



CODE-X

TRAINING MANUAL



CODE-X

Table of Contents

The CODE-X Microneedling Device	3
CODE-X the New generation of microneedling.....	4
Features of the CODE-X 5 speed digital machine.....	5
CODE-X Versus Roller Technique.....	6
CODE-X Microneedling Results.....	8
Why choose Skin Microneedling & How Does Skin Microneedling work.....	11
Benefits of CODE-X Microneedling procedure.....	12
Wound Healing	13
Skin Anatomy.....	14
Skin Rejuvenation.....	16
Disorders of the Skin.....	25
Contraindications.....	26
Topical Anaesthetics	27
Client Consultation.....	28
Practice Safe Procedures.....	29
Procedure Set-up.....	30
CODE-X Microneedling Procedure	31
CODE-X skin microneedling Procedure EXTRA Information.....	32
Post Treatment Care (Aftercare)	35
Clean up After microneedling procedure.....	36
Installation/Operation Instructions.....	38
Photography.....	41
Sanitation Basics for Infection Control.....	43
Average Skin thickness measurements chart and Diagram	51
History of Microneedling	53
References and Resources.....	55

CODE-X Microneedling Device

CODE-X System:

CODE-X has been designed to meet the growing need for fast, efficient, and affordable skin microneedling treatments. Skin Microneedling is recognized as one of the most effective treatments in the Beauty Industry for numerous conditions. The System is designed to give the technician ease of use and offer the client a comfortable treatment. This manual is intended for qualified professionals.

The CODE-X system will help your business to have a point of difference as this is a medical grade Microneedling system. Trainings are available across the country. The combination of years of knowledge and experience in Electric Skin Microneedling has made it possible to bring you the CODE-X Concept.

Our Expertise

CODE-X brings you the latest and most up to date knowledge in skin rejuvenation. We are excited to offer this CODE-X unique patented quality non-invasive devices and procedure.

CODE-X is the future in skin rejuvenation and is as effective as laser resurfacing, dermabrasion, and chemical peels.

Some other procedures are done by 2nd degree burning, removing the protective layer of the epidermis which creates a risk factor for infections, scarring and pigment changes. They also create thinning of the skin and in some cases require a longer healing process.

CODE-X makes skin rejuvenation safe and natural without any side effects with a faster healing time, which is a viable alternative to facial surgery and infections.

CODE-X insists on the highest standards of education and client satisfaction whilst using modern, innovation and effective equipment, with disposable instruments while implementing the same medical sterilization standards and procedures adhered to by physicians, always focusing on safety.

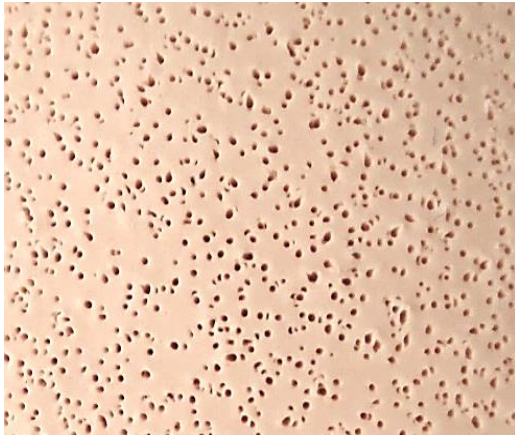
We will provide synergistic cosmeceutical personal care treatment products for both men and women. CODE-X is a unique non-ablative Electric Micro Skin Microneedling system for clinical and Medical microneedling and the devices are designed by a professional for use by professionals. This treatment is designed for skin rejuvenation, anti-aging, or maintaining a youthful appearance on face and body areas. Men and women Young and old, will all benefit from the many conditions of skin health, regeneration, tissue repair, and hair re-growth that the CODE-X system addresses.

