hair is usually straight, regardless of ethnic origin, due to the fact that the follicles are not deep. The growth of vellus hair is not affected by hormones.

Terminal hair is the thick pigmented hair found on the scalp, beard, underarms, and pubic area. The growth of terminal hair is influenced by hormones.

Terminal hair is generally more abundant on males than females. However, variations exist within populations, with some women appearing hairier than some males.

These hair types can be straight, curly or wavy depending on ethnic origin, hereditary factors and chemical hair treatment such as perms.

European hair would appear to be oval in shape and would tend to be wavy. Asian hair would appear to be round in shape and tend to be straight. Afro-Caribbean hair would appear to be flattened and tend to be very curly.

In some cases, excess hair growth, called hirsutism (pronounced: hur-suh-tih- zum), maybe the result of certain medical conditions. In girls, polycystic ovary syndrome and other hormonal disorders can cause dark, coarse hair to grow on the face, especially the upper lip, and on the arms, chest, and legs. Some medications, like anabolic steroids, can also cause hirsutism.

Superfluous hair is coarse unwanted hair, also termed hypertrichosis. Superfluous hair is considered not only a physical burden but can become a psychological one, too if not treated. The modern woman is keenly aware of the importance of being well-groomed; her happiness, poise, even her success or failure in life very much depend upon the face she presents to the world.

The reluctance and timidity of women to discuss this condition would vanish if they realised superfluous hair is not something to be ashamed of, but a simple problem requiring remedial treatment.

It is estimated that 80% of the women in Britain have some superfluous hair growth. Generally considered a "cosmetic" issue, hair growth can cause real or perceived problems with social acceptance for many people, both male and female. Many cultures have a perceived ideal amount of hair growth. Changes in hair growth patterns are sometimes a symptom of hormonal imbalances. Managing or removing unwanted hair can go beyond being a simple "cosmetic" problem.

Changes in Growth Patterns

The hair growth pattern can change due to several factors:

Illness - Illness has a strong effect on hair growth, usually making it lank and lifeless. It can also cause hair loss, or growth of unwanted hair.

Medication - Drugs can affect the growth pattern; hair may become coarse and thick. Follicles can often be weakened, causing hair to fall out. In some cases, this can be temporary.

Hormones - Different changes of life can affect hair growth, e.g. women going through the menopause may find they develop whiskers of coarse hair on their face. Endometriosis or Polycystic Ovaries can cause male pattern hair growth in women.

Emotion - Sudden shock, an accident, or stress can all lead to hair loss. This is called alopecia (patches of hair loss).

Causes of Hair Growth

Excess hair growth can be either normal or abnormal and may be the result of a number of causes.

- Topical – Hair growth caused by irritation of the skin caused by friction which results in an increased blood supply. The hair follicles receive more nutrients and thus grow longer and thicker hair. The removal of vellus hair by plucking can also cause the hair follicle to become deeper, causing more blood supply and the change in structure from vellus to terminal. For example, sunburn can cause excess hair growth, as can moles, scars and birthmarks.
- Congenital – this type of hair growth is inherited. The person can be born with it or develop it later in life.
- Systemic – this includes normal hair growth caused by hormones from puberty, pregnancy and menopause, as well as abnormal hair growth caused by hormonal imbalances from diseases, surgery, tumours, medicine or stress.

Malfunctions of the endocrine system and the effects on hair growth

Abnormal hair growth is often caused by an abnormal change in the endocrine system, which causes a hormonal imbalance. This can be due to illness, tumours, medication or dietary disorders.

Virilization

This is when the female body becomes more masculine, and results develop heavy facial hair and excess body hair growth in the male pattern of growth. A hormone imbalance that can be due to a tumour on the adrenal cortex or a tumour on the ovaries can influence the hypersecretion of androgens and the reduction in the release of oestrogen. This causes abnormal systematic hair growth.

Virilization is also accompanied by loss of menstruation, deepening of the voice, loss of scalp hair, development of acne, and the breast tissue reduces, and the body thickens.

Polycystic Ovary Syndrome

A variety of symptoms can be seen with this condition, including heavy or irregular periods, excessive facial and body hair growth and infertility. It is caused by cysts or growths on the ovaries that develop due to non-completion of the ovulation process.

Cushing Syndrome

This is caused by tumours on the adrenal cortex where it causes the gland to produce too much cortisol. There is an associated overproduction of androgens, and as a result, a heavy male pattern of hair growth can be seen. Other symptoms may include a thickening of the trunk, round face, dowagers hump and thin legs and arms.

Anorexia Nervosa

Clients suffering from this eating disorder become very thin and undernourished. It is, therefore, quite common to see excessive hair growth all over the face and body. This is caused by a shutdown in the ovaries that reduces the amount of oestrogen produced and stimulating the androgens. Females who exercise or undertake athletic training may also be affected by the same symptoms.

Medication

Some prescribed drugs such as androgens or anabolic steroids have a secondary effect causing excess hair growth.

The Lymphatic System

The main functions of the lymphatic system are:

1. Removal of bacteria and abnormal material
2. Helps prevent infection
3. Drains away excess fluids which are then eliminated from the body.

Lymph is colourless, clear, and similar to a watery fluid resembling blood plasma which it supplies to tissues for their metabolism. It is filtered through the walls of the capillaries. In the spaces between the cells where there are no blood capillaries lymph provides nourishment.

It also carries **lymphocytes** – these are a type of white blood cell. There is also another type of white blood cell present which lines the inside walls of the lymph nodes. Macrophages destroy and engulf any debris, bacteria or foreign bodies carried in the lymph. They also manufacture antibodies to fight bacteria, which pass into the blood stream along with the circulating lymph. When we suffer from an infection, the lymph nodes that are nearest to the infectious site will swell (oedema) and as the white cells fight the bacteria the area tends to become tender.

The lymphatic system has no muscular pump (heart) as does the blood circulation. The lymph moves through the vessels and gets around the body through movements of large muscles contracting. Lymph travels in one direction, from body tissue back towards the heart.

Lymph vessels

Lymph vessels contain valves along their vessels to prevent lymph flowing backwards. The vessels run very close to the veins around the body, and are very similar in structure to veins.

The vessels join to form larger lymph vessels, until they eventually flow into one or two large lymphatic vessels; these are the thoracic duct (or left lymphatic duct) and the right lymphatic duct. The thoracic duct receives lymph from the left side of the head, neck, chest, abdomen and lower body. The right lymphatic duct receives lymph from the right side of the head and upper body.

These large lymph vessels then empty their contents into a vein at the base of the neck, which then empties into the vena cava. The lymph is then mixed into the venous blood as it returns to the heart.

Oedema is the swelling of the tissues. This can occur when fluids accumulate instead of returning to the blood stream.

Lymph nodes

These are usually called glands. They are tiny oval structures usually between 1mm and 25mm in length, which filter the lymph, extracting the bacteria, and defending the body by fighting against infection, destroying any harmful bacteria. Lymphocytes are found in the lymph glands, and produce the antibodies which fight against the invasion of any micro-organisms.

Lymph nodes of the head

- **Buccal group**: these drain the eyelids, nose, skin and face.
- **Mandibular group**: drains the lips, chin, nose and cheeks.
- **Mastoid group**: drains the temple area and skin of the ears.
- **Occipital group**: drains the back of the scalp and upper neck area.
- **Sub-mental group**: drains the lower lip and chin.
- **Parotid group**: drains the ears, eyelids and nose.

Lymph nodes of the neck

- **Superficial cervical group**: drains the back of head and neck.
- **Lower deep cervical group**: drains the back area of neck and scalp.

Lymph nodes of the neck and chest

These nodes are in the armpit: Axilla glands drain the various areas of the chest and arms.

The Lymphatic System: A system of fluid balance and immune defence

When plasma passes out of capillary walls into the surrounding tissues, it is called interstitial fluid and provides the necessary nourishing substances for cellular life.

This interstitial fluid contains proteins that help draw fluid across the capillary wall.

Here, it will be drawn to the hyaluronic acid content of the glycosaminoglycans gel, aiding the support of collagen, elastin fibrils and the many other cells that reside in the dermis. Some fluid will move up through the dermal/epidermal junction towards the epidermis to aid the hydration of the epidermal cells and become part of the trans-epidermal water loss (TEWL) of the epidermis.

After bathing the cells, 90-98% of the interstitial fluid re-enters the capillaries, returning to the heart through the veins. The other 2-10% returns via the lymph capillary system, which is a system of dead-end capillaries that extend into most tissues, paralleling the blood capillaries.

Lymph fluid is the nourishing fluid of the cells. The lymphatic system is not only a reservoir of organic fluids and defence system against microbial invasion. Lymph fluid is the healer of wounds, the builder of tissues and regenerator for the body.

Nutritional Function

It is in the lymphatic system that the daily metabolism, the combustion and absorption of nourishing elements coming from the intestine happen. Lymph fluid carries lipids and lipid-soluble vitamins absorbed from the gastrointestinal tract. This is one of the next most important functions of the lymphatic system.

The absorption of fats and fat-soluble vitamins from the digestion system and the subsequent transport of these substances to the venous circulation makes the lymphatic system invaluable to the health of the body and, of course, the skin. Particularly the absorption of beta-carotene (Vit A)

Metabolism of the Lymphatic System

Lymph flows slowly; there is no 'pump' to accelerate the flow, and it relies on body movement (like walking) to help with transportation. If the lymph flow is steady and regular, the result is a balanced metabolism. When we sleep or are sedentary for long periods of time, the lymphatic circulation becomes partly stopped. It has also been found fatigue, cold, over-exertion, and nervous tension will also slow it down.

When the lymph circulation slows down, waste products accumulate, and the lymph becomes viscous, with one of the first signs of an impaired lymphatic system is swelling in the hands and feet after periods of standing or sitting. Another indication is puffy eyes in the morning.

Because there are lymphatic capillaries not only in the sheaths around the nerves but also between the nerve bundles, the stagnant lymph exerts pressure, producing a feeling of pain on the tissues and nerve extremities.
In addition, the stagnation of the fluid will produce a feeling of fatigue and heaviness in the limbs.

The effect of an impaired lymphatic system on skin cells of the dermis is very detrimental to cell renewal and repair. As cells dry out and vital functions like wound healing diminish, the tissues are poisoned by their own waste products.
As well as regular body movement, the lymphatic system relies on a regular fluid intake, as the internal hydration of the body must be maintained at an optimum level for the formation of these vital fluids. So, it is good to advise clients to increase water intake before and after treatment.

In conditions of poor body hydration, the supply of the vital interstitial fluids to the dermis is greatly reduced. This reduction of dermal fluid will have a knock-on effect on the epidermis, resulting in poor dermal/epidermal cell function and enzyme activity.

When addressing any skin condition that is related to hydration, treatment must begin with the systems that are responsible for the movement and maintenance of body fluids. Most importantly, the lymphatic system and the circulatory system they work together and are equally important.

Impaired Lymphatic System

Swelling of the ankles, feet and fingers as an early physical indication of an impaired lymphatic system. Ankles are the first place to look and to test these areas for fluid retention; use the simple toxaemia test of pressing into the swelling, which will be apparent just above the ankle bone.

Do a very firm press into the swelling for about 30 seconds, then a quick release. Count how long it takes for shape and colour to return to the depressed area. If you have counted over 3 seconds, the probability you have an impaired lymphatic system is high.

If a client has an impaired lymphatic system, advise them there will be fluid retention around the eyes for longer. This is normal

The Cardiovascular System

All body systems are linked by the cardiovascular system, a transport network that affects every part of the body. To maintain homeostasis, the cardiovascular system must provide for the rapid transport of water, nutrients, electrolytes, hormones, enzymes, antibodies, cells, and gases to all cells. In addition, it contributes to body defences and the coagulation process and controls body temperature. The term cardiovascular refers to the cardiac (heart) muscle, the vascular system (a network of blood vessels that includes veins, arteries, and capillaries), and the circulating blood. Thus, the three primary components of the cardiovascular system are:

- Heart

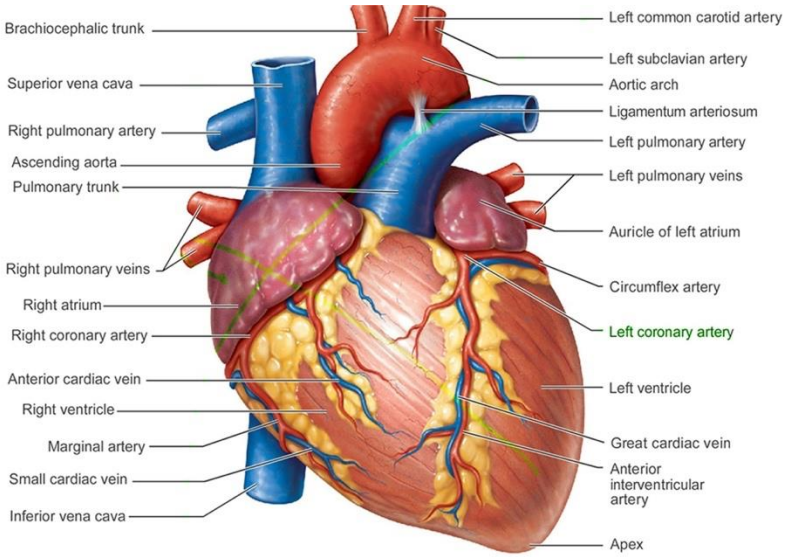
- Circulating blood
- Blood vessels (the circulatory system)

Organ/Structure	Primary Functions
Heart	• Muscular organ about the size of an adult's closed first • Contractions push blood throughout the body • The average heart beats 60 to 80 times per minute
Arteries	• Transport blood from the right and left chambers of the heart to the entire body • Large arteries branch into arterioles the farther they are from the heart • Carry oxygenated blood that is bright red in colour • Have thicker elastic walls than veins do • Have a pulse • Are located deep in muscles/tissues
Veins	• Blood is transported from peripheral tissues back to the heart and lungs • Large veins branch into venules in the peripheral tissues • Deoxygenated blood is carried back to the lungs to release carbon dioxide • Carry blood that is normally dark red in colour • Have thinner walls than arteries; walls appear bluish • Valves prevent the backflow of blood • Are located both deep and superficially (close to the surface of the skin)
Capillaries	• Connect arterioles with venules via microscopic vessels • Oxygen and carbon dioxide, nutrients, and fluids in tissue capillaries are exchanged • Waste products from tissue cells are passed into capillary blood, then onto removal from the body
Circulating Blood	• Carry blood that is a mixture of arterial blood and venous blood • Oxygen and carbon dioxide, nutrients, and fluids are transported by circulating blood • Waste products are removed • Nutrients are disbursed • Regulates body temperature and electrolytes • Regulates the blood-clotting system

The Heart

The human heart is a muscular organ about the size of a man's closed fist. The heart contains four chambers and is located slightly left of the midline in the thoracic cavity. The two atria are separated by the interatrial septum (wall), and the interventricular septum divides the two ventricles. Heart valves are positioned between each atrium and ventricle so that blood can flow in one direction only, thereby preventing backflow. The right atrium of the heart receives o2-poor blood from two large veins: the superior vena cava and the inferior vena cava. The superior vena cava brings blood from the head, neck, arms, and chest; the inferior vena cava carries blood from the rest of the trunk and the legs. Once the blood enters the right atrium, it passes through the heart valve (right atrioventricular, or tricuspid, valve) into the right ventricle. When blood exits the right ventricle, it begins the pulmonary circuit—it enters the right and left pulmonary arteries. Arteries of the pulmonary circuit differ from those of the systemic circuit because they carry deoxygenated blood.

Like veins, they are usually shown in blue on colour-coded charts. These vessels branch into smaller arterioles and capillaries within the lungs, where gaseous exchange occurs (o2 is picked up, and Co2 is released). From the respiratory capillaries, blood flows into the left and right pulmonary veins and then into the left atrium. The left atrium also has a valve (left atrioventricular, bicuspid, or mitral valve). Blood flows through the mitral valve into the left ventricle. When blood exits the left ventricle, it passes through the aortic semilunar valve and into the systemic circuit by means of the ascending aorta. The systemic circuit carries blood to the tissues of the body. If a valve malfunctions, blood flows backwards and a heart murmur results. The right side of the heart pumps o2 poor blood to the lungs to pick up more o2; the left side pumps o2-rich blood toward the legs, head, and organs. The heart's function is to pump sufficient amounts of blood to all cells of the body by contraction (systole) and relaxation (diastole). Because the lungs are close to the heart, and the pulmonary arteries and veins are short and wide, the right ventricle does not need to pump very hard to propel blood through the pulmonary circuit. Thus, the heart wall of the right ventricle is relatively thin. On the other hand, the left ventricle must push blood around the systemic circuit, which covers the entire body. As a result, the left ventricle has a thick, muscular wall and a powerful contraction.



Blood pressure increases during ventricular systole and decreases during ventricular diastole. Blood pressure not only forces blood through vessels but also pushes it against the walls of the vessels like air in a balloon. Therefore, it can be measured by how forcefully it presses against vascular walls.

The average heart beats 60 to 80 times per minute. Children have faster heart rates than adults, and athletes have slower rates because more blood can be pumped with each beat. During exercise, the heart beats faster to supply muscles with more blood. During and after meals, it also beats faster to pump blood to the digestive system. During a fever, the heart pumps more blood to the skin surface to release heat. Remember that all responses are designed to maintain homeostasis. The heart rate (pulse rate) is measured by feeling for a pulse and counting the pulses per minute.

