

TOSKANI TKN HA3

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TKN Skin Booster Manual

enhance
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 sharing our knowledge and expertise with you.

Our academy courses have been planned and created by Aestheticians, Medics, Beauty Therapist, 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 is here to support you throughout your training and 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.

The Consumer Rights Act 2015

The Consumer Rights Act 2015 became law on 01 October 2015 and replaced three pieces of consumer legislation. The consumer Rights Act replaced the Sale of Goods Act, Unfair Terms in Consumer Contracts Regulations, and the Supply of Goods and Services Act. The purpose of introducing one act to replace the older legislation was to reinforce and streamline the law, therefore improving customer rights.

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 1989

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.

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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 2002

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.

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- 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 Environment Act 2021

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 Environment Act 2021 are as follows:

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

Under The Environment Act 2021, 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

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.



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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

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- 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.

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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 administering skin booster treatments 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

Your 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.

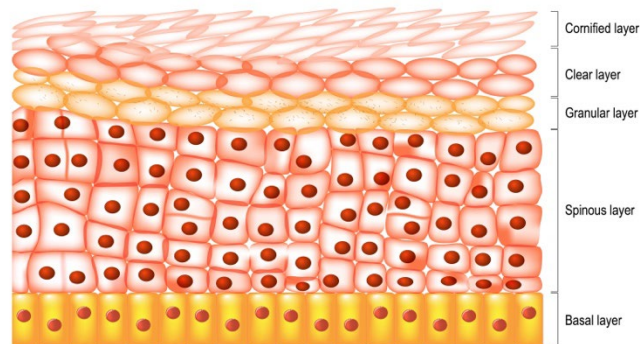
The surface layer is considered the real protective layer of the skin. Cells are called keratinised cells because the living matter within the cell (protoplasm) has changed to form a protein (keratin) which helps to give the skin its protective properties.

New skin cells are formed in the deepest layer of the epidermis. This layer is known as the stratum basale. New cells 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

LAYERS OF EPIDERMIS



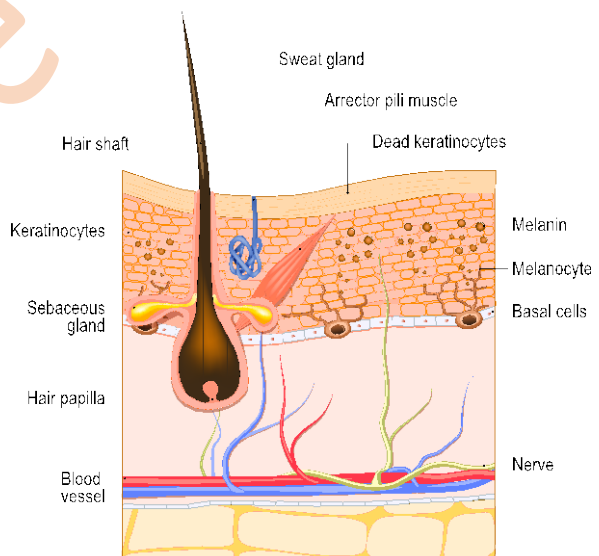
Dermis Layer

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

The dermis is an expansive layer and contains:

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

Structure of the skin



Subcutaneous Layer

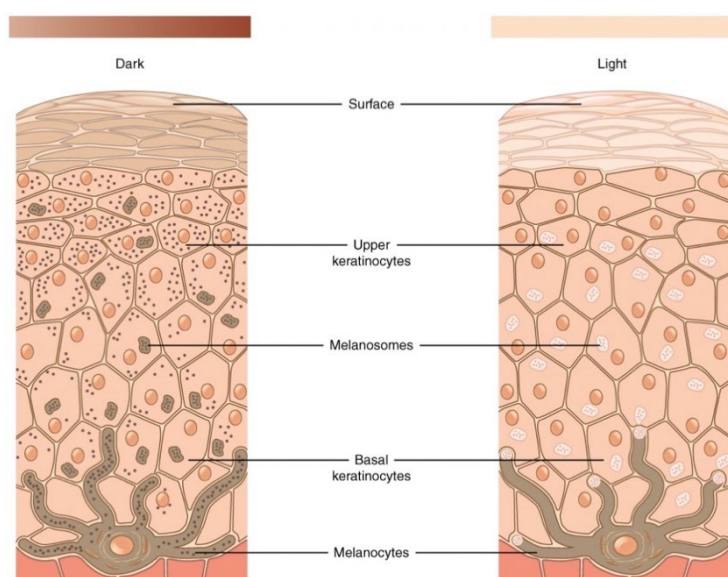
This is the deepest layer of the skin and is located beneath the dermis. It connects the dermis to the underlying organs. The subcutaneous layer is mainly composed of loose fibrous connective tissue and fat (adipose) cells interlaced with blood vessels. This layer is generally around 8% thicker in females 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 is 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 skin's 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 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 tyrosinase. Melanin is packaged into melanosomes, intracellular