In conjunction with our skin care range CODE-X provides new methods to advance transdermal delivery of the active ingredients in our skin care products to ensure penetration into the dermis, thus accelerating the skin's natural ability to heal and rejuvenate itself. Ordinarily, skin care products, no matter how vital to skin health, do not penetrate beyond the skin's surface. Transdermal delivery produces quicker, longer lasting results without damaging the surface of the skin.

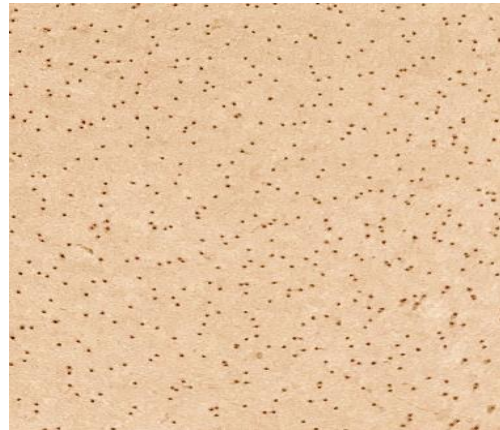
CODE-X The New Generation of Skin Microneedling

Disposable Tips are used with CODE-X.

Creating thousands more perforations than the roller system in an even, controlled manner. No other microneedling procedure compares to this non-ablative technique. Results are comparative to the Fraxel Laser, all without burning the skin.



One pass with another MICRONEEDLING
needle

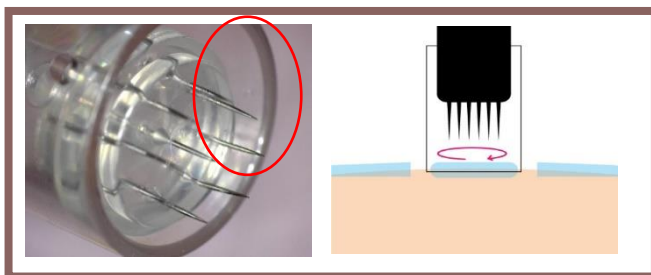


One Pass CODE-X (thin gauge needles)

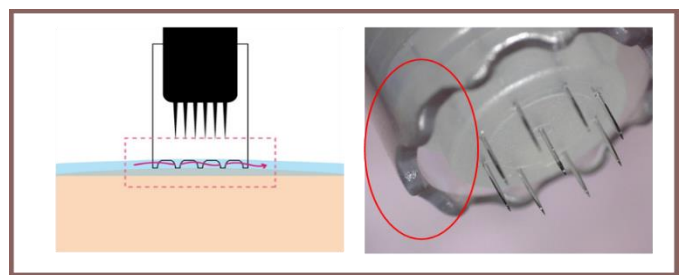
The CODE-X devices are made with **fine 0.2mm Stainless-Steel Medical Grade 33-guage** (thinner than other devices) needles. Other systems have Needle thickness of 0.30 to 0.38 which cause more trauma as a thumping of the skin instead of an easy penetration with minimal trauma.

The devices are adjustable to different depths and have a unique “wave” pattern on the crown of the device to allow the free flow of product whilst microneedling. The CODE-X Digital Machine is a stable, dependable unit made for Professionals.

Flat shaped edge (other products)



Crown shaped edge (CODE-X)



Features of CODE-X 5 Speed Digital Machine

Head sizes: CODE-X has 9 pins of 33-guage (thinner than other devices) in the Disposable Tips for ease of use. The needles glide quickly and thoroughly with minimal bruising, clean penetration without tearing up the skin.

- **Needle configurations:** Our Needles are 0.20mm 33-guage in thickness which give good penetration and are spaced strategically apart so as to penetrate not just “thump” the skin as some microneedling devices do because of the “BED OF NAILS” effect. Contusions (bruising caused by trauma) is also caused by this effect.



- **Speed of penetration:** We have 5 speeds available to cause the correct “Trauma” with less pain than traditional Roller treatments. Speed of treatment is unsurpassed.

- CODE-X is for all areas of the Face and Body.
- CODE-X is manufactured with DC motors specifically manufactured for Microneedling with stronger outputs, Strong 5V motor. With this motor, even if the Microneedle penetrates deep


into the Dermis, it does not cause problems such as dragging.