The Vessels and Circulation

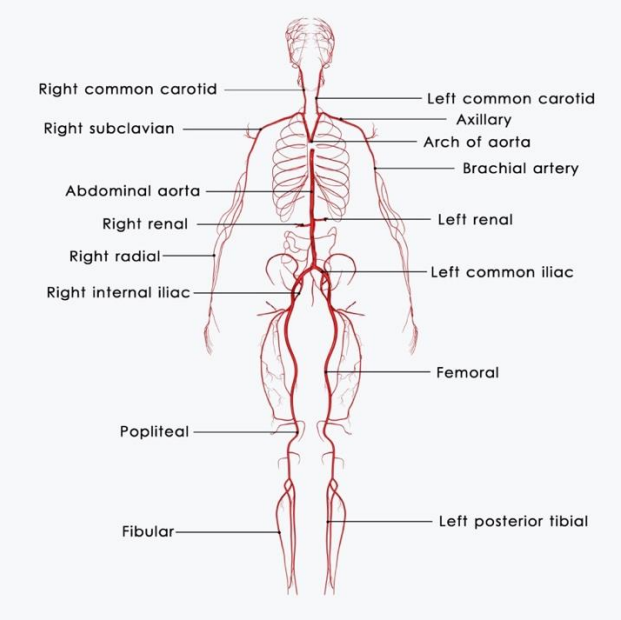
Three kinds of blood vessels exist in the human body:

- Arteries
- Veins
- Capillaries

This intricate system travels to every inch of the human body through repeatedly branching vessels that get smaller and smaller as they move away from the heart (arteries) and then get larger again as they return toward the heart (veins). The largest artery (aorta) and veins (venae cavae) are approximately 1 inch wide.

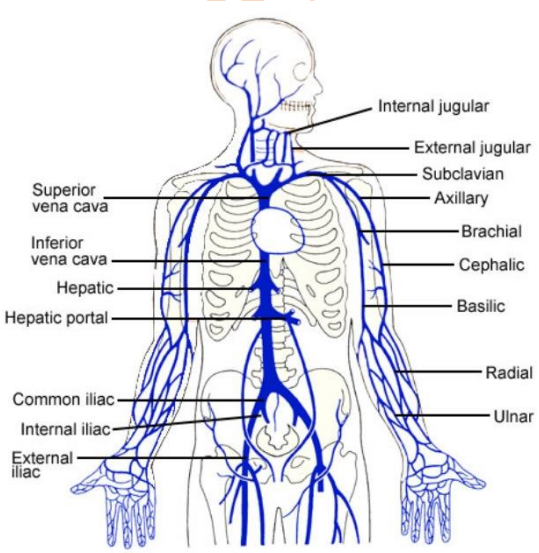
Arteries

Arteries are highly oxygenated vessels that carry blood away from the heart (efferent vessels). They branch into smaller vessels, called arterioles, and into capillaries. Arteries appear brighter red in colour, have thicker elastic walls than veins do, and have a pulse.



Veins

Blood is carried toward the heart by the veins (afferent vessels). It is remarkable that the blood in veins flows against gravity in many areas of the body; these vessels have one-way valves and rely on weak muscular action to move blood cells. The one-way valves prevent the backflow of blood. All veins (except the pulmonary veins) contain deoxygenated blood. Veins appear bluish in colour under the skin and have thinner walls than arteries. You should become familiar with the principal veins of the arms and legs. The antecubital area of the forearm is most commonly and generally the largest and best-anchored vein. Others in the antecubital area that are acceptable are the basilic vein and the cephalic vein.



Capillaries

Capillaries are tiny microscopic vessels that connect or link arteries (arterioles) and veins (venules) and may be so small in diameter as to allow only one blood cell to pass through at any given time. They are the only vessels that permit the exchange of gases (o2 and Co2) and other molecules between blood and surrounding tissues.

Capillaries do not work independently but are a part of an interconnected network. Each arteriole ends in dozens of capillaries (capillary bed) that eventually feed-back into a venule (when gas/ the nutrient exchange has been completed). Blood in the capillary bed is a mixture of arterial and venous blood.

Capillary bleeding occurs slowly and evenly because of the smaller size of the vessels and the low pressure within the vessels. Capillary bleeding is usually considered minor and is easily controlled with slight pressure, or sometimes bleeding stops without intervention. Capillary blood is a colour between the bright red of arterial blood and the dark red of venous blood.

The Blood

Circulating blood provides nutrients, oxygen, chemical substances, and waste removal for each of the billions of individual cells in the body and is essential to homeostasis and to sustaining life. Any region of the body that is deprived of blood and 02 soon becomes oxygen-deficient, and the tissues may die within minutes. This condition is called hypoxia.

Human bodies contain approximately 4.73 litres of whole blood, which is composed of water, solutes (dissolved substances), and cells. The volume of blood in an individual varies according to body weight; for instance, adult men usually have 5 to 6 litres of whole blood, whereas adult women usually have 4 to 5 litres.

Abnormally low or high blood volumes can seriously affect other parts of the cardiovascular system. Whole blood is normally composed of approximately 2.84 litres, or about 55 to 60 percent, of plasma and 1.89 litres, or about 40 to 45 percent, of cells. Thus, if a blood specimen is withdrawn into a test tube from a vein and centrifuged, about 55 percent will be plasma, and 45 percent will be formed elements (cells). The plasma portion contains approximately 92 percent water and 8 percent solutes. Solutes include proteins, such as albumin (maintains water balance in the blood); fibrinogen (for blood clotting); metabolites, such as lipids; glucose; nitrogen wastes; amino acids; and ions, such as sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), and chloride (Cl).

9-pound newborn: Blood volume equals less than a 12-oz (335 mL) can of a soft drink

60-pound child: Blood volume equals about a 2-liter bottle of a soft drink

125-pound adult: Blood volume equals about two 2-liter bottles of a soft drink

Haemostasis and Coagulation

Haemostasis (not to be confused with homeostasis) is a complex series of processes in which platelets, plasma, and coagulation factors interact to control bleeding while at the same time maintaining circulating blood in the liquid state. It enables the human body to retain blood in the vascular system by preventing blood loss. When a small blood vessel is injured, the haemostatic process (clotting response) repairs the break and stops the haemorrhage by forming a plug or blood clot.

This intricate process involves the following phases:

- Vascular phase—Once a blood vessel is injured, a rapid constriction of the vessel (vasoconstriction) decreases the blood flow to the surrounding vascular bed.

- Platelet phase—Platelets degranulate, clump together and adhere to the injured vessel in order to form a plug and inhibit bleeding.
- Coagulation phase—Many specific coagulation factors (including fibrinogen, clotting factors, and calcium) are released and interact to form a fibrin meshwork or blood clot. This clot seals off the damaged portion of the vessel.
- Clot retraction—This occurs when the bleeding has stopped. The entire clot retracts to heal tom edges by bringing them closer together.
- Fibrinolysis—When the final repair and regeneration of the injured vessel occurs, the clot slowly begins to break up (lysis) and dissolve as other cells carry out further repair. The entire process is fast, intricate, self-sustaining, and remarkable.

It is important to focus briefly on the coagulation process (the third phase), which is a result of numerous coagulation factors. For simplicity, it is divided into two systems: intrinsic and extrinsic. All coagulation factors required for the intrinsic system are contained in the blood, whereas the extrinsic factors are stimulated when tissue damage occurs. For example, blood vessels are lined with a single layer of flat endothelial cells and are supported by collagen fibres. Normally, endothelial cells do not react with or attract platelets; however, they do produce and store some clotting factors. When the clotting sequence begins due to a vessel injury, endothelial cells react with degranulated platelets in forming the fibrin plug.1 Bleeding from small arteries and veins can be controlled by the hemostatic process; however, large- or medium-sized veins and arteries require rapid surgical intervention to prevent excessive bleeding.

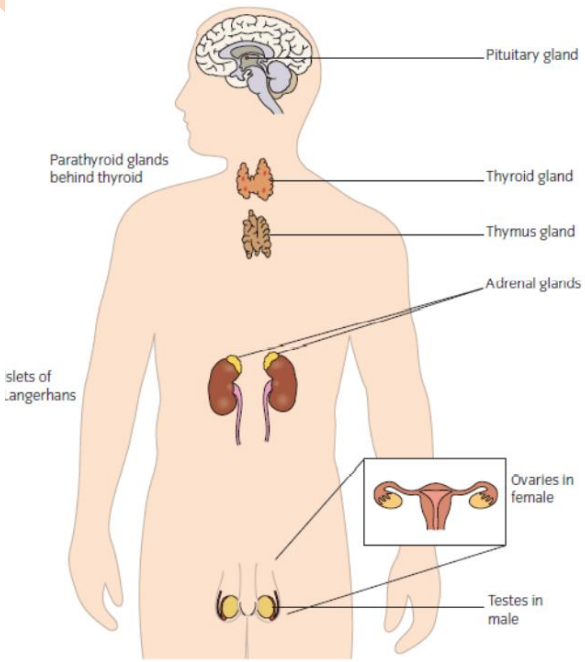
The Endocrine system

The endocrine system works closely with the nervous system to control and coordinate the body's activities. It consists of the Endocrine glands and the hormones. Hormones are often referred to as 'chemical messengers', which the glands secrete and/or store. They communicate between:

a. Two endocrine glands to stimulate one gland to release a hormone.

b. An endocrine gland and a target organ.

Each gland is rich in capillaries, which cluster around the glands so that hormones can be easily secreted and pass into the bloodstream. Hormones attach to plasma proteins in the blood and are transported around the body to their target organs. Hormones may affect a number of target organs.



Hormones are secreted by the hormone glands into the blood stream; from there they are circulated around the body affecting the different organs. These organs are known as target organs.

The endocrine system – supply and demand

The amount of hormone released by an endocrine gland is determined by the need for the hormone at any given time. The body is normally regulated so that hormones are not over or under produced (homeostasis). There are times when the regulating mechanism does not operate properly and hormonal levels may become too high, too low or not secreted at all. When this happens endocrine disorders occur.

Some hormones are associated with long-term changes, for instance the growth hormone, as this takes place over years. Others have fast changes, such as the adrenaline, which prepares the body very quickly for sudden stress.

Endocrine glands and their functions

1. The pituitary gland is situated in the brain and is known as the master gland, as it acts on other endocrine glands (tropic hormones). It secretes follicle stimulating hormone (FSH), luteinizing hormone (LH), which controls reproduction, and anti-diuretic hormone (ADH), which affects the water balance.
2. The thyroid gland is situated in the neck, on either side of the trachea, and secretes thyroxine, which controls the metabolism.
3. The parathyroid gland is made up of four small glands which are situated on the posterior of the thyroid gland. It secretes the para hormone, which controls the blood calcium levels.
4. The pancreas secretes insulin from the pancreatic islets of langerhans. This controls the blood sugar level.
5. The adrenal glands consist of two triangle shapes that lie on top of the kidney. They are made of two parts:

a. medulla. This secretes adrenalin, which is released at times of sudden stress.

b. cortex. This secretes:

- gluccorticoids, which reduces stress responses such as inflammation
- aldosterone, which controls the level of potassium and sodium in the blood. This hormone can also cause excess oedema (water retention)
- corticosteroids (oestogens and androgens) which controls the function of the sex organs and the development of sex characteristics at puberty.

6. Ovaries. There are two of these and they are situated below the kidneys. They secrete the hormones oestrogen and progesterone, which control female reproductive events such as puberty, menstruation, pregnancy and the menopause. This gland also influences the female shape, such as fat being stored in the breasts, hips and thighs.
7. Testes glands are situated in the groin of a male and are contained in a sac named the scrotum. These glands secrete testosterone, the function of which is to control the sex characteristics in puberty as well as produce sperm. It also causes facial and body hair to develop and muscular development to take place, which will influence the body shape

The Endocrine glands

Pituitary gland

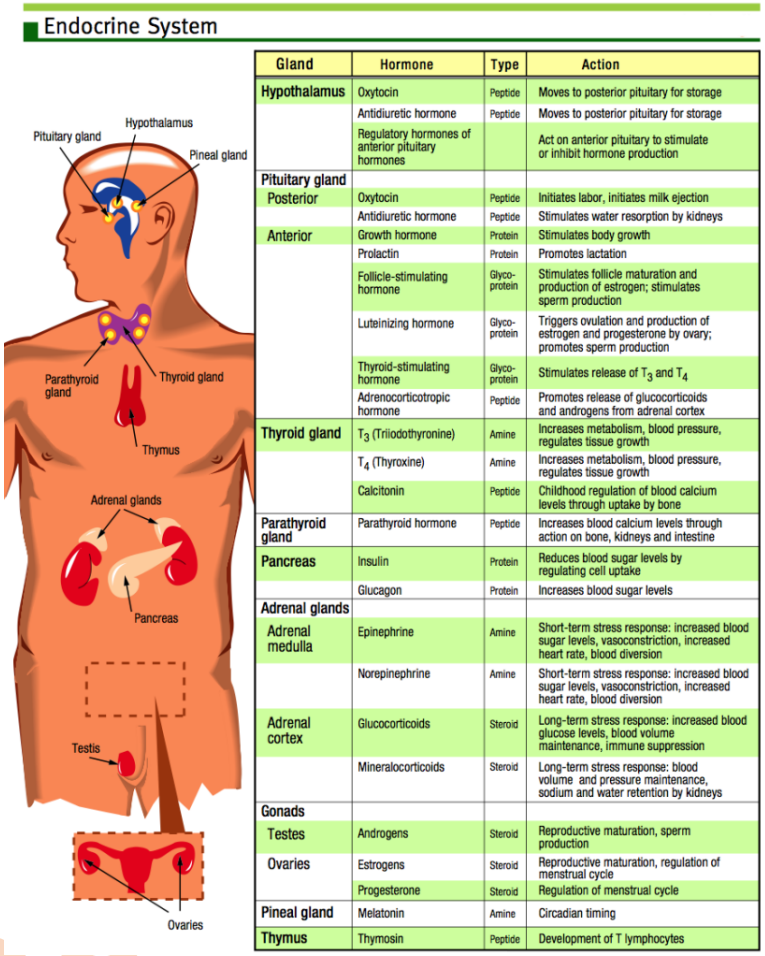
Often referred to as the master gland, as it produces hormones that control the function of other endocrine glands. This gland is the size of a pea and sits in a hollow in the base of the skull, beneath the brain and behind the nose. Attached to the hypothalamus which controls its activity.
It has two parts:
Anterior – connects to the brain by blood vessels and consists of gland cells.
Posterior – part of brain and secretes directly into the bloodstream under the command of the brain.

The thyroid gland

Located in the front of the neck just below the larynx. Has a distinct butterfly shape with two lobes – one on each side of the trachea. Reliant on supplies of iodine in the diet to function effectively.

Parathyroid

Located in the front of the neck, just below the larynx and just behind the thyroid gland. There are four of these small pea-sized glands – two glands lie behind each wing of the thyroid.



Gland	Hormone	Type	Action
Hypothalamus	Oxytocin	Peptide	Moves to posterior pituitary for storage
	Antidiuretic hormone	Peptide	Moves to posterior pituitary for storage
	Regulatory hormones of anterior pituitary hormones		Act on anterior pituitary to stimulate or inhibit hormone production
Pituitary gland			
Posterior	Oxytocin	Peptide	Initiates labor, initiates milk ejection
	Antidiuretic hormone	Peptide	Stimulates water resorption by kidneys
Anterior	Growth hormone	Protein	Stimulates body growth
	Prolactin	Protein	Promotes lactation
	Follicle-stimulating hormone	Glyco-protein	Stimulates follicle maturation and production of estrogen; stimulates sperm production
	Luteinizing hormone	Glyco-protein	Triggers ovulation and production of estrogen and progesterone by ovary; promotes sperm production
	Thyroid-stimulating hormone	Glyco-protein	Stimulates release of T_3 and T_4
	Adrenocorticotropic hormone	Peptide	Promotes release of glucocorticoids and androgens from adrenal cortex
Thyroid gland	T_3 (Triiodothyronine)	Amine	Increases metabolism, blood pressure, regulates tissue growth
	T_4 (Thyroxine)	Amine	Increases metabolism, blood pressure, regulates tissue growth
	Calcitonin	Peptide	Childhood regulation of blood calcium levels through uptake by bone
Parathyroid gland	Parathyroid hormone	Peptide	Increases blood calcium levels through action on bone, kidneys and intestine
Pancreas	Insulin	Protein	Reduces blood sugar levels by regulating cell uptake
	Glucagon	Protein	Increases blood sugar levels
Adrenal glands			
Adrenal medulla	Epinephrine	Amine	Short-term stress response: increased blood sugar levels, vasoconstriction, increased heart rate, blood diversion
	Norepinephrine	Amine	Short-term stress response: increased blood sugar levels, vasoconstriction, increased heart rate, blood diversion
Adrenal cortex	Glucocorticoids	Steroid	Long-term stress response: increased blood glucose levels, blood volume maintenance, immune suppression
	Mineralocorticoids	Steroid	Long-term stress response: blood volume and pressure maintenance, sodium and water retention by kidneys
Gonads			
Testes	Androgens	Steroid	Reproductive maturation, sperm production
Ovaries	Estrogens	Steroid	Reproductive maturation, regulation of menstrual cycle
	Progesterone	Steroid	Regulation of menstrual cycle
Pineal gland	Melatonin	Amine	Circadian timing
Thymus	Thymosin	Peptide	Development of T lymphocytes

The adrenals (suprarenal) glands

There is one adrenal gland on the top of each kidney. Each gland has two parts: • outer adrenal cortex • inner adrenal medulla.

Pineal gland

Located deep in the middle of the brain where the two halves meet. It sits above the thalamus.

Thymus

Located behind the sternum, between the lungs. Predominantly active during puberty then atrophies. Helps the body against autoimmunity and has a vital role in the lymphatic system.

Pancreas (Islets of Langerhans)

The pancreas is a large gland, about 15cm long, sitting alongside the stomach and small bowel. Both an exocrine and endocrine gland, it also plays an important role in digestion. The Islets of Langerhans contain endocrine tissue. These are clusters of cells making up 1–2% of the pancreas.

Ovaries

Small oval organs about 4cm in size. They lie on either side of the uterus, held in place by ligaments – they are not attached to the fallopian tubes. They produce ova and are part of the female reproductive system.

Testes

The two male gonads lie in the scrotal sacs – one each side of the penis. They form part of the male reproductive system.