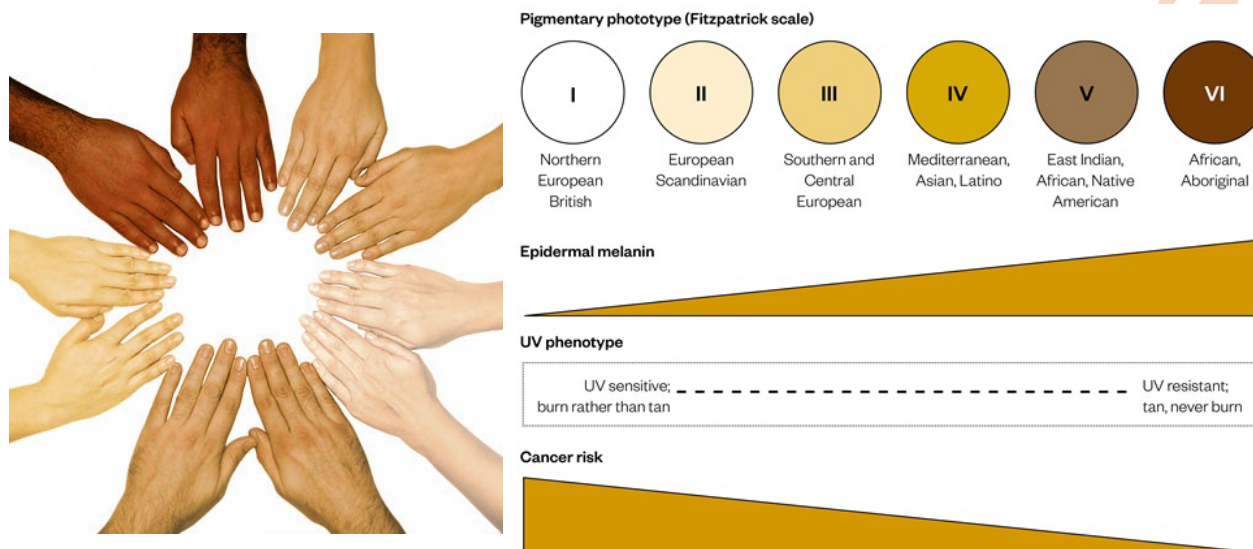
organelles within the melanocyte; these are then distributed to surrounding epidermal keratinocytes. Melanin has a protective physiologic role in the skin to protect the nuclei of the keratinocytes by absorbing harmful UV radiation: and eumelanin has the greatest UV absorption capabilities. When the 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 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	Very sun sensitive	Sun sensitive skin	Burns minimally	Sun reactions rarely occur	Has dark brown or black skin
<ul style="list-style-type: none"> •Always burns •Never tans 	<ul style="list-style-type: none"> •Burns easily •Tans minimally 	<ul style="list-style-type: none"> •Sometimes burns •Slowly tans to a light brown 	<ul style="list-style-type: none"> •Always tans well •Tans to moderate brown – think 	<ul style="list-style-type: none"> •Minimal freckles •Almost never burns •Always tans 	<ul style="list-style-type: none"> •Tans easily •Almost never burns •This skin type is more prone to keloid scarring
Example; a person with red hair and freckles.	Example; a person who is fair skinned. Fair haired	Example; a darker Caucasian			

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.

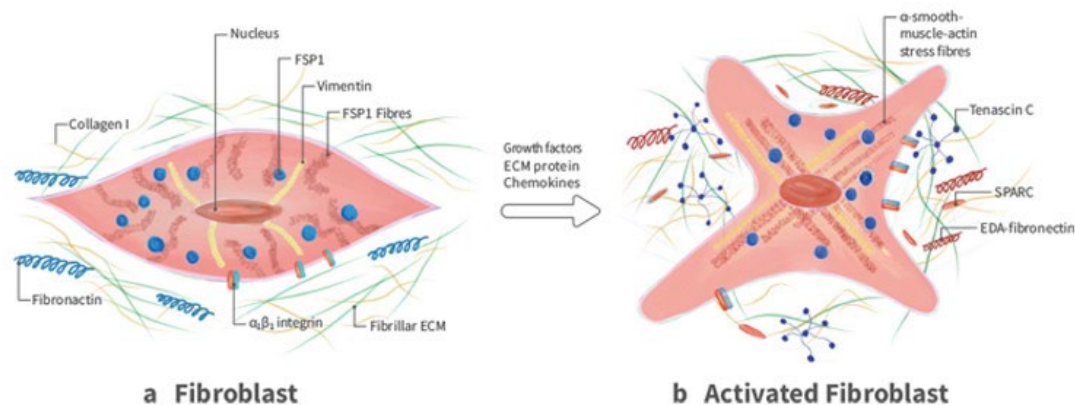
Examples of common glycosaminoglycans are chondroitin 6-sulfate, keratan sulphate, heparin, dermatan sulphate, and hyaluronate.

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 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

Manual checked and updated 30.12.22

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


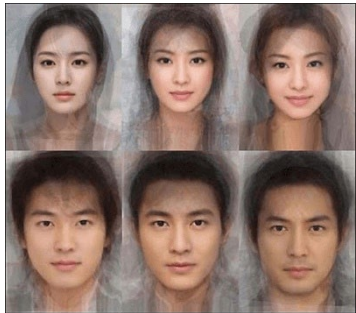

- Oils are needed to keep skin supple.
- The term 'combination' is useful when you are explaining to clients; they may need to treat the t-zone differently from the rest of the skin, and those occasional breakouts can still occur on good skin due to a surge in hormones when under stress, during menstruation 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- lipidic 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	<ul style="list-style-type: none"> • 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-lipidic 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	<ul style="list-style-type: none"> • 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.

<p>White/Caucasian skin</p> 	<ul style="list-style-type: none"> • 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
<p>East Asian and Southeast Asian</p>  <p>Korean Chinese Japanese</p>	<ul style="list-style-type: none"> • 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
<p>South Asian and Middle Eastern</p> 	<ul style="list-style-type: none"> • 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.
- Dermatitis 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 scarring.



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, Addison's 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.

Manual checked and updated 30.12.22

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

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 fist
- 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

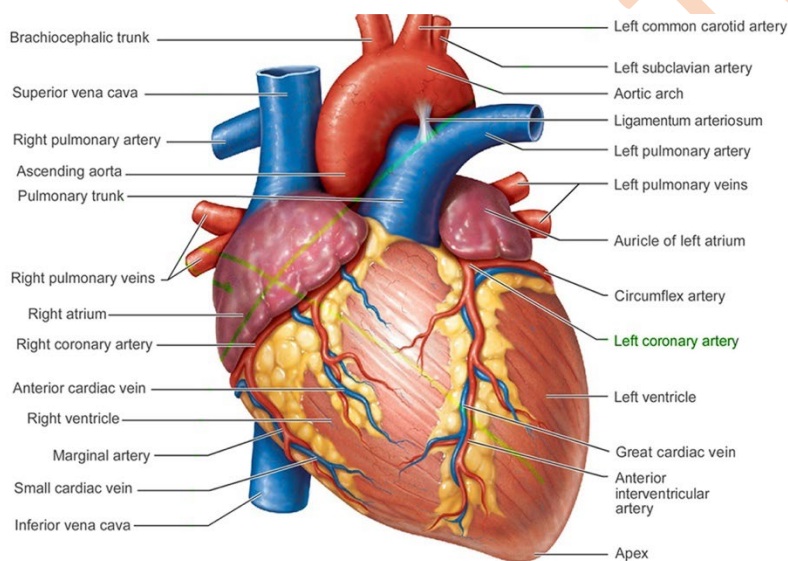
Circulating Blood

- Waste products from tissue cells are passed into capillary blood, then onto removal from the body
- 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