Muscles

Functions of muscles-

1. **Generate skeletal movement:** skeletal muscle contractions pull on tendons and move the bones/joints of the skeleton.
2. **Support posture and body position:** Contraction in our skeletal muscles maintains body posture. Without constant muscular activity we could not even sit upright or stand!
3. **Strengthens and supports soft tissues:** the stomach wall and the floor of the pelvis consist of layers of skeletal muscle that support the weight of organs and prevent injury to internal tissues.
4. **Protects entrances and exits:** sphincter muscles encircle the openings of the digestive and urinary system. They provide voluntary control over swallowing, defecation and urination.
5. **Provides body temperature:** muscle contractions need energy; whenever energy is used in the body, some of it is converted to heat which working muscles release. This assists to maintain our body temperature within the normal range.

There are three kinds of muscle in humans: smooth, skeletal and cardiac.

1. Cardiac muscle
2. Skeletal voluntary muscle
3. Smooth involuntary muscle

1. Cardiac muscle

This is the strongest type of muscle and is a unique involuntary muscle. It is not under voluntary control but is controlled, unvoluntary, by nerves, which make it contract automatically. It comprises of irregular short striped cylindrical branched muscle fibres with a central nucleus.

2. Skeletal, voluntary or striated muscle

These are muscles that are under our voluntary control and contracts at will. They are cylindrical in shape with several nuclei. The muscle fibres lay parallel to each other in dark and light bands creating the appearance of strips, and is surrounded by a membrane holding them together.

3. Smooth, involuntary muscle

This muscle type is not under voluntary control and are found throughout the body within organs like the bladder, alimentary and respiratory tracts and the walls of the blood and lymph vessels. The muscle fibres are spindle shaped cells with one central nucleus and are bundled together with a connective tissue sheath.

Muscle tone

Muscle tone is the slight but continuous tension or contraction in the muscles at all times. This keeps the body upright. Without this the muscles would all relax at once and the body would collapse.

Muscle contraction

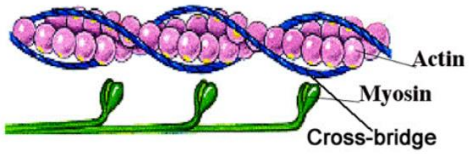
Skeletal muscles only contract when activated by the axon of a motor neuron/nerve. The nerve carries the impulse to the specific muscle fibre. The point at which a motor neuron enters the muscle is called the motor point.

Muscle fatigue

This occurs when the muscle is continuously stimulated and used a lot. This leads to the muscle contraction gradually weakening until it can no longer contract. This is due to the build-up of lactic acid and carbon dioxide which are waste products (this can often be felt as a burning sensation in the muscle) and lack of adenosine triphosphate which provides the muscle with energy.

Sliding filament theory

A sliding movement occurs within the muscle's contractile fibres when it contracts. Actin protein filaments move inwards towards the myosin and the two filaments merge. This causes the fibres of the muscle to shorten and thicken and pull on their attachments (bones and joints) to achieve the movements required.



It is a very similar action as using a row going through water. The action of pulling on the row moves the boat forward.

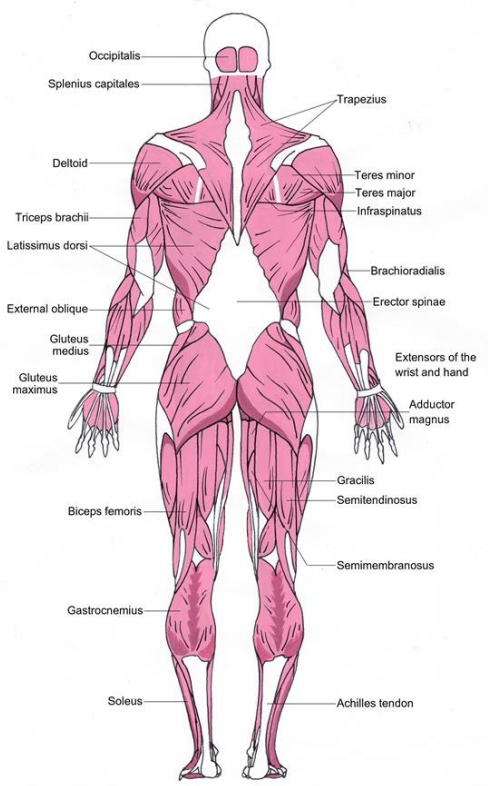
When relaxing, the muscle fibres return to their normal shape.

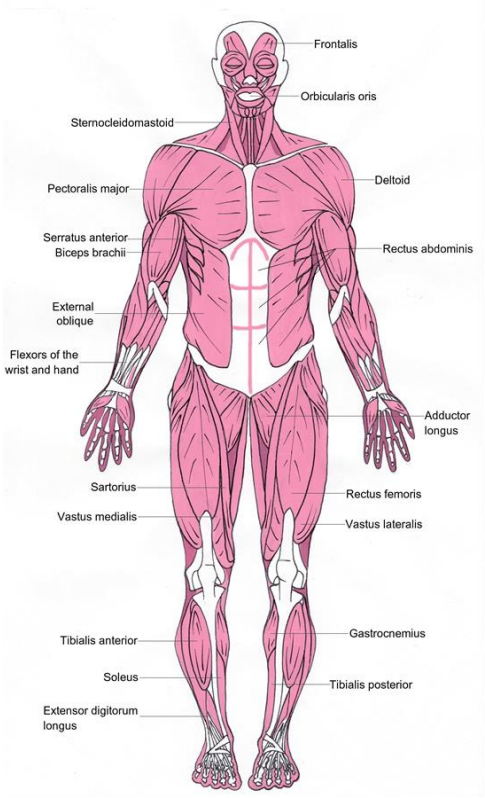
Muscle tone

Even when muscles are relaxing, a number of muscle fibres will still be in partial contraction – this is what is referred to as muscle tone.

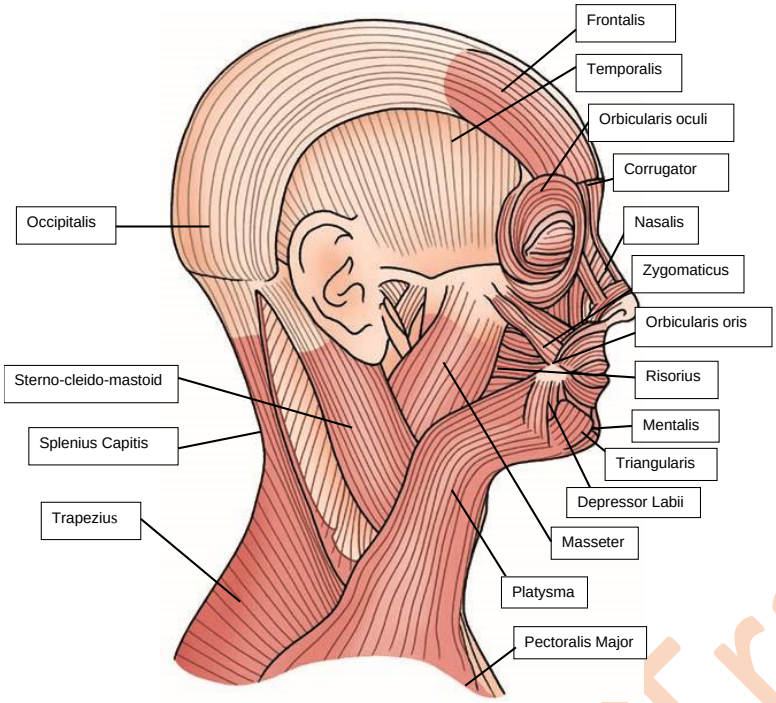
Muscle tone is often described as being either flabby or firm. A muscle that has less than normal tone is described as being a flaccid muscle; if this type of muscle is not used it will start to waste away (atrophy). A flaccid muscle may also be caused by damage to the nerve supply.

Firm muscle tone can be achieved by exercising. Muscle tone is important in maintaining posture, as it assists the body in standing up and keeps the muscles prepared for action.





Muscles of the face



On the face the muscles and the skin are connected.

This causes facial expressions and also explains how wrinkles are formed on the face.

Muscle	Location	Action
Frontalis	Across the forehead	Wrinkles the forehead and raises eyebrows creating a surprised expression
Orbicularis oris	Surrounding the mouth	Closes and opens the mouth
Orbicularis occuli	Surrounding the orbit of the eye	Closes and opens the eye as in winking and blinking
Masseter	Runs at an angle down the face from the cheek bone to the jaw	Lifts, lowers and closes the jaw aiding mastication by exerting pressure on teeth
Buccinator	Forms the main muscle of the cheek	Compresses the cheeks as in blowing
Zygomatic	Runs down cheek to corner of mouth	Pulls the corners of mouth upwards and sideways
Risorius	Corner of the mouth above Buccinator muscle	Pulls the corner of the mouth upwards and sideways as in grinning

Muscles of the neck and shoulder

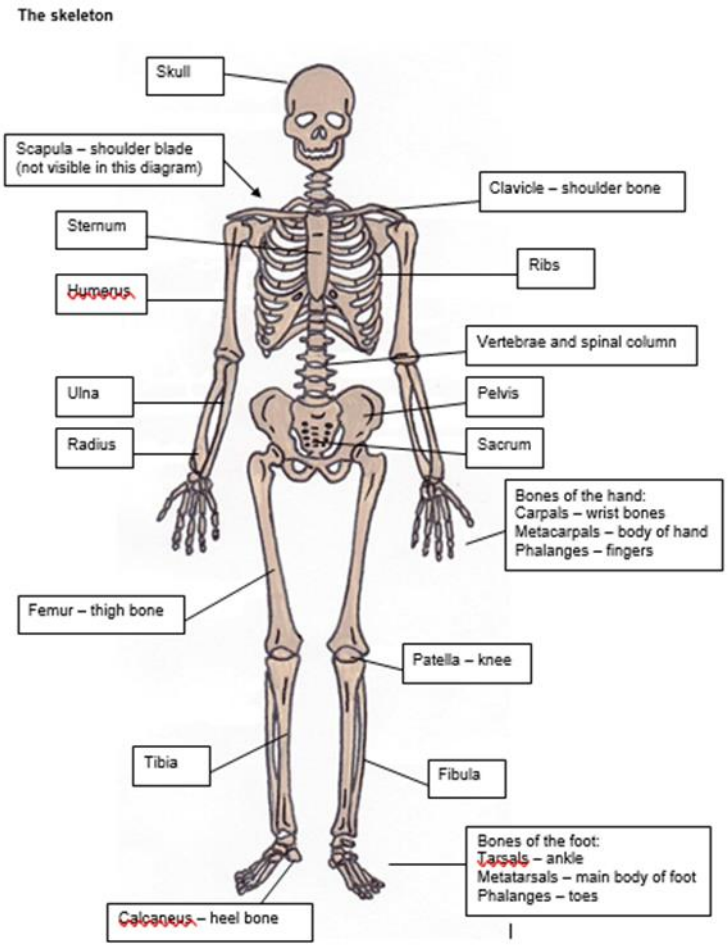
Muscle	Location	Action
Levator Scapula	On the side and posterior surface of the neck	Elevates the scapula and shoulders
Erector Spinae	Either side of spine column	Extends the spine and keeps the body upright
Splenius Capitus	On the posterior surface of the neck	Bring the head upright. Extends head and neck. Rotates and laterally bends neck
Sterno mastoid	Either side of the neck	Individually rotates the head to one side together pulls the chin onto the chest
Platysma	Front and side of the neck, down to collar bones	Helps to draw down mandible and lower lip and wrinkles skin of neck
Trapezius	Posterior surface of upper neck and shoulders	Lifts clavicle. Shrugs shoulders. Raises and rotates shoulders
Deltoid	Caps the shoulder on the anterior and posterior surfaces	Abducts the arm. Draws the arm backwards and forwards
Biceps	Anterior surface of upper arm	Flexes the forearm
Triceps	Posterior surface of upper arm	Extends the forearm

Bones

Bone is the hardest structure in the body. It protects the underlying structures and supports the softer tissues.

Functions of the skeletal system

1. Supports the soft tissues as a framework
2. Protection for internal organs and brain
3. Assists in movement
4. Storage of minerals such as calcium and phosphorus
5. Production of blood cells from the bone marrow



Bone formation

The process of bone formation is called ossification. Specialised cells called osteoblasts make bone tissue, which secretes collagen to form a strong framework. Minerals such as calcium and salts are deposited within the bone where it hardens and becomes calcified. The osteoblasts become trapped in the bone tissue and become osteocytes. The osteoblasts continue to make new bone tissue to replace the old as it is broken down.

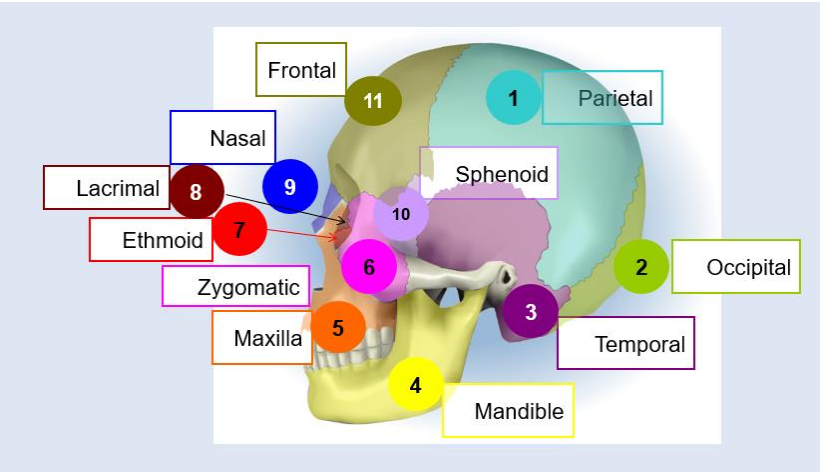
Types of bones

- Long bones – found in the arms and legs
- Short bones – found in the wrist and ankles
- Flat bones – plate-like, protect the brain
- Irregular bones – found in the spine

Composition of bone

Compact or dense bone is hard and forms the outer part of bones. Spongy or cancellous bone lies inside the compact bone and is porous with tiny holes.

Bones of the head, face and neck



The cranium is made up of 8 cranial bones and 14 facial bones. The shoulder girdle comprises of four bones, along with three bones in the arm.

These bones protect the brain and support other structures such as the eyes and teeth etc. All the bones are joined together by sutures which make the joints immovable after childhood. The cranium is attached to the body via the vertebral column. The weight of the head rests on the neck and shoulder girdle

The skull or cranium

The function is to protect the brain and is made up of eight fused bones and rests on the spinal column.

- There are two parietal bones which form the upper sides and crown of the head.
- Just below the parietal bones lie two temporal bones which form the sides of the skull down to the ears and part of the cheekbones.
- One sphenoid bone which lies just in front of the temporal bones and joins the skull with the facial bones.
- One frontal bone that forms the forehead and front of the skull.
- One ethmoid bone which forms the nasal cavities between the eye sockets.
- One occipital bone which forms the back and base of the skull and has a large hole through which the spinal cord passes.

The facial bones

Comprises fourteen bones on either side of the face. There are:

- Two zygomatic bones which form the cheekbones of the face.
- Two maxillae bones which are the largest bones of the face and form the upper jaw.
- One mandible bone which forms the lower jaw, it is the only moveable bone.
- Two nasal bones these are very small bones which form the bridge of the nose.
- Two lacrimal bones which form the inner walls of the eye socket and are the smallest of the facial bones.
- Two turbinate bones form the outer walls of the nasal cavities.
- Two palatine bones. These two L-shaped bones form the roof of the mouth and floor and side walls of the nose.
- One vomer forms part of the nasal septum dividing the wall of the nose.

The bones of the neck and shoulder girdle

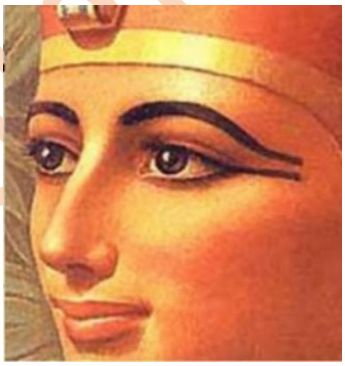
Comprises of six bones which join the upper limbs to the chest.

- The Atlas: the first cervical vertebra that supports the skull.

- The Axis: the second cervical vertebra that allows the head to rotate.
- There are 7 cervical bones within the neck area and 12 thoracic vertebra form the upper and middle of the back.
- Two clavicle bones which are long thin bones located on either side of the upper body, which meet at the base of the neck and join the sternum and shoulders together.
- Two scapulae bones are large flat triangular bones which are located on either side of the upper posterior surface of the back and joined to the clavicle and humerus upper arm bone.

Reasons for having Lash & Brow Treatments

The main function of the eyebrow and eyelashes is to prevent sweat and other debris from entering the eyes. Our eyes are also essential to express our emotions. Despite the practical reasons for our brows and lashes, they have become a vital role in fashion and cultural trends and been the main fixation for thousands of years.



Eyebrows were as significant as far back as Ancient Egypt, where men and women both wore makeup and partook in the current trends. Thick, bold brows were the style of choice for the purpose of paying homage to the God of protection and good health, Horus. The deity is depicted wearing dark eyebrows, and eye makeup and the Egyptians followed suit and used black oxide and carbon paint around their eyes. It was also believed that this look was though to repel flies and ward off infection, while protecting the eyes from the sun, at the same time as channelling Horus' protective powers. Men used to style their lashes in the same way as women. They used kohl and ointments (which was thought to be an aphrodisiac) to darken the lashes.

During the time of the Greeks and Romans, makeup reflected cultural values that focused on a woman's purity and natural features. In Greece, married women left their eyebrows untouched while unwed women would darken their brows with black incense. The ancient Romans believed unibrows were a sign of intelligence and women even went so far as to draw in a faux unibrow to give the appearance of one.

In the Roman Empire, to enhance eyelashes was a feminine feature. Women were helped by female servants or slaves called ornatrices, who dealt with their beauty. Roman women lashes should be long, thick and curly, as an indication of magnificence brought by the East, from Egypt and India. Plinius the Elder wrote that: "eyelashes fell out from excessive sex and so it was especially important for women to keep their eyelashes long to prove their chastity".

Romans used kohl to darken the eyelashes, and sometimes they added saffron or antimony. They also used burnt cork to thicken and darken their lashes. Small ivory sticks were used as applicants. Things changed with the arrival of Christendom, things. Christian women tried to avoid cosmetics, in the belief that the natural appearance was more pleasant for God, and luxury and cosmetics were generally not accepted.

During the Medieval period, and even in the Renaissance nobody styled their eyelashes. The forehead was considered the most beautiful part of the face, so women often removed eyelashes and eyebrows.

Women of the Tang Dynasty in China typically shaved off their natural eyebrows to allow for an easier application of full-face makeup. They would then apply a bluish-black pigment made from charred willow and draw creative brow styles with tails that drooped. This was soon adopted by the Japanese court not long after. Hair was vital for both men and women in the telling of one's social status. Japanese noblewomen began shaving off their brows and pencilling on new ones higher on the forehead in an effort to make it easier to apply Oshiroi, a white powder foundation used at the time.

In the Elizabethan times, elevated brows were all the rage, where the higher the brow, the higher the social class. During this era, it was believed that the high hairlines were a sign of aristocracy. Women, therefore, plucked their eyebrows thinner and removed hair from their hairlines to create the illusion of a larger forehead. Walnut oil was often rubbed into hairlines and on eyebrows to thwart growth, even performing this beauty practice on children.

When Elizabeth took the throne, a new fashion era began. Elizabeth had a reddish-gold hair colour, and many ladies dyed their hair and eyelashes with the same shade. However, they used very toxic materials, causing a lot of hair loss.

Enhancing eyelashes was not a very acceptable practise for respectable ladies; they found other approaches to darken their eyelashes secretly, with crushed berries or soot obtained from fireplaces.

Whilst transparent eyebrows had proved popular in previous eras, at the start of the 18th Century, a dark, full brow became desirable. Overplucking and the use of toxic lead-based cosmetics had led to hair loss, making it difficult for women to regrow their brows. As early as 1703, it had become the custom to trap mice and use their fur to form artificial brows as a solution for hair loss. Mice pelts were trimmed into a desirable shape and stuck to the forehead using an adhesive.

During the Romanticism and the Victorian Era, the use of cosmetics between women started to be popular. Old homemade methods were still commonly used.

The personal perfumer of Queen Victoria, Eugène Rimmel developed the first mascara. Since the product was non-toxic, it became popular, very fast.

A newspaper article from 1899 proves that back then women had eyelashes implanted with needles.

In 1911, Anna Taylor, a Canadian woman, first patented artificial lashes. In 1916 the Hollywood director David W. Griffith wanted his actress to have fluttering lashes, so he ordered his film's wig-maker to glue lashes made of a human hair onto actress' own eyelids using spirit gum. This method was not very successful, and fake eyelashes didn't become very popular until the '30.

In 1917, a man Tom Lyle was inspired by his sister, Mabel Williams, while looking at her applying ointment to her eyes to darken her eyelashes. He started working with a drug seller to improve the formula. The final product was "Lash-Brow-Ine," which formula contains petroleum jelly and oils to provide sheen. In 1920 the name was changed to "Maybelline."

After decades of minimal effects on the eyebrow, the cinema and films became a popular form of entertainment in the 1920s and '30s. The emergence of the movie star began to sway trends in fashion, cosmetics and the enhancement of brows and lashes. These film stars popularised ultra-thin brows by plucking or shaving off the hair, mimicking practices from the Elizabethan times and Medieval Asia. The chic look of the 1920s was pencilling on thin eyebrows with a downward slope creating an intentionally moody look. It was also common to apply Vaseline on their eyebrows to create shine in an effort to draw attention.

Around the same time, the first eyelash curler was invented. These devices were popular and affordable. Women used to heat them with hairdryers. Fake eyelashes also became popular after Vogue published many advertisements featuring more artful fake lashes, but it would be a few more years before they finally became a trend.

The start of World War II in 1939 had a widespread effect on the beauty and fashion industry trends as women were needed to join the workforce and had less time for grooming. Low-maintenance brows that were easy to upkeep became popular. Movie stars still had a relevant influence as the likes of Audrey Hepburn, and Marilyn Monroe sported dramatically arched brows.

As the war came to an end and the decade progressed, brows once again were well-groomed. At this same time, more and more women started using makeup as a daily routine. Painting cat eyes on the upper lashline and cherry red lipstick were fashionable.

At that time the polish immigrant Max Faktor invented the waterproof mascara. These mascaras became very popular and available to the public.

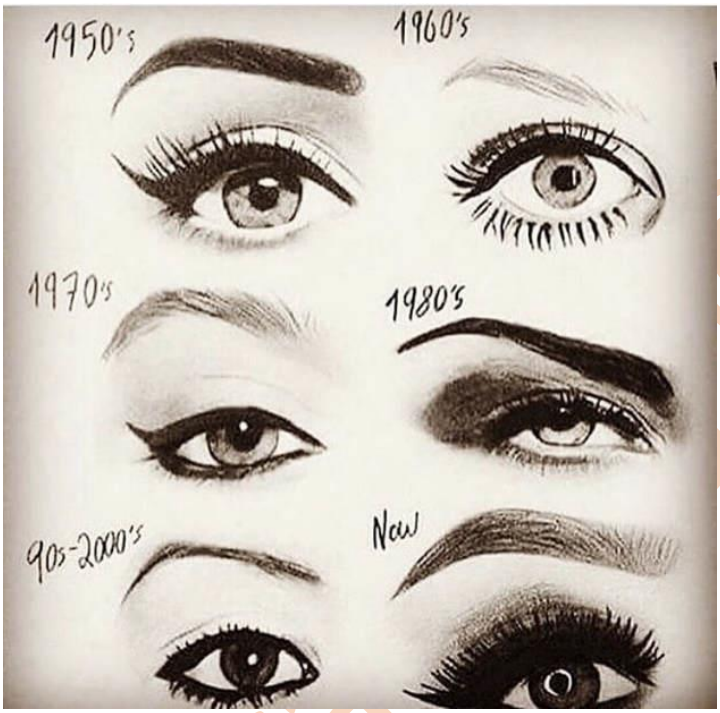
In 1958, Revlon released a mascara in a tube, with a spiral wand, which we continue to use today.

The swinging 60's brought a range of experimental makeup trends to go alongside the free-spirited fashion of the time. Sophia Loren had the most talked about and coveted brows and was known for shaving off the eyebrow entirely and pencilling them back on in short strokes. Natural makeup looks were common for women emulating the style of celebrities, whilst hippies of the time rejected makeup altogether.

Disco music and the burgeoning nightlife brought about some experimental looks such as dark painted brows and platinum blond hair or thin 20's era brows tapping into nostalgic glamour. At this time, eyebrow waxing became a widespread treatment in salons and at home kits to maintain the brow.

In 1961, Revlon released the first coloured mascara. Many women followed the famous model Twiggy and started giving more attention to the lower lashes. Fake lashes also trended, made from human hair or synthetic materials and requested by women in every beauty salon. The faker they looked, the better.
The '80s and '90s are placed great significance on the brow. During the '80s the motto of bigger is better saw nails, hair and even shoulder pads take on this challenge. Brows were big and beautiful. The 'heroin chic' trend of the 90's meant brows were groomed but natural and left to frame the face.

By the end of the decade, super thin eyebrows were once again in-trend, and people began over-lucking brows and pencilling them in to mimic celebrities of the time. The 1920's brow was once again back in fashion. Fake lashes were not fashionable, but coloured mascara became popular and was even used to paint colourful stripes in their hair as well as for their lashes.



At the turn of the Century, brows were a continuation of the thin arches from the '90s. Brows remained thin. The tweezers were finally laid to rest in the 2010s where people tried to regrow their eyebrows and the damages from decades of over-plucking. The full-grown brow made a come back with the centre tuffs of hair brushed up, giving the look of eyebrows set fairly close together.

The years of brow neglect left to the rise in demand for in-salon brow procedures, such as microblading, lamination and regrowth serums. The rise of social media has now led to the 'brows on fleek' movement where women carefully draw, powder and highlight their brows to perfection.

In 2002, an international survey reported that more than 60% of women in the world were using mascara; therefore, this product is 50% of the total amount of cosmetic sales in the world. As of 2009, the mascara market was valued at $ 4.1 billion globally. Women will often choose tinting to enhance their brows, especially if they go to the gym, are busy mums or will be going on holiday.

The lash and brow industry has stood the test of time and will be the bread-and-butter treatment of salons worldwide.

History of SPMU

Semi-Permanent makeup has existed since the ice age when they used crude natural substances to create colour under the skin. Egyptian mummies have been discovered with face and body tattoos, and Cleopatra is believed to have had makeup tattooing. There is also the ancient Japanese art of full intricate body tattooing done by hand, called Tebori, that is still practised today.

The principles today of placing colour under the skin remain the same; however, with advances in technology has come an array of varying techniques and methodology. A wide variety of machines and colour pigment is now available to choose from.

The very first electric tattoo machine was designed by a man from New York in 1880 called Samuel O'Reilly. The first recorded eye makeup procedure was performed by an Oculoplastic Surgeon in the USA called Dr Crowell Beard, who performed an eyeliner procedure as a replacement for the loss of eyelashes.

Dermal Pigmentation, Micropigmentation, micro-derma-pigmentation, derma-pigmentation, dermal graphics and cosmetic tattooing are a few of the alternative known names of Permanent Make-up or Semi-Permanent Make-up which are the more recognised amongst the general public.

In 1979 a lady named Pati Pavlik is noted as being at the forefront of making Semi-permanent makeup tattooing socially acceptable, which has now filtered its way into the modern woman's life. Pati Pavlik is fondly named the 'Mother of Permanent Make-up' and has helped to further change legislation across the USA and Europe.

Since 1979 there have been numerous associations set up solely for Semi-Permanent Make-up Tattooists. The society of Permanent Cosmetic Professionals was founded by Susan Preston and Susan Church in 1990 to ensure high minimum standards of the practice. In 2001 Cosmetech, the first Semi-Permanent Cosmetic Trade Magazine, was launched.

Reasons Clients May have SPMU

There is an unlimited amount of reasons why a client may require your services. Below we have listed a few reasons:-

- Clients wanting perfectly applied make-up
- Clients wishing to save time
- People lacking confidence
- Clients that want a waterproof look
- Clients who's make up 'sweats' off.
- Alopecia
- People who may not have a steady hand
- People with sight impairment
- Chemotherapy Patients
- To Enhance features
- To rebalance the face

Contraindications

A contraindication is the presence of a condition which may make the client unsuitable for the treatment. The treatment may not be able to take place, or the treatment will need to be adapted.

When treating a client, if they show any signs of contra-indications, you should tactfully refer them to their GP for treatment or advice. You should never make a diagnosis even if you are certain of the condition as you may be wrong.

If you are unsure about any contra-indications, then do not treat the client and refer them to their GP.

Be careful if you deal with a contra-indication, and they can often be contagious. Make sure you clean the work area and any implements between clients to prevent cross-infection.

Insulin Controlled Diabetes	If a diabetic has good control over their disease, then having a Micropigmentation procedure shouldn't be a problem; however, as technicians, we do not know if the client we are treating is managing their blood glucose levels. A non-diabetics A1C test result is between 4-6%, and diabetics aim to be within this range. Anything over 10% is considered badly controlled diabetes. If a diabetic wants a tattoo and their last two-three A1C tests were under 8%, and they don't already have neurological problems, heart disease, or kidney damage, getting a tattoo should be safe. They just need to keep it clean and continue to keep their blood glucose levels in range. Their body shouldn't have any trouble healing the tattoo as long as they take good care of it. However, if a diabetic wants a tattoo and their last few A1Cs were 9% or over, or if they're already experiencing neuropathy and circulation issues or kidney problems, getting a tattoo could literally put their lives in danger. If the tattoo can't heal quickly, it becomes a playground for bacteria which leads to infection, which can, in turn, lead to gangrene and even heart disease.	Doctor's permission must be sought. Contacting your insurance company to check that you are covered prior to starting the treatment and full consultation with the client to explain the risks and dangers as well as good wound management and post-care treatment. Before beginning the actual procedure, the client should check their blood glucose level and then continue to check once every hour or so. The strain that getting tattooed puts on the body can be even worse for a diabetic and the last thing either of you wants is for them to have a seizure in the middle of a tattoo. Monitoring blood sugar levels is the best way to prevent that from happening.
Epilepsy	Epilepsy is diagnosed when a person has had more than one epileptic seizure and could have more in the future. Electrical activity is happening in our brain all the time. A seizure happens when there is a sudden burst of intense electrical activity. This is often referred to as epileptic activity. This intense electrical activity causes a temporary disruption to the way the brain normally works, meaning that the brain's messages become mixed up. The result is an epileptic seizure. There are many different types of seizure, and each person will experience epilepsy in a way that is unique to them. Some things make seizures more likely for some people with epilepsy. These are often referred to as 'triggers. Triggers are	If your seizures are well controlled, this should not be an issue. If seizures happen at a particular time of day or night, then choose a time when they are less likely to have a seizure. If their seizures are unpredictable and not controlled, it would be safer for them to wait until their epilepsy is more stable. The Equality Act means that organisations such as salons must not treat anyone less favourably than other people because of health issues like epilepsy. Under the equality laws, organisations must not place blanket restrictions on people because they have epilepsy. They must consider each person's case individually. An example of a blanket restriction might be saying that no-one with epilepsy can have a certain

	things like stress, not sleeping well and drinking too much alcohol. Some people say they have more seizures if they miss meals. Not taking epilepsy medication is another common trigger. A very small number of people with epilepsy have seizures triggered by lights that flash or flicker. Avoiding triggers can stop them from having seizures.	treatment. Another example is to say you need a doctor's letter before you can have the treatment. Unless everyone who has a treatment requires a letter from their doctor, it may be discrimination to only ask them. It can be an unnecessary inconvenience, not to mention the expense, as doctors often charge for providing letters. The equality laws also mean that service providers must try to make reasonable adjustments for people with epilepsy. This might be to provide extra help or make changes to the way they deliver services. An example of a reasonable adjustment might be for the therapist to agree to give a client laser treatment once their seizures are better controlled.
Hyper Pigmentation	Some Cosmetic Tattooists routinely refuse to provide cosmetic tattooing services to clients/patients with darker skin tones due to the risk of hyper-pigmentation reactions, which are often misconstrued as tattoo pigment changes by the tattooist. Clients who have darker skin tones may be more susceptible to a condition called Post Inflammatory Hyperpigmentation or PIH for short. Clients who have or may develop PIH have hyperactive melanocyte cells in their skin, and if their skin experiences any form of irritation, their melanocyte cells may be stimulated to produce more melanin. With PIH, the tattooed skin may produce melanin and become darker in colour (grey, blue, brown or black), and the tattoo pigment may be patchy or may be hidden by the melanin completely and not be visible at all. Potentially a person from any ethnic background can have PIH, but people with darker skin tones are more susceptible simply because they have more melanocyte cells that are more active. If a client already has spots or patches of darkened discolouration in their skin from previous irritation to the skin from things such as acne, skin rashes or infections, cuts or abrasions to the skin etc., or if they have any scars that became darker in colour than the surrounding skin then in most instances, they should not have cosmetic tattooing.	If the client's Doctor advised that, in their opinion, a hyperpigmentary condition is not evident and if a cosmetic tattoo procedure was then planned, it would still be advisable to test patch 4-6 weeks before any tattoo procedure, at the follow-up appointment, check for signs of abnormal skin discolouration on and around the tattoo test patch area prior so that you can have more confidence that the client will not have a hyperpigmentary reaction to a full treatment.

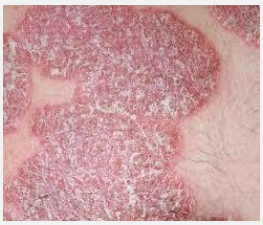
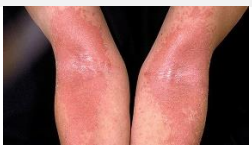
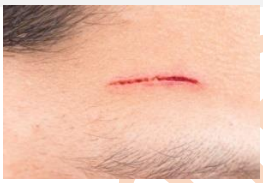
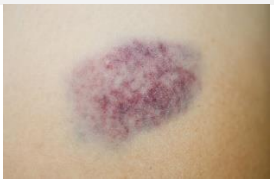
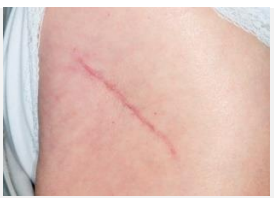
Injectables e.g. Collagen and Botox	Fillers and Botox are designed to alter facial shapes and expressions. It is rare that someone has a perfectly symmetrical face, and cosmetic tattooing is often sought to rectify misshapen lips or uneven brows and even to change the shape of the eye. There are often discussions as to whether the Botox and/or filers should be done before or after Micropigmentation. Having Botox after Micropigmentation can cause eyebrows to raise or droop. Performing Micropigmentation prior to Botox can leave the eyebrows or even eyeliner in an unnatural place and can even cause one brow to be significantly higher than the other. Fillers again alter the shape of the face or lips and can distort the tattoo.	Clients should understand that Botox and Fillers are an ongoing lifelong commitment. They need to understand that if they have already had these treatments that they may need to carry on having them in order to ensure the tattooing stays in the correct position and does not become distorted or droop. Those that are yet to have injectables should carefully consider the lifelong commitment and have the procedures four weeks before cosmetic tattooing to allow the face or lips to settle and swelling to reduce
Facial surgery	Consult with the client as to what the facial surgery was for, and look at each client on a case-by-case basis	Clients should wait at least six months post-surgery to allow swelling to go down and scar tissue to heal. They should not be expecting further surgery.
Allergies	Clients with allergies are always more susceptible to other products and procedures. Most clients are not actually allergic to the pigment but to the metal inside the pigment that acts as a preservative. You will find clients with metal allergies will more than likely be allergic to pigment. Clients can also be allergic to anaesthetics, and this is why it is important to patch test first.	Patch test all clients 48 hours before the procedure. Invest in single-use pigments that are preservative-free and have a lower risk of causing an allergic reaction.
Scar Tissue	Ascertain why the client has scar tissue and where the scar tissue is.	Scar tissue can be worked over; however, whilst there may be a small reduction in the scar appearance due to the needle breaking down old collagen and creating a new collagen and elastin matrix, the scar will still be visible and can make the treatment seem uneven. Treatment may also need to be adapted and a pointillism technique used.
Herpes Simplex	Herpes simplex commonly called cold sores or fever blisters, may occur once or return again and again. It's caused by the herpes hominis virus. Herpes Simplex begins as a group of small red bumps that blister. Sufferers notice itching or discomfort before the rash appears. The blisters begin to dry up after a few days and form yellow crusts. The crusts gradually fall off and leave slowly fading red areas. The whole process takes about 10 - 14 days. No external scars form; however, scarring below the epidermis may be present and can sometimes be felt when doing a lip procedure.	Tattooing of lips carries a hitherto unrecognised risk of exacerbation of HSV, which potentially may develop into eczema herpeticum, a life-threatening condition. Atopic dermatitis may predispose. Prophylactic treatment with acyclovir before tattooing of the lips is of utmost importance in clients at risk from HSV..