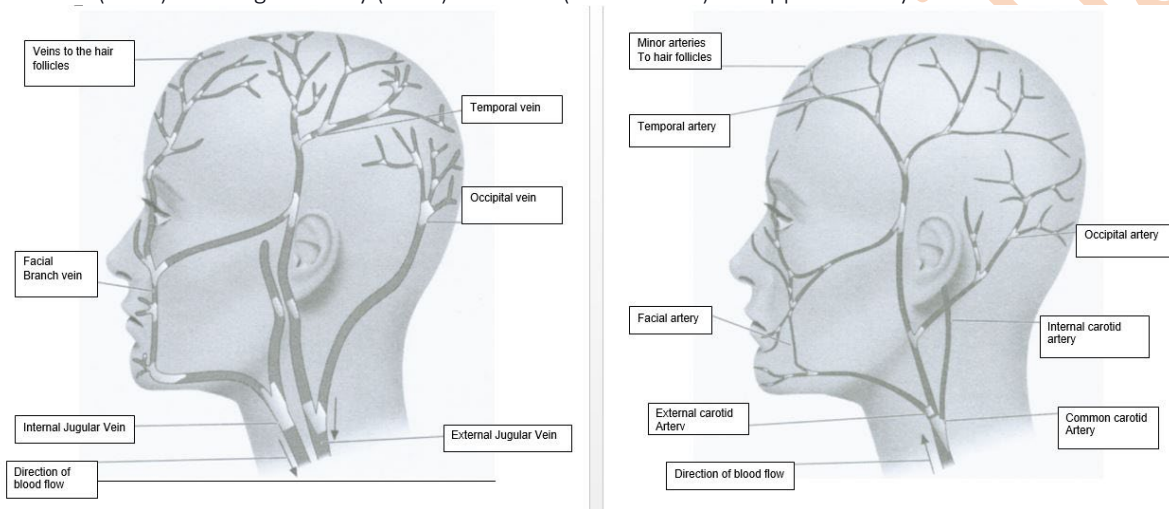
supply muscles with more blood. During and after meals, it also beats faster to pump blood to the digestive system. During a fever, the heart pumps more blood to the skin surface to release heat. Remember that all responses are designed to maintain homeostasis. The heart rate (pulse rate) is measured 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 (O_2 and CO_2) 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 O₂ 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).



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.

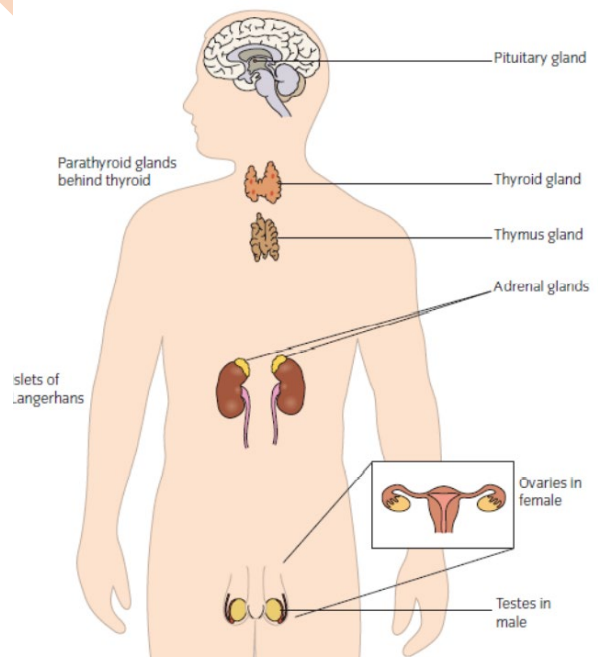
Hormones are secreted by the hormone glands into the blood stream; from there they are circulated around the body affecting the different organs. These organs are known as target organs.

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:
 - glucocorticoids, 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 (oestrogens 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.

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.

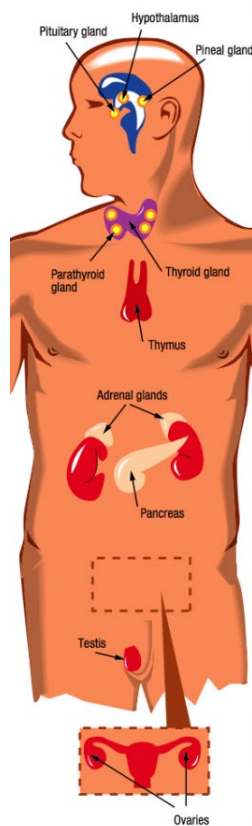
Ovaries

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.

Endocrine System



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	Reproductive maturation, regulation of menstrual cycle
Pineal gland	Progesterone	Steroid	Regulation of menstrual cycle
	Melatonin	Amine	Circadian timing
Thymus	Thymosin	Peptide	Development of T lymphocytes

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, involuntary, 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

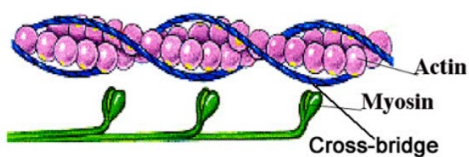
Skeletal muscles only contract when activated by the axon of a motor neuron/nerve. The nerve carries the impulse to the specific muscle fibre. The point at which a motor neuron enters the muscle is called the motor point.

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

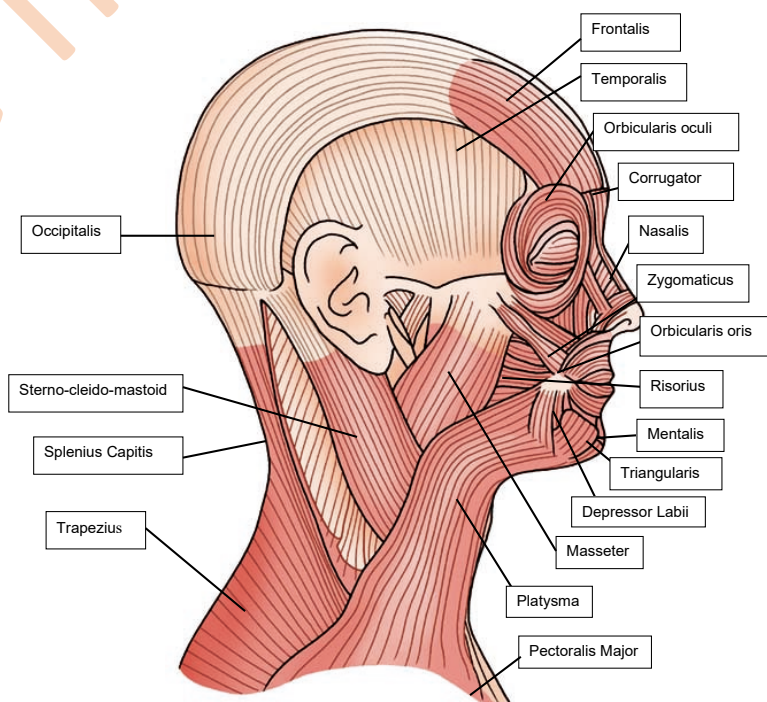
Even when muscles are relaxing, a number of muscle fibres will still be in partial contraction – this is what is referred to as muscle tone.

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 oculi	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
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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.

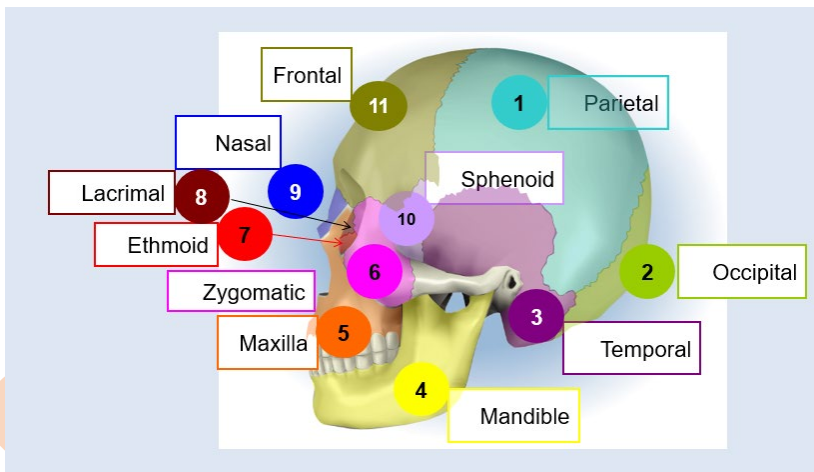
Types of bones

- 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



neck and shoulder girdle

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

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.

Skin Boosters

Skin boosters are fast becoming a common treatment within the aesthetics industry. They are a great alternative for clients who do not want dermal filler or wrinkle-relaxing treatments but still wish to improve the appearance of the skin.

Skin boosters are usually administered by puncturing the skin, via a needle, and delivering a Hyaluronic acid-based solution targeting the lower layers of the skin.

There are many different skin boosters on the market that practitioners can use but essentially, they will all contain hyaluronic acid in varying quantities.

What is Hyaluronic acid (HA)?

Hyaluronic acid is found naturally within the body and 50% of the body's HA is found in the skin. HA, in the skin, is responsible for maintaining levels of moisture to protect the skin barrier. HA synthesis increases when the wound-healing response is triggered and is linked to the production of collagen through the activation of fibroblasts.

The natural levels of HA degrade as a result of many things including-

- Intrinsic factors like the ageing process- particularly during and after hormonal changes like the menopause in female clients
- Extrinsic exposure to external damage like UV rays and free-radicals (ROS)

Natural HA is not retained in the body for very long. HA has a half-life of 3 to 5 min when found within blood, less than 24 hours in the skin and 1 to 3 weeks within cartilage. The bodies naturally occurring hyaluronidase breaks down the HA. This can be seen when dermal filler is dissolved using hyaluronidase or the natural breakdown of dermal filler over time.

It is suggested in, various studies, that some skincare ingredients can help reduce the degrading of HA. These include the use of ascorbic acid, better known as Vitamin C, and SPF30+.

HA is a humectant (a substance that attracts and retains water) that attracts moisture over 1000 times its weight!

HYALURONIC ACID (HA)
Holding 1,000x its weight in water, this naturally occurring humectant attracts water into the skin.

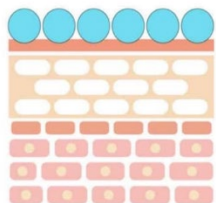
concerns: Dryness Fine Lines & Wrinkles Uneven Skin Tone Rough Skin Dullness	skin type: Aging Dry Oily Combination Sensitive Normal	
When to Use: <ul style="list-style-type: none">▪ A.M. & P.M.▪ Apply under creams & lotions		
Read the Label: (as seen on the ingredient list)		
Hyaluronan	Sodium Hyaluronate	Glycosaminoglycan

Types of HA

HYALURONIC ACID

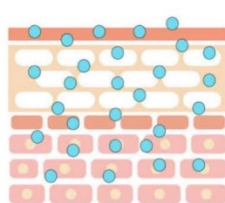
The size of the HA particles will determine the level of penetration within the skin.

HIGH MOLECULAR WEIGHT



stays on the skin surface, "locks in" the moisture, instant soothing effect

LOW MOLECULAR WEIGHT



works from within, promotes skin elasticity, plumping effect

High molecular weight means that the particles are larger and cannot penetrate into the small spaces between the individual skin cells. This HA provides the epidermis with a protective barrier to keep aggressors out and lock the moisture in.

Low molecular weight means the particles are smaller and can penetrate through the epidermis towards the dermis. This will have a stimulating effect on the fibroblasts and assist with the production of collagen.

What is Toskani HA3?

Toskani (TKN) is another skin booster available within the aesthetics industry. It is effectively used to plump, moisturise, firm, and restore elasticity to the skin.

Its benefits include:

- Stimulate collagen
- Increase water content
- Improve Plumpness
- Nourish deeply
- Provide smoothness
- Strengthen the epidermis barrier

TKN is a **non-crossed linked** hyaluronic acid and has the highest molecular weight HA on the market. TKN uses a technology called HYAsep, which means that through a very careful manufacturing process it's able to maintain the characteristics of the molecule and therefore produces a very high molecular weight HA. This molecular weight of HA is 3000 kDa. This is the closest match to the skin's natural form of HA. This will make it less likely for the body to have an adverse reaction.

TKN has 9mg of HA per ml in a 1.5 ml syringe.

TKN can be used on the Face, Neck, Decollatage, Abdomen, Thighs, Knees and Hands.

What is the difference between skin boosters and dermal fillers?

Both substances contain HA but the HA in skin boosters is non-crosslinked and designed to spread whereas dermal filler is cross-linked and designed to stay put and not spread. This significantly reduces vascular occlusion (VO) risks.