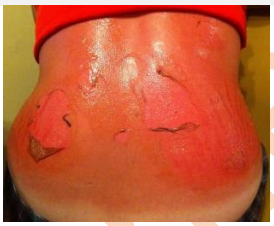
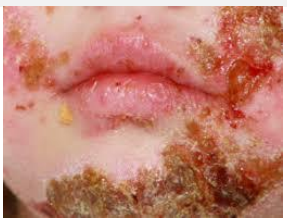
	Once you've had a Herpes Simplex infection, the virus becomes permanently established in the nerve tissue. Recurring herpes lesions result from the activation of this virus. In between attacks, it lives quietly in nerve tissue. Fever and sun exposure are the most common factors triggering the Herpes Simplex virus. That's when cold sores or fever blisters break out. Often no triggering factor can be found; the virus becomes activated without any apparent reason.	
Pregnancy	If a client got Hep B from somewhere else, the blame would instantly be pointed at the Micropigmentation technician, and they would be instantly shut down. Clients could also faint from high blood pressure. Blood can be thinner, resulting in more bleeding during treatment and prevent the pigment from staying in the skin. Hormones can also affect the colour of the pigment. There is also the risk of post-procedure infection, which could harm the unborn child.	Rebook client back in once they have had baby and stopped breastfeeding.
Warfarin/Aspirin	Anticoagulant medicines work by interrupting part of the process involved in the formation of blood clots. This means that blood clots are less likely to form where they are not needed but can still form when they are.	The chances of the client bleeding more will possibly prevent the pigment from staying in the skin. As the skin takes longer to form blood clots, the skin may be open to the risk of infection for longer and then run the risk of endocarditis. Clients should be advised to consult with their doctor first, who may prescribe them a high dose antibiotic to take pre-treatment.
Chemotherapy	Doctors often warn against getting a tattoo as it is an infection risk. While undergoing chemotherapy, chemo drugs lower cancer patients' white blood cells that fight infection. An infection can be very dangerous when the body is immune-compromised. Clients also appear to be very sensitive as well and often having dryer than usual skin, and sometimes hyperpigmentation changes can occur.	A lot of clients will want to have cosmetic tattooing whilst undergoing Chemotherapy or radiotherapy. A very sensitive approach is required to explain the risks to the client and that the client also discusses their treatment plan with their oncologist. Many clients undergoing Chemotherapy are prepared to risk pigment not lasting, the discomfort of application and the risk of hyperpigmentation just to look 'normal' again.
Circularity Disorders	Risk of fainting, risk of slow healing or chances that the client may be medicated to keep their condition under control. Clients may also have a heart catheter or a pacemaker.	Take each client on a case-by-case basis; ask for Doctors note for their suitability for treatment.
Inflamed/Infected Skin Disorders or Diseases	Risk of infection, risk of pigment not taking, discomfort or secondary infection.	Take each client on a case-by-case basis. Wait for the condition to disappear or proceed, providing the inflammation or infection is away from the area to be treated or had a cause for the problem that poses no risk to the procedure and if

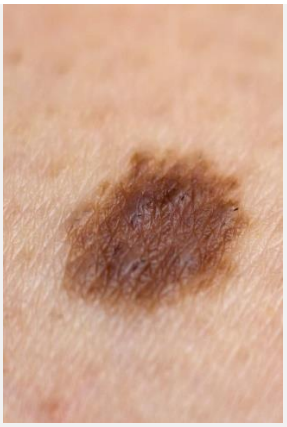
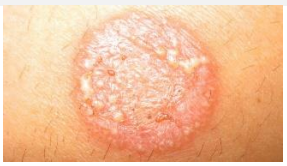
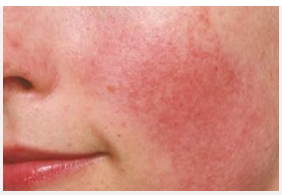
		the client fully understands the risk and wound control.
Contagious Diseases	Dependent on the disease, the client should make full disclosure. Contagious diseases can become worse when faced with secondary infection and can also be easily passed on from person-to-person.	Take proper precautions. Ask for a Doctor's note. Wear correct PPE and exercise caution when treating the client. It is illegal to treat people differently, even when it involves a disease or disorder.
Moles in the Treatment Area	May become cancerous if irritated by needles or injury.	Adapt treatment plan to avoid the area surrounding the mole or suggest an alternative procedure.
Medication causing thinning of the skin	Medication that thins the skin interferes with healing and can increase the risk of scarring, keloid scars, bruising or tearing of the skin.	Wait 6-12 Months after the client has finished taking any medication that causes thinning of the skin.
Keloid Scars	A keloid is an overgrowth of scar tissue in the area of a wound. Keloids usually have a smooth top and are pink or purplish colour. They tend to be irregularly shaped, and unlike scars, they do not go away or diminish over time. Keloids seem to occur most often on the chest, back, shoulders, and earlobes. For some people, they are nothing more than a cosmetic problem, but others can experience keloids as itchy, tender, and even painful to the touch.	It is not fully understood how and why keloids form in some people and not in others; there is no clear way to know if someone is definitely going to develop a keloid from a cosmetic tattoo. However, if your clients have ever had a keloid or have any close family members who have had them, they should not have cosmetic tattooing.
Diagnosed Scleroderma	Collagen builds up in the skin. Too much of it can make your skin dry and stiff.	Clients suffering from Scleroderma may suffer long healing times and risk of scarring. It would not be advisable to treat.
Pigmented Naevi	Moles are growths on the skin that usually are flesh coloured, brown or black. Moles can appear anywhere on the skin, alone or in groups. Moles occur when cells in the skin grow in a cluster instead of being spread throughout the skin.	Cosmetic tattoos can hide suspicious nevi, making them difficult to assess for Doctors. Pigment from the tattoo can also mimic metastatic disease, making it difficult for pathologists to diagnose. No studies prove that cosmetic tattooing changes benign nevi into melanoma.
Recent Dermabrasion	Dermabrasion procedures are surgical, invasive procedures that require a local anaesthetic. They are performed in surgeries or in Plastic Surgery Clinics. Since the procedure can typically remove the top to deeper layers of the epidermis and extend into the reticular dermis, there is always minor skin bleeding. The procedure carries risks of scarring, skin discolouration, infections, and facial herpes virus reactivation. In aggressive dermabrasion cases, there is often heavy skin bleeding and spray during the procedure that has to be controlled with pressure. Afterwards, the skin is normally very red and raw-looking. Depending on the level of skin removal with dermabrasion, it takes an average of 7–30 days for the skin to fully heal. Often this procedure was performed	Wait 30 days or until the skin has fully healed before proceeding. Ensure the client is not planning any further invasive treatments as these will remove or lighten the tattoo.

	for deeper acne scarring and deep surgical scars.	
Chemical Peels	Chemical peels like dermabrasion are performed by beauty therapists or doctors, and the strength of the peel may vary as well as the depth penetrated. Several layers of the skin may be removed in a clinic, where a doctor may be able to remove twice this. The skin will take up to 30 days to heal and will be red for several days post-treatment, and this is followed by extreme dryness and skin shedding.	Wait 30 days or until the skin has fully healed before proceeding. Ensure the client is not planning any further invasive treatments as these will remove or lighten the tattoo.
AHA's	Similar to chemical peels, these are weaker peels that remove fewer layers; however, clients are often using skincare containing AHA's as part of the treatment plan. The skin can become thin and dry.	Wait 30 days or until the skin has fully healed before proceeding. Ensure the client is not planning any further invasive treatments as these will remove or lighten the tattoo.
Heart Disorders	Risk of fainting, risk of slow healing or chances that the client may be medicated to keep their condition under control. Clients may also have a heart catheter or a pacemaker.	Take each client on a case-by-case basis; ask for a Doctors note for their suitability for treatment.
Haemophilia	Reduction in the body's ability to clot blood and increases healing time and bleeding.	Dependant on the type of Haemophilia, the client, should first consult with their doctor. A Factor is infused about 1 hour prior to getting a cosmetic tattoo. This allows the body to clot and heal in the same way as someone without Haemophilia. In order for it to heal properly, the client might want to infuse it for a day or two after the procedure. Their doctor would be able to tell them the best treatment plan.
Hypertrophic Scars	A raised scar due to excess collagen formation.	Once decided that the scar is, in fact, Hypertrophic and not Keloid, the client should be safe to have cosmetic tattooing. It is worth getting a Doctor's note to back this up and ask the client how many of their scars are atrophic and hypertrophic—a raised scar due to excess collagen formation.
Hepatitis	Hepatitis is more contagious than HIV and severely affects the liver. Hepatitis B can be vaccinated against.	Clients with Hepatitis can be treated, and it is illegal in the UK to refuse to do so. Ensure your Hepatitis B Vaccinations are up to date.

Contraindications

CONDITION	IMAGE	DESCRIPTION & CAUSE	SALON TREATMENT
PSORIASIS		Scaling and inflammation of the skin. Cause unknown but thought to be related to the nervous system	Treat with caution; avoid the affected area. Do not treat if the skin is weeping.
ECZEMA		Atopic eczema is a common skin condition that causes patches of skin that are itchy, cracked and sore.	Treat with caution: avoid the affected area.
CONJUNCTIVITIS		A transparent and sticky substance covers the white of the eye and lids. It is caused by a bacterial infection.	This is highly infections; do not treat; the client should be referred to their GP for correct diagnosis and treatment.
CUTS & ABRASIONS		Broken skin caused by an injury.	Avoid treatment in the affected area.
BACTERIAL KERATITIS		A severe disorder which can result in partial or total loss of vision. It is caused by a bacterial infection.	Do not treat; refer clients to their GP for correct diagnosis and treatment.
BRUISING		Black, green. Yellow or red marks appear on the skin. They are generally caused by an injury.	Avoid the area if possible.
RECENT OPERATIONS (SCARS)		Scar tissue raised or flat undergoing the healing process. Scar tissue is very sensitive.	Avoid treatment if the scar is less than six months old.

BLEPHARITIS		Inflammation of the eyelids; the inflammation is like eczema of the skin with red, scaly eyelids; you may notice tired or gritty eyes, which may be uncomfortable in sunlight or smoky atmospheres; they may be red and swollen and feel as though there is something in them. The exact cause is unknown, but people who have dandruff or dry skin conditions may be more prone to blepharitis.	Avoid the area; refer the client to GP for correct diagnosis and treatment.
STYE		Infection in the root of an eyelash. They are caused by a bacterial infection.	Avoid the area; no treatment until the infection has gone.
SUNBURN		Sunburn is a red, painful skin that feels hot to the touch. It usually appears within a few hours after too much exposure to ultraviolet (UV) light from sunshine or artificial sources, such as sunbeds.	No treatment should be provided until the skin has healed. 48 hours should be left from sun exposure/sunbed use before a treatment.
COLD SORES		Cold sores are painful lumps or blisters on the face. They're caused by a virus and are very contagious.	Treatment should not be provided on the face until the skin has healed. Precautions should be taken when treating other areas to avoid cross-contamination.
IMPETIGO		Impetigo is a highly contagious skin infection that often starts with red sores on the face or hands. It causes red sores or blisters that burst and leave crusty, golden-brown patches.	Treatment should not be provided on the face until the skin has healed. Precautions should be taken when treating other areas to avoid cross-contamination.

MOLES		*Moles* are small, coloured spots on the *skin*. Most people have them, and they're usually nothing to worry about unless they change size, shape or colour.	Avoid treating over a mole. Irritation or damage to the area may cause the mole to change.
RINGWORM		Ringworm is a fungal infection on the skin. It causes a rash that is often ring-shaped.	Treatment should not be provided to the client until the condition has been treated.
SENSITIVE SKIN		Sensitive skin is a common issue but not a medical diagnosis in itself. The term generally refers to skin that is more prone to inflammation or adverse reactions. People with sensitive skin may have strong reactions to chemicals, dyes, and fragrances present in products that come into contact with the skin.	Treatments should be applied with caution. Patch tests may be required before undertaking a full procedure.

Contra-actions

The contra actions that may occur during and following micro-blading treatments

Excess erythema - Erythema is a health condition caused by capillary dilation under your skin due to excessive blood and inflammation. This skin condition is typically marked by a red rash. And a very common cause of erythema skin redness is sunburn.

Burning - A burning sensation is a particular type of pain distinct from dull, stabbing, or aching pains. Often, a burning kind of pain is related to nerves, but there are many other potential causes. Injuries, natural wear and tear, infections, and autoimmune disorders all have the potential to cause nerve damage and pain.

Bruising – Bruises are bluish or purple-coloured patches that appear on the skin when tiny blood vessels, called capillaries, break or burst underneath. The blood from the capillary's leaks into the soft tissue under your skin, causing discolouration. Over time, this fades through shades of yellow or green.

Migration of pigmentation – This is the migration of pigment between the layers of the skin, leaving dark spots or uneven blotches; this occurs when the pigment has been incorrectly implanted.

Oedema - Oedema is the medical term for fluid retention in the body. The build-up of fluid causes affected tissue to become swollen. The swelling can occur in one particular part of the body, e.g., as the result of an injury or treatments.

Allergic reaction - An allergy is an adverse reaction that the body has to a particular food or substance in the environment.

Client Consultation

A client consultation is a one-to-one talk with your client. During this time, you will find out very important and confidential information that will allow you to advise and provide the best treatment for the client.

It is important to always introduce yourself to the client as this removes any barriers and relaxes them. Consultations should always be undertaken in a private room or area where you cannot be overheard by others.

A client should first fill out a client consultation which helps identify any contra-indications that may mean you have to alter the treatment or be unable to treat them at all. If their form shows no reason why they cannot proceed with the treatment, then you can move onto verbal questioning.

Verbal questions would be to establish why the client has visited the salon and what their expectations and outcome of the treatment may be. Asking what they want ensures you can provide customer satisfaction as the client should be pleased with the outcome of their treatment. It is good practice to speak to the client in front of a mirror and explain the treatment to them and see if that meets their requirements.

Once you have established what the client is after, then a physical examination should be undertaken. This allows you to further check for any undeclared contra-indications and get a better overview of any issues that you may face during the procedure.

Allow around 15 minutes for the client's first salon visit. Ideally, you should sit face to face or next to the client to create an open atmosphere. Avoid barriers such as a couch or table between you.

Use open questions to tactfully encourage the client to give you information that you may need rather than using interrogating questioning techniques. Use the consultation form to work from and record anything you may discuss.

Record Keeping

Records must be maintained and updated for a number of reasons.

- They provide contact details in case you need to alter or cancel an upcoming appointment.
- So that you can track client's progression.
- To record the products used and timings so you can use these at further visits and adjust the treatment plan if required.
- Tracks any aftercare you provide the client.
- Records patch test history.
- As a backup in case, the client has an adverse reaction to treatment.
- For legal reasons if the client brings a claim against you.

Client records can be stored electronically or filed away manually and should be updated at every visit. If consultation forms are not updated and do not contain a history of services and dates, then you may find your insurance invalid.

Forms should be kept for the timeframe suggested by your insurance company. This may be for up to six years. If a client is under 21 at the time of service, then it is recommended to keep the forms for six years past their 21st birthday.

Client confidentiality must be protected at all times. Forms need to be locked away in a secure cabinet, and electronic records should be held on a password-protected computer. You may also need to register with the ICO as a data controller.

- All information must be accurate and necessary for the service or treatment being performed.
- Individual client records must be available for the clients to view if requested.
- Data should not be passed on or sold without the client's prior written permission.

The following details should be recorded on the client consultation form:

- Personal details – name, address, contact details
- Results of any patch tests
- Contra-indications
- Contra-actions
- Reasons for the treatment
- Any reactions to treatments/previous treatments
- Home care advice/suggested retail items.
- Any sales
- Treatment timings/products used etc.
- Next appointment or recommendations

Any contra-indications and possible contra-actions should be identified and discussed prior to the treatment. In the case of a medical referral, the therapist should keep a copy of the GP's letter with the client's record card.

Consultation forms must be signed and dated to prove that you have covered everything and given the correct advice and treatment plan.

See an example below

Cosmetic Tattooing Consultation Form

Personal Details

Name			
Date of Birth			
Number			
E-Mail			
Address			
		Postcode	

Emergency Contact Details

Name			
Relationship		Contact Number	
GP's Name			
GP's Surgery			
GP's Address			
		Postcode	
GP's Number			

Patch Test Information

Test Date		Therapists Name	
Pigment	Brand/type/colour	Placement	Left ear/right ear
Anaesthetic	Brand/Type	Placement	Left ear/right ear
Test outcome	Pigment	Test outcome	Anaesthetic

No treatment will be performed without a patch test taking place 48 hours prior to your treatment appointment. Should you experience any swelling, itching or hives in the area, you should seek medical attention.

Client Signature:_____Date:_____

Therapists Signature:_____Date:_____

Medical Health Form

Please read through the health checklist and tick any that may apply to you. Marking a box does not mean that we will refuse a treatment so please answer as honestly as possible.