Some new skin boosters on the market do have an element of cross-linking but it is still not as 'thick' as a dermal filler. To ensure that you can deal with complications that can occur with using some cross-linked substances (VO's) check if you are covered with your knowledge, emergency kit, and insurance.

Which Skin Boosters are available on the market?

There are so many skin boosters on the market including-

- Sunekos
- Jalupro

Manual checked and updated 30.12.22

- TKN
- Seventy Hyal
- Profhilo
- My filler essence

And the list goes on and on.....

Which skin booster is the best one?

There is no one skin booster that outperforms the other. There are so many deciding factors that will influence your choice of which skin booster to select for your client.

These include-

- Price of the product/treatment- Some skin boosters can cost £100+ to buy therefore your treatment may cost more.
- Ingredients the skin booster contains- The levels of HA can vary in micrograms (mcg) per brand. Some brands will also contain other ingredients like amino acids and peptides for added anti-ageing benefits
- Commitment the client can come for treatments- Some treatments can be spaced a month apart, while others are weekly or fortnightly.
- Area's the products can be used- Some skin boosters can be used around the eye's while others can't, others cannot be used on the forehead.

How often do they need to be administered?

This will depend on the brand of product used and the specific treatment plan they recommend as well as the age of the client. More aged skin may need more treatments and closer together.

The usual frequency is 1 a month for 2-3 months as a course. Then the client can space a 'booster' treatment once every 3-9 months apart. Again, this will be determined by when their skin needs it.

If the skin is particularly aged and in need then the frequency can be increased to once every 2 weeks for 3 treatments but again this will vary on the individual brand protocols.

TKN Treatments plans

Plans **will** differ from client to client depending on the indications:

- For clients looking for prevention of fine lines and wrinkles and skin hydration: (ages 25-35)

AND

- For Clients looking for skin bio revitalisation (ages under 40)

1 treatment per month for 4 months and then maintenance 1 treatment every 3 months

- For Clients that need intensive hydration from neglect and lifestyle choices

AND

- For Clients that need intensive bio revitalisation (aged over 40, smokers)

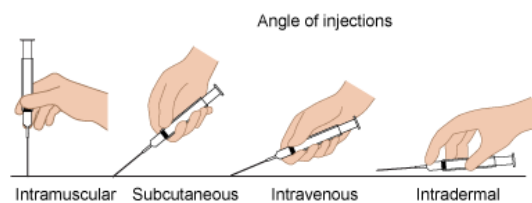
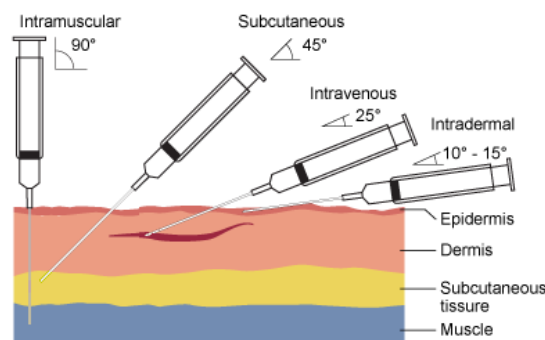
1 treatment every 2 weeks for 6 weeks then maintenance every 2 months

How are skin booster often administered?

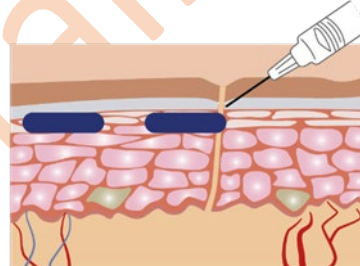
They are injected using a hypodermic needle. Usually, a 29-30 Gauge needle that can be as small as 4mm. Some products can be purchased with a suitable needle inside the box.

The needles are inserted at an angle of 10-15 degrees to place the product intradermally. When using Sunekos to treat the eye area, this angle can vary with some injections being at a 90-degree angle.

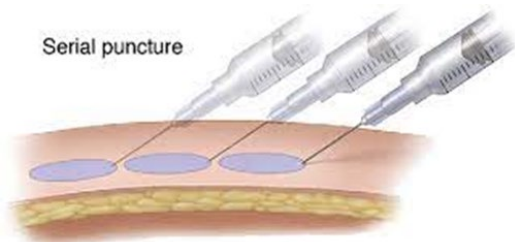
Injection points and techniques can vary but the most common technique is referred to as the BAP (bio-aesthetic point) technique which is 5 strategically placed injection points. A serial puncture can be lots of small deposits of product spread over a targeted area. Retro-grade linear injections will involve the whole needle being inserted superficially, often directly in a line, and while the needle is being pulled out the product is administered.



Linear threading: identify the lines and wrinkles, Intradermal injection into the line and fill with linear threads. This can be used on all facial lines including crow's feet, forehead, naso labials, marionettes, smokers lines. Use 0.1ml of product for each thread. Overlap the product if needed.

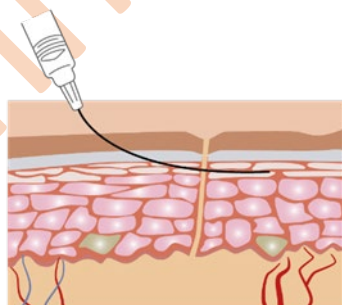
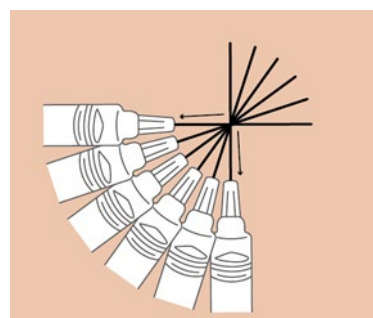


Serial puncture



Serial puncture: You can use a series of micro droplets into the deep dermis all along the line or wrinkle. Or you can use this technique over a large area for all over skin rejuvenation. If you using all over use a small amount of product at each injection point 1-3cm apart.

Fanning: Use this technique to cover a larger area via one injection point with a series of linear threads without coming out of the injection site.



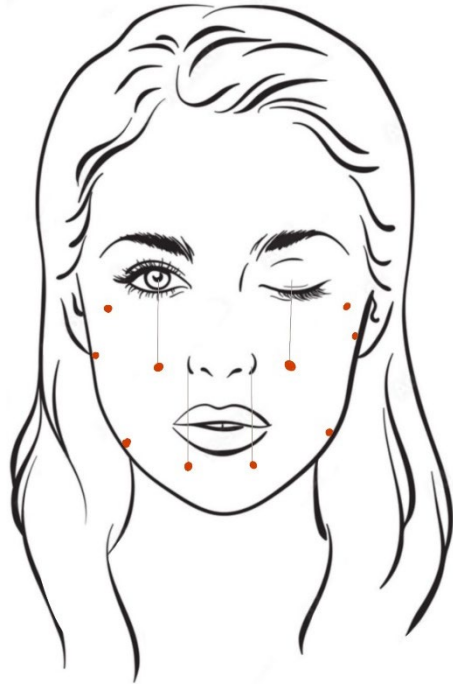
Cannula: Great for treating large areas or tricky areas like the hands to avoid veins. More comfortable experience for the clients. Less trauma to the skin.

The BAP technique placement

There are 10 injection sites spread across the sides of the face.

1. Positioned about 2cm away from the eye on the highest part of the zygomatic (cheek) bone **Always inject away from the eye**
2. Positioned 1cm away from the tragus of the ear
3. Positioned 1.5cm away from the nostril, this can also be mapped using the centre of the pupil
4. Positioned 1cm above the mandibular arch (corner of the jaw)
5. Position 1cm down and 1cm in from the oral commissure or the nostrils can be used for positioning

As there are 10 injection points divide the solution into 10 and administer, for example if there is 2ml of solution this will be 0.2ml of product per injection.



This diagram gives the directions that the product gets injected.



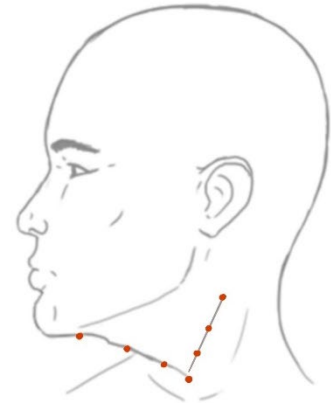
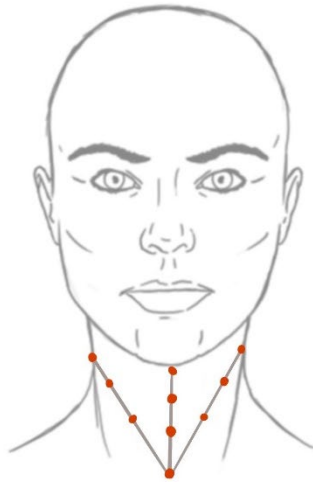
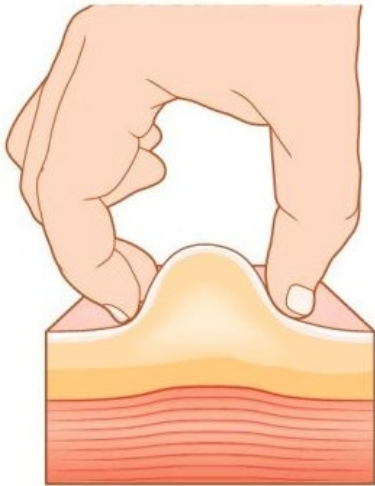
The BAP points for the neck

Again, there are 10 sites spread across the neck.

When injecting the neck pinch the skin and pull it away from the underlying structures.

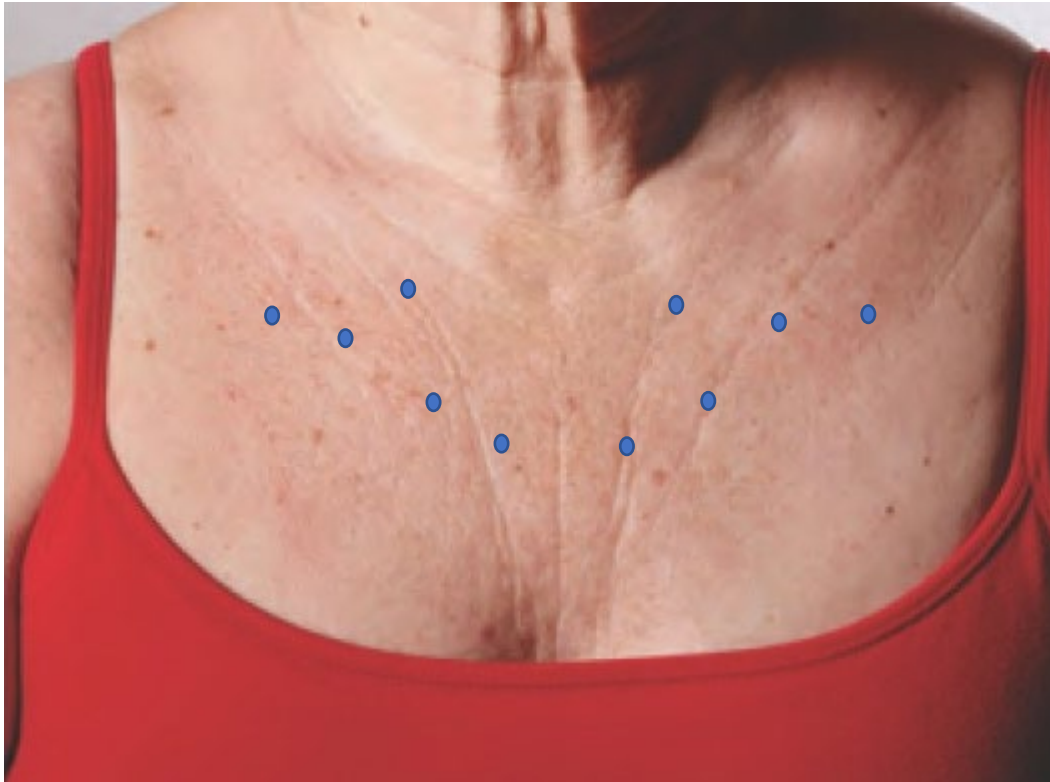
3a. Lift the skin between thumb and two fingers with one hand, pulling the skin and fat away from the underlying muscle

The boluses/lumps on the neck can linger a bit longer on the neck than on the face. Warn the client that this is normal.



When injecting the hands, you adjust to each client to avoid any vascular areas that can be seen.

Inject between each metacarpal.



These have been spaced to target the key areas that need repairing. You can spread the 10 points over the area to be treated.

Examples of mapping for micro bolus but let your clients skin be your guide.