	Tick		Tick
Diabetes		Epilepsy	
Cancer		Circularity Disorders	
Eczema or Psoriasis		Keloid Scarring	
Scleroderma		Heart disorders	
Haemophilia		HIV or AIDS	
Hepatitis		Vitiligo	
Thyroid disorders		Melasma	
Bell's Palsy		Cushing's Syndrome	
Goitre		Addison's Syndrome	
Herpes Simplex (cold sores)		Recent surgery	
Cold or Flu (currently)		Strep throat	
Ringworm		Pacemakers or similar	
Metal pins or plates		Chemotherapy in last 12 months	
Pregnancy (current)		Breastfeeding (current)	
Kidney disease		High blood pressure	
Low blood pressure		Stroke	
Anaemia		Fainting or dizzy spells	
Liver disease		Tumours, growths or cysts	
Conjunctivitis		Blepharitis	
Glaucoma		Cataracts	
Dry eyes		Watery eyes	
Trichotillomania		Allergies to food	
Allergies to metals		Allergy to lidocaine	
Allergies to skincare ingredients		Allergy to latex	
Anorexia		Bulimia	
Body Dysmorphia		Depression	
Alcohol in the last 7 days		Smoker	
Mental health disorders		Other medical condition not listed	

Please list all medications that you have taken, either prescribed or over the counter within the last 6 months.	

Client Signature:_____Date:_____

Therapists Signature:_____Date:_____

Please answer the following questions:

How long have you been considering cosmetic tattooing?

When are you looking at having the procedure done?

Why do you want to have cosmetic tattooing?

Do you have any special occasions coming up, such as a wedding or holiday?

Have you discussed the procedure with family & friends and are they happy for you to have cosmetic tattooing?

Have you had cosmetic tattooing before? What was the outcome?

Please read through the following statements and initial next to them:

Statement	Initial
I am aware that cosmetic tattooing is a form of tattooing	
I must have a retouch appointment within the next 4-6 weeks	
Pigment will appear considerably darker for up to 4 weeks	
Swelling can cause the area to look asymmetrical or misshapen	
Application of cosmetic tattooing can be uncomfortable	
There is a risk of migration of the pigment under the skin	
Allergic reaction may still occur even with a negative patch test result	
Pigments will fade by 30-50% in the first 2 months	
Cosmetic tattooing will need to be done every 6-18 months and is a lifelong commitment.	
I understand I must wait at least 4 weeks for results to be seen. Any colour changes, shape alterations or other adjustments will only be undertaken after 4 weeks due to risk of scarring	
I am over 18 years of age	
Corneal abrasion may occur during eyeliner procedures	
I agree to take anti-herpes medication to minimise outbreaks if I am prone to cold sores.	
Swelling, itchiness, redness, tenderness may occur post treatment	
The treated area will scab and flake and picking these scabs will cause scarring to underlying tissue	
I may experience minor bleeding during the treatment	
Scarring, inconsistency of colour or loss of brow or lash hair may occur	
Infections are probable if correct aftercare is not followed	
Taking of, or application of prescribed antibiotics will alter the colour of the pigment, cause scarring and/or pigment loss	

I agree to use only the suggested aftercare creams and apply these as suggested with clean hands and cotton buds	
I accept full responsibility for the shape, colour and position of the cosmetic tattoo as per the treatment plan and pre-treatment photo	
I understand that even if the pigment fades, the pigment will remain in the skin indefinitely	
I will be shown that all new and sterile items will be used for the treatment for every visit	
I acknowledge that cosmetic tattooing may not 'take' to everyone's skin and there is no guarantee that the pigment will hold.	
I understand that up to 3 procedures may be required to achieve the desired result.	
It is my responsibility to book in for the re-touch procedure and understand that the treatment process will be incomplete if the second appointment is not attended.	
I agree to follow all pre and post treatment aftercare.	
I have seen my technician's certificates of education, license to practice, insurance and previous work and happy to proceed with the treatment	
I am of sound mind and body and I hereby accept any and all responsibility that might stem from my decision to have cosmetic tattooing by the therapist named on this form	
I agree to, for the purpose of documentation, consent to the taking of before, during and after photographs of the procedure for record purposes and for use in presentation portfolios or social media – where my identity will be protected	
I agree not to make slanderous or libellous comments against the business or therapist if for any reason I am dissatisfied with the treatment outcome on any social media, public websites or press. I agree to allow the technician and business to interact directly with the business or through mediation to find a suitable resolution to any issues that I may have	
Should I choose to seek treatment from another therapist for either further cosmetic tattooing, correction of any cosmetic tattooing undertaken by the clinic or any attempts at removal – either through a specialist or with 'at home' methods severs my personal rights to seek compensation or legal action against the clinic.	
I acknowledge that I am consulted with throughout the procedure to ensure that the treatment is performed with my full consent at all times. I will only allow the treatment to begin when I am happy with the chosen shape, colour and position for the cosmetic tattoo I want	

Client Signature:_____Date:_____

Therapists Signature:_____Date:_____

Skin Analysis & Consultation

FOR THERAPIST USE ONLY

Date of Treatment: Time of Treatment:

Therapists Name:

Fitzpatrick Skin Type	
Skin Type (oily/dry/sensitive)	
Skin tone & laxity	
Skin undertone	
Hyper/Hypopigmentation visible?	
Patch test area checked?	
Pre & After care advice given?	
All risks explained pre procedure?	
Area to be treated	
Pre-existing tattoos/scarring in area to be treated?	

CLIENT BEFORE PHOTOGRAPH

CLIENT BEFORE WITH TREATMENT MARKERS PHOTOGRAPH

Treatment Plan:

Client's expectations, colour preference, shape preference, treatment type (Blade/PMU/Powder/Hair Stroke)

Pigment Name		Batch Number	
Quantity/Ratio		Expiry Date	
Pigment Name		Batch Number	
Quantity Ration		Expiry Date	
Anaesthetic Name		Batch Number	
Exposure Time		Expiry Date	
Needle Configuration		Batch Number	
Needle Configuration		Batch Number	

Technician Feedback:

Application method, colour changes, skin reactions, depth, scar tissue present, client reaction.

AFTER PHOTOGRAPH

Post Treatment Review

Were you fully informed about the treatment before, during and after procedure?	YES/NO
Have you received a copy of the aftercare form to take home?	YES/NO
On a scale of 1-10 with 10 being the most painful, how comfortable were you during the treatment?	
Are you happy with the outcome of your treatment?	YES/NO
Have you booked your retouch appointment?	YES/NO
Would you recommend us to your family and friends?	YES/NO

Client Signature:_____Date:_____

Therapists Signature:_____Date:_____

Colour Retouch

Date of Treatment: **Time of Treatment:**

Therapists Name:

4-6 Week Treatment Review:

Colour outcome, shape alterations needed? Density of colour, client's expectations met/not met, action plan for colour retouch e.g. different colour, make thicker, bolder, darker etc.

RETOUCH BEFORE PHOTOGRAPH

BEFORE PHOTOGRAPH WITH ANY MARKERS IF REQUIRED

Pigment Name		Batch Number	
Quantity/Ratio		Expiry Date	
Pigment Name		Batch Number	
Quantity Ration		Expiry Date	
Anaesthetic Name		Batch Number	
Exposure Time		Expiry Date	
Needle Configuration		Batch Number	
Needle Configuration		Batch Number	

Technician Feedback:

Application method, colour changes, skin reactions, depth, scar tissue present, client reaction.

AFTER PHOTOGRAPH

Post Treatment Review

Were you fully informed about the treatment before, during and after procedure?	YES/NO
Have you received a copy of the aftercare form to take home?	YES/NO
On a scale of 1-10 with 10 being the most painful, how comfortable were you during the treatment?	
Are you happy with the outcome of your treatment?	YES/NO
Would you recommend us to your family and friends?	YES/NO

Client Signature:_____Date:_____

Therapists Signature:_____Date:_____

FINAL HEALED RESULTS 4-6 WEEKS POST RETOUCH

TOPICAL ANESTHETIC FORM

Allergic Reaction

Allergic reaction can occur from any anaesthetics used during the procedure. If you do suffer from an allergic reaction you should contact your doctor immediately. Allergic reaction response may display redness, itching, swelling, a rash, blistering, dryness or any other symptom associated with allergy.

Numbness

We cannot accept responsibility if the treatment area does not numb. Each individual is different according to the skin type. Some clients have reported that the area is totally numb while others say they experience some discomfort.

Procedure

For all procedures a cream or gel topical anaesthetic is used. These products are perfectly safe and can be purchased over the counter from any chemist. The anaesthetic is placed over the treatment area for between 10-30 minutes then carefully removed prior to treatment.

As a result of the treatment, combined with the use of the anaesthetic you can expect to experience swelling and redness that could last between 1-4 days. You should always follow your post procedure instructions.

For Eyeliner procedures you will be asked to keep your eyes closed throughout the numbing procedure. If for some reason the anaesthetic gets into the eye you must inform the technician at once. It is not harmful to the eye although you will experience some stinging and slight discomfort. The cream will be removed and your eyes immediately flushed with a sterile saline solution. It is then safe for the technician to reapply the anaesthetic.

NOTE: If you experience stinging in the eyes and do not inform your technician immediately, the anaesthetic may numb the eyeball, and a possible corneal abrasion may occur. This can result in temporary streaming and light sensitivity of the eyes. You may be unable to open your eyes and each time you do it may be painful, and temporary blurry vision may occur. Corneal-abrasion however, is rare. If you experience any of these symptoms, inform your technician and visit your doctor immediately.

I have read and fully understood the above and the risks involved with the use of topical anaesthetic and consent to the use of the anaesthetic for the permanent cosmetic procedure.

Client Signature:_____Date_____

PRE-PROCEDURE ADVICE

Permanent cosmetic procedures will normally require multiple treatment sessions. For best results, clients will be required to return for at least one retouch procedure, usually between 1-3 months after the initial procedure.

Be prepared for the colour to be significantly sharper and darker immediately after the procedure. This will subside and become lighter as the tissue heals. This process can take up to ten days.

Advice for all permanent cosmetic procedures:

- Alcohol, Aspirin, Ibuprofen or Co-Codamol must be avoided at least 48 hours prior to procedure.
- Do not discontinue any medication before consulting your doctor.
- Since delicate skin or sensitive areas may be swollen or red, it is advised not to make social plans for the same day.
- The treatment will only go ahead with the outcome of a negative patch test.
- We do not allow any family or friends in the treatment room with you.

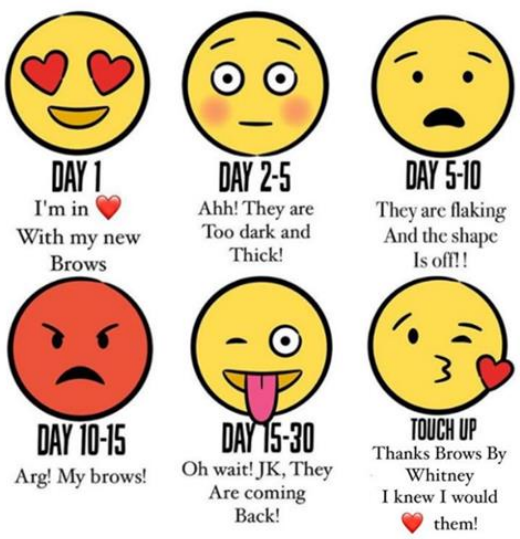
Eyebrow Procedures:

- Any waxing should be performed at least 48 hours before the procedure: Electrolysis no less than 5 days before the procedure

COSMETIC TATTOOING AFTERCARE

For 2 to 5 days after treatment, the procedure area may experience the following symptoms:

- Flaking
- Tenderness
- Dryness and itching
- Swelling
- Redness



After eye procedures, eyelashes may stick together, and eyelids appear red and puffy. If you are feeling less than 100% healthy it may take longer for your treatment to heal and symptoms may appear more prominent.

For at least 7 days after a procedure or until the area appears to be healed, include the following daily routine:

1. Apply the suggested moisturising balm to the area at least 3 times a day using a cotton bud. Wash hands before and after application and use a clean cotton bud each time to avoid infection.
2. Use a gentle face cleanser and avoid the treatment areas.
3. If the area does get wet, pat dry very gently with a clean towel or tissue.

If you have ever had cold sores or herpes simplex in the past it is important that you continue to use medication for 7 days after your lip treatment, as you did 7 days before. This will help prevent an outbreak, which causes discomfort and could result in scarring.

DO NOT expose the area to extreme heat or extreme cold until healed. This includes sunbathing, tanning beds, saunas etc.

DO NOT use makeup for 7 days and in the case of eye procedures use a new mascara to prevent infection.

DO NOT itch, pick, scratch or rub the area or the colour will heal unevenly or cause scarring and infection.

IMPORTANT INFORMATION

REMEMBER the colour is up to 50% darker straight after the treatment. It will fade after 4 to 7 days and the true colour will not come through until up to 4 weeks after the initial treatment. During the healing process, the colour may seem to have disappeared as the healing skin obscures it. Under no circumstances should you have further permanent cosmetic work undertaken during the 4-week period.

GENERAL POST PROCEDURE INFORMATION

In order to keep your permanent cosmetic work in perfect condition it may be necessary to have a maintenance procedure.

To avoid pigment fade for as long as possible, avoid excessive exposure to the sun or UV rays and use a good sunscreen or moisturiser with an SPF30.

If you are planning an MRI scan, chemical peel or any other similar procedures, please inform your practitioner that you have had permanent cosmetics.

You should not be eligible to give blood for 6 months after your procedure, please inform the National Blood Service of your procedure and date if you want to give blood.

If you are planning injections such as Botox and Collagen remember it can alter the shape of your lips and eyebrows.

Laser hair removal can fade and change the shade of your lips or brow procedures, always advice the laser technician you are wearing permanent cosmetics and they can act accordingly.

Swelling differs with each individual. To eliminate the swelling you can place ice on the treated areas every hour for about 10 minutes. Make sure you are rolling the ice - do not leave in one area. An additional pillow is advisable when sleeping that evening. Do not use eyelash curlers for 7 days after the procedure. New mascara has to be purchased but not to be used until approximately 5 days after the procedure.

Your eyebrows need to be gently blotted to remove excess body fluids to eliminate crusting. Make sure you wash your hair with your head tilted backwards to stop water running down you face. Do not try to hide you eyebrows with your fringe in the first 2 days, this is the easiest way to cause infection - keep you fringe away from your eyebrows.

Lips: The anaesthetic will have worn off within approx. 30 minutes and your colour will come back into your lip tissue. Ice can be applied the same as the eyeliner to relieve the burning sensation. After 2 hours and before you go to bed gently blot the area with a damp cotton wool pad to remove excess body fluids and tiny blood spots to eliminate crusting. Apply the healing balm every hour whilst awake. Do not apply lipstick until after 7 days. It is possible that an allergic reaction to the ingredients of the lipstick may occur should you apply within this period.

Be careful when eating spicy, salty or citrus foods; avoid them if possible. Drink through a straw to prevent contact with contaminates and washing off you're healing balm and also be careful when brushing your teeth.

If you suffer cold sores and are not using Zovirax or a similar product to prevent an outburst, I will not be responsible for excessive colour fading. I can guarantee a 90% chance you will have an outbreak of cold sores if Zovirax or medication tablets are not used.

REMEMBER the colour is up to 50% darker straight after the treatment. It will fade 4 to 7 days after and the true colour will not come through until 4 - 6 weeks after the initial treatment. Often clients think they have lost there colour, please remember what I said about the colour becoming stronger.

If you have any queries about your procedure please do not hesitate to call me on

Your procedure may need a retouch to ensure perfect pigmentation. It must be undertaken between four weeks and three months after the initial treatment. It is your responsibility to book this appointment.

I hope you enjoy the results you gain from your Semi-Permanent Cosmetic Treatment and I look forward to seeing you again.

Patch Testing

Every client MUST be patch tested at least 48 hours prior to having Semi-Permanent Make-up or Microblading. It is advisable to repeat this if they return six months later for a further procedure. You will have some clients complain that this is an inconvenience, or they had had PMU procedures or other tattoos before, or their last PMU tech never did it.

It is not worth risking your client's health, not undertaking a patch test. If a client wants the treatment badly enough, they will come in to see you! I am not a fan of sending items out in the post, so my client can do this themselves. I have no guarantee that they did do it, and by the time the product reaches them, it will have dried up or not be active enough.

This appointment also allows your client to fill in her consultation form and have a discussion with you about the procedure. You are not just looking to do a patch test at this appointment but also ascertain suitability for treatment.

If you were to book an hour and a half appointment for a client, only to find out she is pregnant, you would lose that time and money. Suitability for the treatment is just as important as checking for allergy risks.

You may also want to discuss at this time anaesthetic with your client. Whilst many PMU artists provide their own currently, laws may be coming into force that may mean the client needs to provide their own anaesthetic.

How to do a patch test:

There are two ways to patch test a client. How you perform a patch test is down to your insurer's recommendations.

Lancet Method

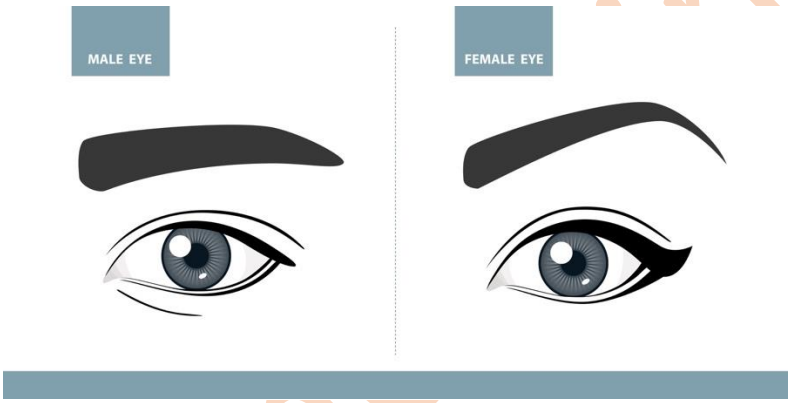
1. Set up your work area with a dental bib laid out on your trolley, with two pigment pots containing a small drop of pigment and a small drop of anaesthetic.
2. Have everything to hand that you will need.
3. Wash hands and glove up. You may wish to put an apron and facemask on also.
4. Explain to the client what you are going to do and what she may feel.
5. You can perform the patch test behind the ear; however, be aware that if you are using dark coloured pigments, this will be noticeable on someone with light coloured hair.
6. Wipe over the areas you are going to patch test with an alcohol wipe,
7. Dip the end of one lancet in the pigment and make a small scratch in the hairline.
8. Dispose of the lancet immediately and do not re sheath it.
9. Get a fresh lancet and do the same on the other side, only this time using the anaesthetic.
10. Dispose of the lancet in your sharps bin and clean your work area down.
11. Make a note on the consultation form where you performed the patch test and what side you placed the pigment or anaesthetic. It is worth noting what anaesthetic you patch tested in case the client has an allergy to one type.
12. Explain to the client what she is looking out for and how to inform you if there are any problems.

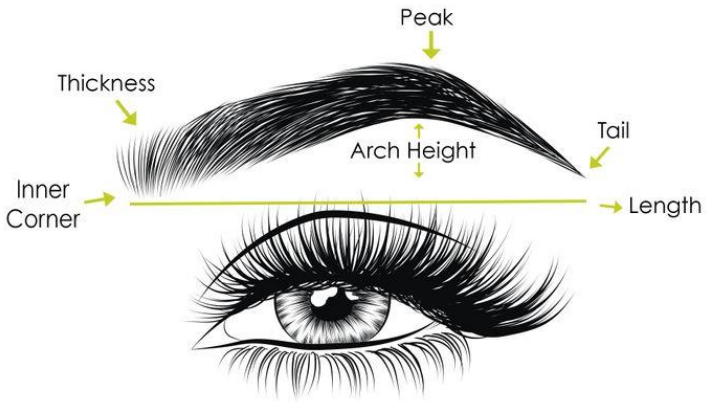
Plaster Method

1. Add a drop of pigment to one plaster and a drop of anaesthetic on the other plaster.
2. Put one plaster on the inside of each elbow.
3. The client needs to leave these on for a minimum of 12 hours.
4. If no irritation occurs after 48 hours, they are free to have the procedure.
5. Be wary of using red or pink pigments as these can look like irritated skin.
6. Ensure you note which elbow you have put each plaster.
7. Hypoallergenic plasters can be used.

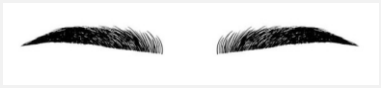
The Right Shape

The basic shape of the eyebrows and the direction in which the hairs grow cannot be changed. However, all eyebrows should be shaped so that they are thicker at the head of the brow (the part closest to the nose) and then gradually get thinner.





BROW SHAPE	DESCRIPTION	FACE SHAPE

FLAT BROWS 	These brows are ideal for clients with a long face shape as the horizontal line creates the illusion of a shorter face with a more oval appearance.	
ROUND BROWS 	The round shape of these brows is perfect for trying to create a softness to the face. Perfect for clients with sharp features to help minimise their appearance.	
CURVED BROWS 	Curved brows are completely different to round brow shapes. They are perfect for clients that do not want too much softness to their features and can work really well on square face shapes.	
ANGLED BROWS 	The high arch of angled brows have the ability to create a more youthful appearance and can make round or diamond face shapes appear slimmer.	
SOFT ANGLED BROWS 	Similar to the above but with a much shorter arch and a softer peak. The soft angle is great for a more feminine look and perfect for an oval face.	

Everyone's face and brow shape are different; there are five basic brow shapes that can be identified, which can also have a number of variations to them. Each of the five shapes has the ability to change the appearance of other facial features, therefore it is important to choose the right shape for the client

Influences affecting the Shape of your Clients Brows

Natural Brow Shape	If the client has shaped her own brows for a long period of time, they may need to let them grow to get their desired shape.
Clients Age	Mature clients may have coarse hairs which can be longer, straight or in different colours.
Fashion Trends	Fashion trends may affect the client's brows permanently. Especially if thin or over-plucked brows become the fashion.

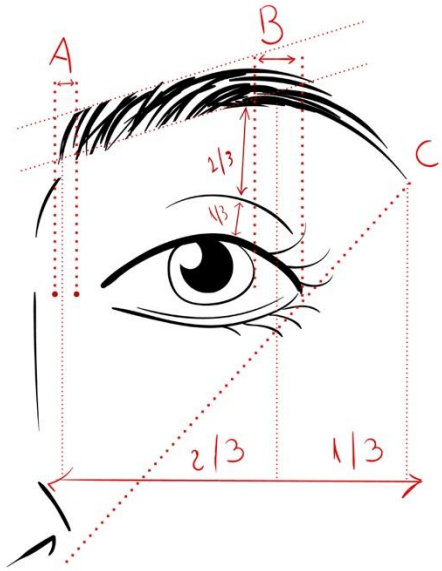
Measuring the Brows

Once a consultation has been carried out, and a shape decided the brows should be measured to create the perfect shape and symmetry

.

To measure the brows:

- Place an orange stick in a straight line from the side of the nose to the inner corner of the eye. This is where the eyebrows should begin.
- Place the orange stick from the side of the nose to the outer corner of the eye, and this is where the eyebrow should end.
- Ask the client to look straight ahead and place the orange stick from the side of the nose through the outer cornea part of the eye. This is the highest point of the arch.
- Holding the stick vertically so that it runs from the inner brow line to the top of the ear. Draw a line between both the bottom and top of the brow bulb. This ensures the brows are symmetrical.



Accent Eyebrows

FEATURE	OBJECTIVE	CORRECTION
DEEP SET EYES	Open up Low Brows	Create a 'Higher' brow which will open up the eyes and brows. If brows are light, consider adding a darker highlight colour of hair strokes for a tri-dimensional look.
ROUND EYES	Elongate eyes and brows	Create a strong arch and extend the brow shape to the outer corner of the eye.
WIDE-SET EYES	Make eyes appear bigger	Draw hair strokes at the medial portion of the brow to bring brows closer together.
DROOPY EYES	Angle brow upward	Create hair strokes in an elevated angle at the lateral portion of the eyebrows to create the illusion of height.

PROMINENT EYES	Offset roundness of lids	Create hair strokes to sharpen the arch.
CLOSE SET EYES	Widen eyes and brows	If brows are too close together, remove hair to create the appearance of wider brows. You may also need to extend the brow in the lateral portion of the brow.

Eyebrow Shapes

SHAPE OF FACE	SHAPE OF BROWS
ROUND	Brows should be kept short and placed high.
SQUARE	Brows should be arched in direct proportion with pupils and cheek bones.
OVAL	Brows should angle upwards at the ends.
LONG	Brows should be kept as level as possible with a slight curve at the lateral portion of the brow.

Pigments

- Purchase pigments with tamper-proof packaging.
- Always buy your pigment from a reputable manufacturer.
- Bottles of pigment always have a lot # and expiry date on them.
- We have found pigment has a fairly short shelf-life; make a note on the bottle of the date it was first opened.
- The pigment does not need to be sterile; however, once the bottle is open, it is no longer sterile.
- Pigment should be within the 6-8-micron range to prevent possible migration.
- Pigment viscosity should be on the thick side as thin pigment does not have the same level of pigment saturation and will need several applications.
- Once the pigment is placed into the dermis, the wetting solutions evaporate, and the oxide particles revert back to their natural dry state in the dermis.
- Most technicians do not like to use pigment that stays creamy for long periods of time in their pigment pots. They prefer to use pigment that dries fast as this allows the area to heal quicker.
- Store pigments tightly sealed and in a cool dark cabinet.
- Shake pigments really well before use to ensure proper disbursement of pigments.
- Establish if your pigment is a cool or warm base before use.
- If pigment becomes too thick, use a few drops of rewetting solution.
- Use multi colours on one procedure for much more realistic results.

- Create a wash effect by adding a rewetting solution to your pigment.
- Mix colours using your lightest colour first, as you will mix less pigment this way.
- Every application of pigment builds up the colour volume in the skin.
- The undertones of all black pigments start out blue-based. Add a few drops or a warm brown or pumpkin-orange to your pot, or use a warm black colour.
- Patch test clients with known allergies or sensitivities.
- Use lip pigments with Titanium Dioxide for greater coverage.
- Never mix colours from different manufacturers.
- Never reuse or save pigment.
- Do not use reddish browns near the eye area as it will make the eye look bloodshot.
- Do not add white pigment to your existing colour as it can heal in the skin and look like milia.
- Never use titanium dioxide on the client if the client is considering laser treatment as this can turn the pigment black until it is absorbed by the body.

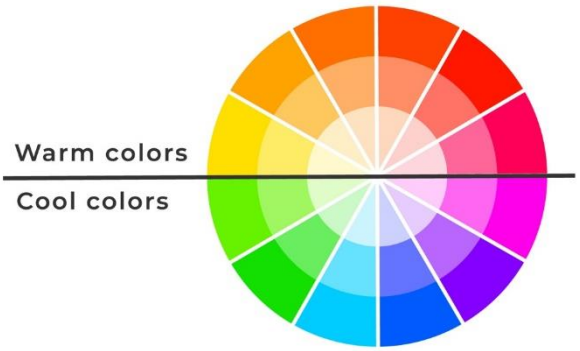
<u>Colour Theory</u>

There are three primary colours. Yellow, Red and Blue. The order dominance of the primary colours will determine our pigment colour results.

Yellow is the latest colour and is also a warm primary. It heals the lightest in the skin. Yellow is the only primary colour that has both cool and warm properties. Yellow will cool red and warm blue.

Red is a medium colour and a warm primary; red adds warmth.

Blue is the darkest colour and the only cool primary. It heals the darkest in the skin. Blue will cool any colour.



True primary colours cannot themselves be created from other colours but are used to mix other colours.

All three primaries are blended together naturally in naturally pigmented hair. The three primaries cannot work together without browning out. All-natural hair pigment contains the three primary colours.

Orange is the strongest warm colour and is made up of yellow and red. The red establishes the pigment depth. The yellow establishes the warm light reflection.

Violet is formed from the strongest cool and strongest warm primary colours, red and blue. Blue is the dominant colour and transforms red into its own class. It is still considered to be warm.

When white light is reflected through a three-sided mirror, the visible spectrum of colour will separate into six colours:

Red - Orange - Yellow - Green - Blue - Violet

The primary colours are Red, Yellow and Blue.

The secondary colours are Orange, Violet and Green.

Intermediate colours are yellow-green, yellow-orange, red-orange, blue-green, blue-violet and red-violet. Mixing a primary and a secondary colour together will create an immediate colour.

Tertiary Colours are created by mixing two secondary colours together. Tertiary colours are dull or low in intensity. This is the result of there being three primaries involved in the mixtures. Most of the colours we use for permanent cosmetics are tertiary colours such as Moss Green, Golden Beige, Burnt orange and taupe.
Complimentary colours are located diametrically opposite from each other on the colour wheel. Example:

- Red and Green
- Violet and Yellow
- Blue and Orange

Monochromatic colours are variations of any shade, tint, and tone of one colour. It counterbalances by eliminating an existing colour, or it may strengthen it by recreating a colour, making colour more apparent.

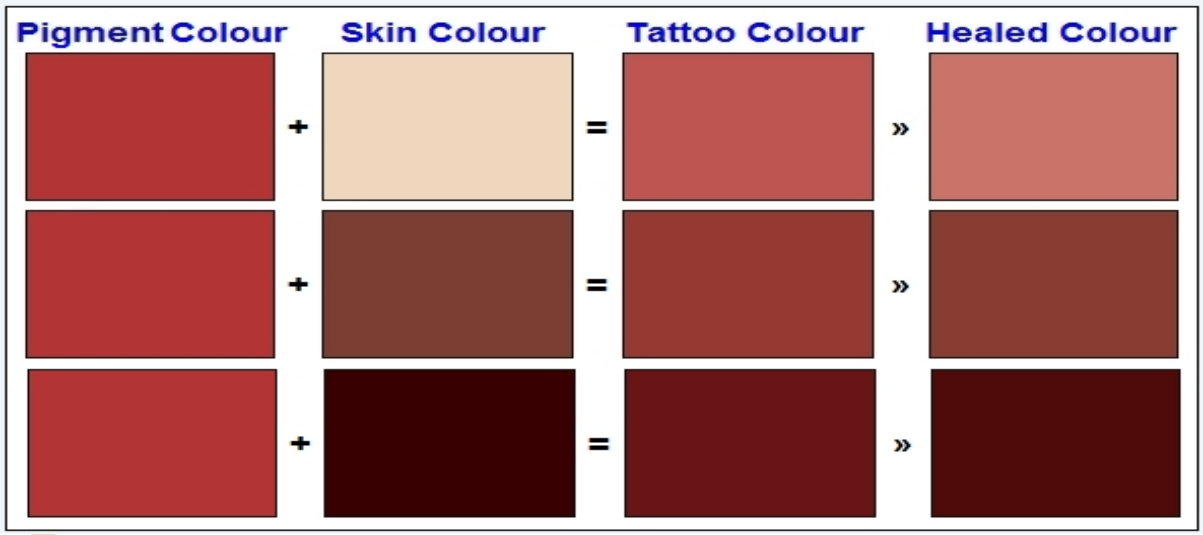
Triadic colours are three colours at the end of each point of an equal triangle on the colour wheel.

Pigment Facts:

TRUE

Pigment Colour + Skin Tones = The Final Result

- The only way to tell what the final colour result will be is after the pigment has healed into the skin for at least 4-6 weeks.
- Pigment colour should not change colour once it's inserted into the dermis and healed, if the client follows their aftercare instructions exactly and there are no contraindications of the application.



TRUE
Common sense tells us that the pigment colour inserted into the skin will appear to change because we are looking at the pigment colour through the top layer of skin.

FALSE
Pigment smeared on the surface of the skin will give you an accurate colour diagnosis.

- Taking into consideration the acidity and alkalinity (pH) of the skin, colours smeared directly on the skin will appear differently than if you were to insert them into the skin.

- If the client is on medication, they may show different colour results than anticipated.

FALSE

Iron oxide pigments are not absorbed by the bloodstream.

This rumour was started a few years ago, and it is just that a rumour.
Iron oxides have been used by tattoo artists and permanent cosmetic technicians for decades with very little or no complications.
And yes, you can still have an MRI scan if you have iron oxide in your eyeliner, lip liner, eyebrows or other body tattoos.

Colour correction/removal

- Brown is not a colour but is, in fact, a blend of colours.
- A basic brown colour consists of black, red, yellow or blue, yellow and red.
- Colours do not fade equally over time, and therefore when black fades, first you are left with a typical orange or pink looking brow or a purple hue. Over time the yellow colours deplete, leaving red and blue, which makes pigment purple.
- Red is opposite to green, so to correct a red or orange tone, you will need to balance it out with a green pigment.
- Grey or blue brows are the hardest brows to correct long term as the ink used would have contained a carbon black ink that turns greenish or bluish over time and looks dull and dirty. This brow needs to be balanced out with an orange pigment and will need regular maintenance.

Needle depth can have a significant effect on the surface appearance of a cosmetic tattoo; pigment depth will affect both the apparent size and colour of the pigment. This is due to the unique spectral characteristic of the human skin.

If the pigment is not implanted at the correct depth within the dermis, then black/brown pigments may tend to appear blue/green/grey because of the depth-related changes to light reflectance.

The pigment can be removed from the skin using various techniques. These include dry needling, the use of Saline, and Laser.

Blue Lips

If the client has blue undertones in their lips and you are going to use a blue-based pigment for the Lip micro-pigmentation, then you will have a blue-based final result.

The blue pigment will heal the darkest in the skin and is the densest colour when tattooing.

The yellow pigment will heal the lightest in the skin.

Always use caution when using white pigment colours or when it is mixed in with other colours. White has a tendency to float on the skin and gives an appearance of scarred skin tissue.

If your pigment gets too thick whilst you are working, you can use a few drops of rewetting solution to make the pigment thinner or creamier.

If your pigment goes too thick in the bottle, you can add a few drops of rewetting solution. Rewetting solutions are proper levels of alcohol, glycerin, deionised, sterile or distilled water. Never add straight glycerin to your pigment, as it will cause longer healing times and can cause photosensitivity.

If in doubt, patch tests the colour on the client's skin prior to full application in the area where you will be working on. Wait for 4-6 weeks for the area to heal completely to establish the final colour results.

Always check the base colour of the pigment before starting.

Skin Tones

Skin tones are made up of combinations of pink, brown, yellow, blue, purple and white.

Skin tones come from 3 pigments found naturally in the skin, Melanin- Brown, Carotene – Yellow and Haemoglobin – Red.

The skin also acts as a filter. The skin tone under the surface will determine if you are a warm – Yellow or a cool – blue.

Everyone has blue and yellow undertones; however, the quantity of each varies from person to person.

Types of Skin tone:

- Sallow Skin – This skin is yellow, warm and cool and can also appear yellow-green or yellow-orange.
- Translucent skin – is blue, extreme white or extreme black.
- Olive skin – is blue-green, green, yellow-green and can variate.
- Peaches and Cream Skin – This is red-orange, yellow-orange or variated.
- Rosy-Red skin – is ruddy, spotty, pink or red.
- Transparent skin – this can be violet, blue-violet or red-violet.

Quick Skin Undertone test:

Section A:

1. My eyes are dark hazel, black or brown.
2. My skin tans easily.
3. I tan to a golden bronze.
4. I have chestnut brown, auburn, copper or golden-brown hair.
5. I like to wear brown or orange coloured clothes.
6. I wear coral, orange-red, brown-toned lipstick.
7. I wear bronze or brown blushers.
8. I prefer brown or tortoiseshell glasses.
9. My grey hair is more cream coloured than salt and pepper.
10. I wear coral, orange-red, brown-toned nail polish.
11. I prefer to wear cream instead of white coloured clothes.

Section B:

1. My eyes are grey, green or blue.
2. My skin burns easily in the sun.
3. I tan to a reddish-brown.
4. I have sun-kissed blonde, sandy brown, strawberry blonde, black, dark or ash brown hair.
5. I like to wear purple, pinks and blue coloured clothing.
6. I wear deep red, plum or pink lipsticks.
7. I wear pink or plum blushers.
8. I like to wear red, plum or mauve nail polish.
9. I prefer black glasses.
10. My grey hair is more salt and pepper than cream coloured.
11. I prefer to wear white to cream coloured clothes.