Contra-Indications

This list is not exhaustive but is a guide of commonly occurring contra-indications. A product specific list can be found within the leaflet inside the skin booster that you use.

Contra – indications	Description/Characteristics	RED Never Treat	AMBER Restrict	GREEN Treat
Aids/HIV	HIV is a virus that attacks the immune system			X
Cancer	Undergoing treatment for cancer anywhere. Wait until the all clear has been given	X		
Circulatory Diseases	Coronary artery disease. Will possibly be on blood thinning medication which increases the risk of bruising, bleeding and complications.	X		
Unidentified lumps or swelling	Lump with no known reason for appearing	X		
Open cuts / abrasions	Use judgement. Is it infected, red, swollen and weeping fluid?		X	
Acne	Bacterial Infection can spread.	X		
Sebaceous Cysts	Round, nodular lesion with smooth shiny surface which develops from the sebaceous gland.		X	
Boils	A boil begins as a small, inflamed nodule which forms a pocket of bacteria around the base of a hair follicle or a break in the skin. Local injury or lowered constitutional resistance may encourage their development.	X		
Impetigo	Superficial contagious inflammatory disease caused by streptococcal and staphylococcal bacteria. It is commonly seen on the face and around the ears and shows as weeping blisters which dry to form honey-coloured crusts. Bacteria is easily transmitted by dirty fingernails and towels.	X		
Conjunctivitis	A boil begins as a small, inflamed nodule which forms a pocket of bacteria around the base of the eye. In this condition the inner eyelid and eyeball appear red and sore and there may be a pus like discharge from the eye. The infection spreads by contact with the secretions from the eye of the infected person.	X		
Herpes Simplex	Herpes Simplex is normally found on the face and around the lips. It begins as an itching sensation, followed by erythema and a group of small blisters which then weep and form crusts.	X- while active		

Contra – indications	Description/Characteristics	RED Never Treat	AMBER Restrict	GREEN Treat
Thrombosis	Thrombosis is the formation of a blood clot within a blood vessel.	X		
Recent scar Tissue	Over 6 months old. Anything under avoid the area			X
Ringworm	Begins as small red papules that gradually increase in size to form a ring. Affected areas on the body vary in severity from mild scaling to inflamed itchy area. Fungal infection.	X		
Infestations Scabies Lice	A contagious parasitic skin condition caused by the female mite who burrows into the horny layer of the skin where she lays eggs. The first noticeable symptoms of this is severe itching which worsens at night. Papules, pustules and crusted lesions by develop.	X		
Sunburn	Radiation burns. Wait until the area has fully healed (about 4 weeks)	X		
Pregnancy	Products ethically have not been tested	X		
Auto immune disease Addisons disease Graves Disease Lupus	An autoimmune disease is a condition in which your immune system mistakenly attacks your body. Get a doctors note before proceeding	X		
Shingles	Herpes zoster Viral infection	X		
Haemophiliacs	Haemophilia is a mostly inherited genetic disorder that impairs the body's ability to make blood clots, a process needed to stop bleeding.	X		
Psoriasis	A chronic inflammatory skin condition. Psoriasis may be recognised as the development of well-defined red plaques, varying in size and shaped, covered by white or silvery scales Any area of the body may be affected but the most common site are face, elbows, knees, nails, chest and abdomen. It can also affect the scalp. Psoriasis is aggravated by stress and trauma but is improved by exposure to sunlight.		X	
Acne drugs Roaccutane/retin A/Vitamin A	These drugs make the skin very sensitive and the barrier is compromised	X		

Contra – indications	Description/Characteristics	RED Never Treat	AMBER Restrict	GREEN Treat
Eczema	If on the face and inflamed or infected do not proceed. Can be work around if not serious		X	
High blood pressure	If controlled, it is fine		X	
Dermatitis	Dermatitis literally means inflammation of the skin. Contact dermatitis is caused by a primary irritant which causes the skin to become red, dry and inflamed. Substances which are likely to cause this reaction include acids, alkalis, perfumes, solvent, lanolin, detergent and nickels. There may be skin infection too.		X	
Moles, skin tags	Projections on the skin should be worked around		X	
Mild bruising	Should be worked around		X	
Botox/fillers	Wait 2 weeks		X	

Contra-actions

A contra action is an unwanted reaction during or after a treatment. Clients should always be warned that this can occur and how to handle to the contra-action if it occurs.

The contra actions that may occur during and following skin booster treatments

Excessive 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.

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. This is very common in the eye area and the 'bags' looking more puffy. This will be due to the fact that skin booster attract moisture. This moisture will sit in the 'hammock' of the eye bag. To reduce this lymphatic drainage can be completed to move excess moisture to the lymph nodes near the ears.

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

If these occur the client can-

1. Wash the area with plain cool water
2. Apply a cool/cold compress
3. If symptoms persist, they can consult medical advice (111 or pharmacist). They will often suggest antihistamines .
4. If the client can also let you know also. That way you can look back on your records and see what could have caused the contra-action to avoid it happening again. This is the importance of keeping records.

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.

Manual checked and updated 30.12.22

- 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

Consultation Sheet / Treatment _____ Therapist Name _____

Client Name:
Date of Birth:
Address:
Contact number:
E-mail address:

MEDICAL DETAILS

Client taking steroids	Acne/Acne medication	Circulatory Disorder
Diabetes	Sensitive skin	Heart Condition
Epilepsy	Dermatitis	Varicose Veins
Asthma	Broken Capillaries	Thrombosis
Stress/ Anxiety, Depression	Wear contact lenses	High/Low Blood Pressure
Pregnancy: Months	Sinus problem	Haemorrhage/Swelling
Breast feeding	Scar Tissue	Bruising
HIV / Hepatitis	Skin Disorder	Cancer
Dysfunction of Nervous System	Recent surgery	Headaches / Migraine
Allergies	Eczema / Psoriasis/ Dermatitis	Braces/retainers
Cold sores	Hormonal condition	Thyroid condition
Keloid scaring or prone to keloid scaring	Are you taking blood thinners? Fish oils/plant oils/omega 3's Ginseng/St Johns Wart	Allergies to products:

Current Medication/treatment

In the last 3 months have you had in the area to be treated today	In the last 2 weeks have you had in the area to be treated today?
Plastic/cosmetic surgery	Electrolysis/diathermy
Laser/IPL rejuvenation/hair removal	Shaving/Waxing/Plucking/ Depilatory creams
Dermabrasion	Self-tanning
Photo dynamic therapy (PDT)	Chemical peels- including home treatments including AHA's,
Dermal fillers	
Muscle relaxant injections	
Tattooing/cosmetic tattooing	