If you picked mostly answers in section A, you probably have warm undertones.

If you picked mostly answers in section B, then you probably have cool undertones.

Colour Changes

If your client complains that the pigment has changed colour, check these things out with your client:

During the healing process, did the client?

1. Follow the aftercare properly?
2. Pick off any of the scabs?
3. Use any form of lightening products such as AHA's?
4. Touch the area with their fingers whilst the area was healing?
5. Smoke while the lips were still healing? The paper on the cigarette filter may pull out the colour on the lips as the area is healing.
6. Start taking any new medication?
7. Become ill?
8. Go in Saltwater or Chlorinated pools?
9. Expose the area to UV Light either outside without proper protection, or did they use a sunbed?

After the procedure had healed, did the client?

1. Get a tan?
2. Change jobs and now working in different lighting conditions?
3. Take, add or change any medications, including vitamins and herbs?
4. Use a total sunblock on the area?
5. Use any lightening products on their skin or have IPL, Laser or Micro-dermabrasion treatments?

The pigment has completely disappeared?

If the procedure is under four weeks old, then it may be that the skin is still healing, and it's not uncommon for the colour to re-appear after four weeks.

Needle Configurations

Do not use your needle if the package is open or appears to have been tampered with.

Do not use your needle if it appears to be split, separated, dull, corroded or bent.

Be careful when handling your needles as they can be easily damaged by:

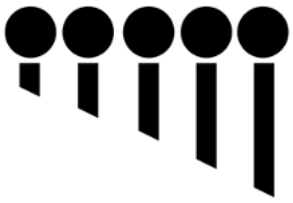
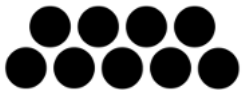
- Careless handling
- Manufacturing
- Hitting the bottom of your pigment pot
- Hitting the tip of your needle tray as you set the handpiece down
- Reckless insertion of the needle into your tube or tip
- Working on a thick epidermis

Needles should be used once and disposed of afterwards in a sharp's container.

- The choice of needle configuration used can have a profound effect on the final healed colour of a tattoo.
- Tightly grouped needles implant pigment at a higher density which will concentrate the pigment colour in the skin.

Needle Configurations

These are the most popular needle configuration:

NEEDLE CONFIGURATION		SUITABLE USE
1 MICRO		Eyeliner, Lip liner, Hair strokes
1 LINER		Eyeliner, Lip liner, Hair strokes
3 MICRO		Eyeliner, Lip liner, Shading Lips/Brows
3 LINER		Eyeliner, Lip liner, Shading Lips/Brows
3 SLOPED		Eyeliner, Lip liner, Hair strokes, Shading Lips/Brows
4 FLAT		Eyeliner, Lip liner, Hair strokes, Shading Lips/Brows
5 SHADER		Eyeliner, Lip liner, Shading Lips/Brows
5 SLOPED		Eyeliner, Lip liner, Hair strokes, Shading Lips/Brows
7 ROUND		Shading, Block Colour – Lips & Brows
9 MAGNUM		Shading, Block Colour – Lips & Brows

Needle Depths

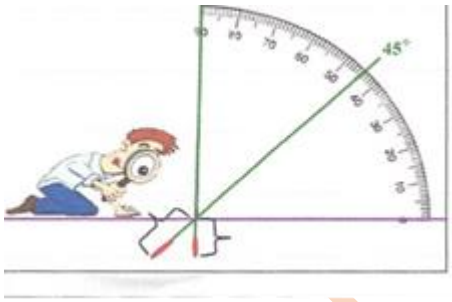
Micropigmentation procedures implant the pigment into the reticular layer of the dermis (approximately 0.05mm to 1.5mm), whereas traditional tattooing is significantly deeper (over 2mm).

An important point in regards to equipment is that depth-related colour change may be more obvious with high precision digital machines than with lower precision machines; this is because they tend to implant the pigment at various depths within the skin.

In contrast, high precision digital equipment will tend to implant pigment at exactly the same depth settings that were selected by the therapist, and if the depth settings are wrong, it can result in depth related pigment changes.

Needle Angle

- A 45-degree angle will require roughly 40 more exposed needle to achieve the same penetration depth as the same needle used at an 80-90 degree angle.
- Due to the increase in exposed needle required to achieve the same depth and also due to the angle of insertion the appearance of the tattoo may seem different when observed above the skin surface if a 45-degree angle is used in comparison to an 80-90 degree angle.
- Wrong needle angles can lead to pigment migration.



When practising micropigmentation, the skin should be held taut and stretched tightly; this allows the pigment to be implanted evenly and is more comfortable for your client, thus giving them more confidence in you.

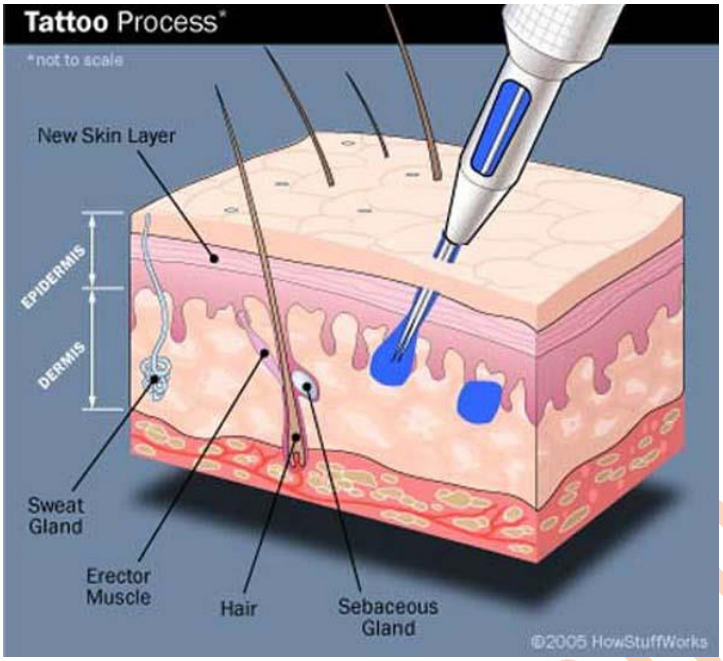
Speed

Speed varies on each piece of machinery; as a guide, we recommend working between a speed of 90-120rpm. However, if you have an older client or thinner skin to prevent bruising, it is advised to use the slower settings and possibly to apply vitamin A&D ointment to aid the needles to glide over the skin. A&D can also prevent thinner, more fragile skins from tearing.

Practice skins can be used to perfect your skills; these skins are a little tougher than human skin but are there for trying out new techniques and different needle configurations, as well as practising what you may have already learnt. Practise makes perfect.

Application tips

- For the best application, your machine should be held as though you are writing.
- Skin will vary in thickness and texture, so adjust your needle and speed accordingly.
- Pigment should be placed into the dermal layer of the skin for maximum pigment penetration.
- Pigment should be placed from 0.5mm Minimum to 2.0mm Maximum depth.
- If the pigment is placed too deeply into the dermis, it will be absorbed by the Macrophages (white blood cells).
- If the pigment is placed in the epidermis, it will be expelled within the first four weeks of application.



Types of micropigmentation machines

	Coil	Digital	Rotary	Manual
Aesthetically pleasing to look at		✓	✓	✓
Noise Level: Loud	✓			
Soft		✓	✓	✓
Holds 1, 2, 3, 5 needle cluster	✓	✓	✓	✓
Holds larger than a 10 needle cluster	✓	✓		✓
Holds flat needles	✓	✓	✓	✓
Easy ability to penetrate the skin into the dermis	✓	✓	✓	
Power rating up to 2.7 Volts	✓	✓	✓	
Up to 6 volts	✓	✓		
Over 6 volts	✓	✓		
Has the ability to easily penetrate:				
Scar Tissue	✓	✓		
Grafted Skin/Burn Tissue	✓	✓		
Use for extended periods of time	✓	✓		✓
Holds reserve of pigment	✓	✓		
Cost of machine/power supply				
£50-£200	✓		✓	
£201-£350	✓			
£351-£750	✓			
Over £750		✓		
Tool of choice for most permanent cosmetic Technicians		✓	✓	✓
Tool of choice for traditional tattoo artists	✓			

When putting pigment into ink cups, you need to have the cup almost full for two reasons.

1. When you put the tip of the machine into the ink cup, it must not touch the sides or the bottom of the cup. If the machine touches the plastic cup, it can damage the needle.
2. The machine sucks up the ink/pigment by itself. When you dip into the pigment, you should not go too deep but just cover about ½ mm of the plastic tip. If you dip too deep, you will cause the ink to splatter. There is usually a breathing hole in the tip. It is important not to cover that when you dip it into the pigment cup.

Manual Pens have no motor.

Rotary pen machine

A Rotary pen machine is light to handle, has a low noise level and vibration and usually has disposable parts, needles, tips, casings and needle caps. Needle selections are available from a single needle to combinations of eight. There are different brands on the market that vary slightly in their components.

Coil machine

Coil machines are used by some micro-pigmentation beauty therapists but are mainly used by tattoo artists. These machines are more powerful than a rotary pen machine, are heavier to handle and have more vibration and noise. They have a larger, wider range of needle combinations and sizes. Most coil machines do not have disposable parts, and the attachments and needles have to be autoclaved for sterilization. Most coil machines are activated with a foot pedal, which is attached to a power unit, which allows the therapist to control the power output to the handpiece.

Manual machines

Manual machines are called Permanent Cosmetic Pens. They are similar to a Stanley knife - a handle and a blade. They do feather strokes on eyebrows and can be used for large area in-fills. They are not easy to learn and require additional, advanced training.

Digital machines

Are now the most popular machine used by permanent make-up artists worldwide. The complexity of the machines means smoother implantation and less trauma to the client's skin, ensuring better pigment retention. The modules (needles) are usually pre-moulded, and they reduce any chance of cross-contamination of fluids into the pens chamber. Some machines automatically set pigment depth, although this can sometimes cause more problems than solutions, especially if working over scar tissue. The machines offer variable puncture speeds as well as an array of attachments that include cryo heads; this handpiece is the alternative to using an anaesthetic. It freezes and cools the treatment area and can be used prior, during and after the procedure. Pigment detectors are used to locate where the pigment has been implanted in the skin and if it has been implanted correctly, and laser devices, which are used to aid healing as they speed up the process, this laser can also be used for clients that suffer from the herpes simplex virus as it helps prevent an outbreak.

Anaesthetics

These anaesthetics are legal and purchased over the counter at your local pharmacy. Under the medicines act, we are allowed to purchase these items for topical use during a micropigmentation procedure. However, it is YOUR responsibility to ensure your client is suitable for the application of the anaesthetics that you will be using. A patch test alone is not enough. Please refer to the manufacturer's instruction leaflet in or on the box. It is acceptable for the client to apply their own topical anaesthetic prior to treatment. Some councils are now restricting the use of anaesthetics. They require the client to obtain the item from a local pharmacy themselves, and apply the product, prior to their treatment. Anaesthetics may also be prescribed by a prescriber for using on your client. You will need to ensure that you work within the remits of the law and local bye-laws of the country.

What do the symbols mean on products?

[P] Means pharmacy only. This means that the person that needs the product may purchase this for their sole use over the counter.

[POM] Is Prescription Only Medication. You cannot get hold of this medication unless you have a prescription. The product must only be used on the person that is prescribed for. This product must also be applied by the person that it is prescribed too.

It is not uncommon for to ask their clients to source their own anaesthetic to use during the procedure. It is acceptable for the client to apply their own topical anaesthetic prior to treatment.

- LMX-4
- Emla
- Lidocaine
- Ametop (Remember to keep your Ametop refrigerated)

Pain Control

- Over saturating the skin with anaesthetic can make it waterlogged. The pigment will be difficult, if not impossible, to implant in this area.
- Review the client's medical history for contraindications prior to use.
- Follow all manufacturer's directions for correct use.
- Keep anaesthetics refrigerated to prolong their shelf life or store them in a cool dark place.
- All anaesthesia will work differently on different clients, depending on their pain threshold and skin thickness.

Topical anaesthetics are used in cosmetic tattooing/micro-pigmentation procedures, and these should be explained to the client. Topical means that the anaesthetic is applied directly to the treatment site rather than injected or inhaled.

Topical anaesthetics are available in the following forms:

- spray
- cream
- gel
- liquid base.

Creams and gels are usually best applied to un-penetrated skin. However, after the skin is penetrated, the liquid formula can be applied for maximum numbing. All topical anaesthetics must be applied strictly according to the manufacturer's instructions. You should ask the client if they have a known allergy to any form of anaesthetic and record their response as part of either the treatment plan or the consent form. BE SURE TO HAVE SEVERAL TYPES AVAILABLE AND KEEP REFRIGERATED.

The four types of anaesthetic are:

- Benzocaine
- Lidocaine
- Tetracaine
- Epinephrine

Some anaesthetics contain a combination of any of the above. Some of these anaesthetics are illegal to use. Please ensure you ask your Local Authority what they recommend for use during these procedures.

Acute skin inflammation following micropigmentation

Acute inflammation is a short-term process, usually appearing within a few minutes of the cell trauma being induced by micropigmentation. Damage occurs from the initial trauma to the cells and tissues, where the local network of ruptured blood vessels bleed into the tissue spaces and the cell walls rupture. Cellular damage occurs, leaving dead and dying cells disrupted by the trauma. Within seconds and up to 10 minutes after the initial trauma, local blood vessel constriction occurs. This vasoconstriction minimises blood loss from the area and initiates clotting (haematoma), and causes stimulation of the surrounding pain receptors. However, the resulting hypoxia causes tissue necrosis at the primary injury site. This triggers the lysosomes (waste disposal unit within a cell) found within the dead and damaged cells to start to leak digestive enzymes through their ruptured membranes. These enzymes act as inflammatory mediators causing surrounding arterioles and capillaries to dilate; pain receptors are specialised nerve endings located throughout the body in most body tissues.

Once the nerve endings are stimulated by these chemicals, they begin firing the nerves that are connected to them and send pain signals to the spinal cord and brain. As blood vessels dilate, they become more permeable and within a few hours, exudation increases.

As the vessel walls enlarge, the speed of flow decreases due to vessels being packed with cells. The stasis of blood allows leukocytes to move along the endothelium and escape through the capillary wall, along with plasma and other circulating defensive substances such as antibodies, phagocytes, and fibrinogen to the site of the injury.

The arrival of these specialised cells (antibodies, phagocytes) lead to the engulfing of dead cells, foreign material or infectious agents. As fluid moves out of the capillaries, stagnation of flow and clotting of blood in the small capillaries occurs at the site of injury. This process is caused as fibrinogen produces fibrin which forms a mesh of fibres creating a collection site for red blood cells (haematoma) and also traps micro-organisms preventing their movement further from the injury site.

This increased collection of fluid into the tissue spaces causes it to swell (tumour). This expansion of chemical activity in surrounding tissues produces the zone of secondary injury. Normally, lymphatic vessels drain the area of excess fluid and cells. However, following trauma within the tissues, the lymph vessels become blocked. The excess fluid and cells collect in the spaces between the tissues around the site of the trauma, and oedema occurs. As fluid and cells try to occupy a limited amount of space, the pressure caused by nerve endings is perceived as pain.

A large number of lymphatic channels lie directly beneath the skin. Oedema, which is the swelling or natural splinting process of the body, has two basic components. The first is a liquid, which can be evacuated by the circulatory system and the second is comprised of proteins that have to be evacuated by the lymphatic system.

The lymph vessel diameter and the flow of the lymph system being decreased cause the swelling to occur in the first 24 hours following micropigmentation. Within 12 hours of injury, macrophages move into digest tissue debris to clear the way for peripheral cells to begin the process of mitosis. Fibrocytes also move into the area to start the process of fibroplasia. Tissue repair overlaps the inflammatory process, and within 48 to 72 hours, the haematoma is sufficiently diminished to allow for this new growth of tissue. As the damaged skin within the epidermal layers begins to regenerate, the deeper soft tissues will replace damaged cells with scar tissue. The fibroblasts release collagen, elastin and reticulin fibres, forming a mesh network to reconnect tissues.

Over the next three day's mitosis continues, and all around the injured area, capillary loops develop (angiogenesis). These sprouting vessels originate from pre-existing vessels and appear as minute red granules, hence the name granulation tissue. As the circulation is increased by these additional blood vessels replacing damaged ones, more oxygen and nutrients become readily available to these cells to aid in speeding up the healing process. When circulation is increased, it automatically increases lymphatic flow with the movement of tissue fluid between the two systems, allowing the excess buildup of lymph to be drained, reducing swelling.

Inflammation is the important first stage of healing damaged tissue. Healing cannot occur until inflammation has come and gone. Therefore we cannot prevent inflammation; however, we can speed up the processes involved by application of cold therapies following micropigmentation for the first 72 hours following treatment.

Whenever trauma occurs to the surface of the epidermis, the protective barrier will be impaired; the application of micropigmentation treatment will cause a burn, cut or puncture wound to the area infused with pigment. The

epidermis will protect this impairment by the formation of a scab; the size and extent of this scab will be in relation to the trauma caused. The scab may be minute and clearer in colour if only lymph vessels have been disturbed; however, if capillary damage was involved, there would be droplets of blood also in the scab formation.

When treating more mature clients or clients with more sensitive skin, there is a higher tendency to bruise and tear the skin resulting in a greater inflammatory response. This will result in a slightly longer healing process. The healing process can differ from one client to another; there are several factors to consider, such as:

- Age
- Health of client
- Client lifestyle; as a rule, the older you are (once passed 25 years), the slower the expected healing rate. Remember, the superficial tissues will display signs of healed skin long before the internal layers have completed the full healing process.

The following is a general guideline to expected healing rates:

For Eyeliner and Brows:

- 0 - 40 4 weeks
- 40 - 60 4 weeks
- 60 onwards six weeks