I agree that all the information provided above is correct:

Client signature _____ Date: _____

LIFESTYLE

Client occupation- it is good to know this for stress levels, type of elements that the skin is exposed to
Do you smoke? -if yes follow up with how many. This damages the skin and is hard to repair if it keeps getting damaged
Describe your eating habits.- is it balanced? Convenience or processed food? Following a special diet due to lifestyle choices or intolerances. Food has an effect on your skin due to nutrients so again good to know if you can advise clients on changes to improve their skin.
Do you drink alcohol?- can affect the skin and can also thin the blood so good to know for treatments where bleeding could occur
How much water, on average, do you drink daily?- again good for the skin and recommendations
Which caffeinated drinks do you normally consume?- affects the skin and speeds up ageing
Do you sunbathe or use tanning beds?- bad for the skin and should not have after some treatments
Do you wear a SPF daily?- need to know for after care advice
Which of the following best describes your skin type on the Fitzpatrick scale? 1. I Creamy complexion – Always burns, never tans 2. II Light Complexion – Always burns, tans slightly 3. III Light/Matte Complexion - burns moderately, tans gradually 4. IV Matte Complexion – rarely burns – always tans well 5. V Brown Complexion – rarely burns, deep tan 6. VI Black Complexion - Never burns, deeply pigmented
Have you had a facial treatment before?- good for explanations for the client and if it has to be in-depth or not

TREATMENT OBJECTIVES

1. What is your current skin care routine?

Good to know so it may explain some of the skin damage and can also be used in your aftercare advice with recommendations for retail opportunities

2. Why have you booked the treatment today (client's objectives)?

So, you can focus on achieving this

3. Do you have any specific concerns you would like me to focus on?

Again, to ensure client satisfaction and manage unrealistic expectations

TREATMENT PLAN MEETING THE CLIENTS NEEDS (include products that you plan to use)

**Need to write in here what you plan to do, for example-
What skin booster you used? How much? Batch numbers.**

ANY MODIFICATIONS

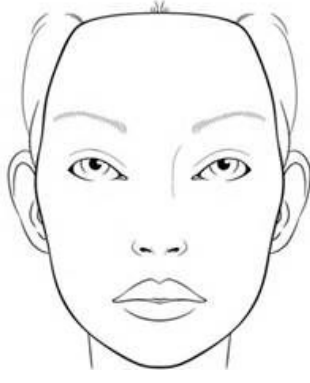
Are you working around anything? Making any changes in the usual routine?

CLIENT DECLARATION

I confirm that the above information is correct and understand the treatment plan prescribed for me and I am happy to proceed with the treatment

Client signature _____

SKIN ANALYSIS

Skin type	Elasticity		Notes- Include details on the skin condition and type here As well as injection points
Redness	Pigmentation		
Skin texture	Broken capillaries		
Muscle tone	Fine/deep lines		
Congestion	Dehydration		

IMMEDIATE AFTERCARE ADVICE- can tick relevant boxes and make notes

Drink water	Avoid UV
Avoid heat treatments	Avoid make-up
Avoid swimming	Avoid Exercise
No cleansing the skin for a minimum of 6 hours	Avoid applying products

SPECIFIC TREATMENT RELATED ADVICE:

Wear SPF 30-50+
 Avoid touching the face as it will introduce impurities
 Lymphatic massage techniques

FUTURE TREATMENT RECOMMENDATIONS

Come back in 2/4 weeks
 You may recommend any other treatment e.g facials

PRODUCT RECOMMENDATIONS

Link to retail opportunities if you have some or general recommendations

POSSIBLE CONTRA-ACTIONS AND ACTION TO BE TAKEN

If any redness, swelling rash type symptoms occur please take the following steps-

1. Wash the area with cool water
2. Apply a cold compress
3. If it doesn't improve seek medical advice/attention

CLIENT FEEDBACK (please could you provide some feedback about your treatment today)

Client signature _____

Consent Form

- I understand that the clinic will securely store the data I have written on this form, not share with it any third parties and that I can request a copy or for it to be deleted at any time.
- I understand that skin booster injections stimulate collagen production, but results can differ between clients.
- I understand that skin booster treatments are best completed as a course.
- I understand that my face will be slightly red post-treatment and bolus lumps may be seen for up to 24 hours after the treatment.
- I understand that there is a risk of blood spots and slight swelling.
- I understand that I need to use a high-factor sunscreen on my face for at least 1-week post treatment as my skin will be sun sensitive and to avoid pigmentation occurring.
- I confirm that I have given medical information to the best of my knowledge and not withheld any information.
- I consent to having before and after photographs taken
- I understand that photographs are essential for insurance purposes.
- I consent to my photographs being used for marketing purposes **Yes / No**
- I consent to my photographs being used for social media and marketing purposes **Yes / No**
- I therefore give consent to the described treatment.

Name: _____

Signature: _____ Date: _____

Practical Procedure –

Consultation checked (visually, signed)
Verbally:

Are you under any doctors care, taking any medication?

Have you got any allergies?

Are you pregnant or breastfeeding

Have you had this treatment before?

What are your expectations?

1. Explain treatment plan, outcome and contra actions
2. Cover client with couch roll
3. Prepare skin with skin by cleansing it with antibacterial cleanser like vitasept or clinisept
4. Mark up injection points using a white pencil
5. Inject 1-1.5 bars per point
6. Wipe off pencil marks
7. Show client in mirror
8. Aftercare

Aftercare Advice

- The skin may be red, inflamed, itchy, some blood spotting may be present
- Avoid swimming in chlorinated pools or the sea. 24hrs
- Avoid make-up for 24hrs
- Intensive cardio, exercise or gymnasium regimes that cause sweating 24 hrs
- Caffeine/Alcohol for 24hrs as they will prolong redness and increase the chances of bruising
- Leave at least 2/4 weeks between treatments
- The following should be avoided for at least 1 week post procedure:
 - Direct ultraviolet light exposure (sun and solariums)
 - Further clinical treatments (including, but not limited to): microdermabrasion, laser, intense pulsed light, chemical peels, muscle relaxant injections, and dermal fillers.
- Lymphatic massage can be advised to help reduce contra-actions