- CODE-X can be used at 2.00mm without dragging as opposed to cheap microneedling machines.
- CODE-X Produces Results that cannot be obtained with Little “Pen” machines or Derma Rollers. (weak, and can cause micro scarring)
- CODE-X is an electrically charged machine. Even if the battery is reduced, it moves at consistent strength and speed until the end.
- CODE-X skincare made especially for Microneedling success.
- Variable speeds of 3500 to 5500 RPM. (unlike small “Pen” machine from 100 to 400 RPM)
- Adjustable Needle cartridges from 0.01 to 2.0mm.
- High quality, medical grade, EO Gas sterilized 0.20-mm thick needles. These needles make the healing process quicker by not causing too much Trauma.
- 70% faster than roller type needling.
- Reduces Technician fatigue & potential for overuse injury.
- Little to No downtime-depending on treatment done... 1-3 days of redness...very client dependent. (discuss time factor with your client at the consultation).
- Very low risk of injury.

- Low to no risk of Hyperpigmentation. Client must follow aftercare very carefully and understand individual risk.
- Compared to laser resurfacing and chemical peels, a few days healing time makes microneedling a more desirable alternative- No Weeping wounds or burns.
- Low noise operation keeps clients calm.
- Lightweight high-quality body for easy handling and less technician fatigue.

CODE-X vs Roller Technique

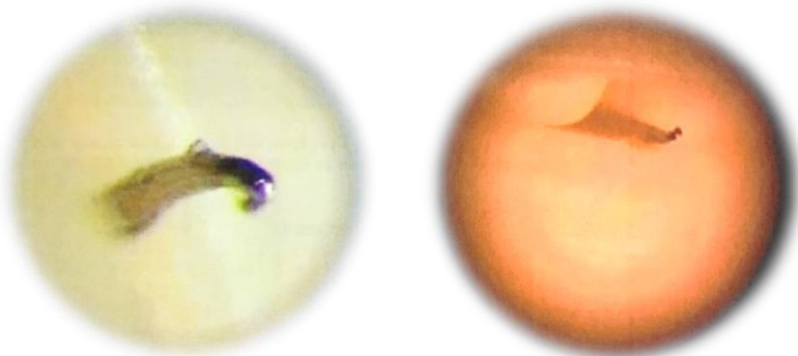
Disadvantages of Roller System:

- There is an average of 190-220 micro needles per roller which seems like a lot of needles, but the only place which gets a thorough treatment is at the “crux” of the star. Diagram (10 X Rolls with a Derma Roller) see pic 
- mm length varies between 0.25 and 3.0 mm depending on device
- mm width can be .0.2 -2.5
- Long needles tear up tissue, may injure nerves & risk paralysis.
- No more cosmetic benefit with needles over 2.0 in length since 95% of collagen & elastin are made in the dermis (1-2 microns deep)
- Uneven and poor coverage exhausting both the client and the technician, requiring up to 2-hour sessions.



This picture is the property of CODE-X and is Copyright © 2021

“Fish Hooking” of the needles is a common problem. The needle tips bend like fishhook, resulting in cutting and tearing tissue, nerves, blood vessels, and the lymphatic system when rolled through the skin.



- Rollers stretch and pull the skin due to design.
- Rollers can produce bleeding, pain, bruising, and considerable tissue trauma if incorrectly used.
- Rollers can produce track lines which may leave scars.



Medical Needling from 2mm to 3mm, often needs long healing times and needs to be carried out by a Medical Professional.



Track Marks from Roller, these can last for weeks depending on the treatment depth done.

CODE-X Microneedling Results:



Neck Rejuvenation after 5 CODE-X Treatments



Stretch Marks after 6 CODE-X Treatments



Fine Lines after 1 CODE-X Treatment



Acne Scarring after 5 CODE-X Treatments



Acne Treatment after 5 CODE-X Treatments



Undereye wrinkle tightening 4 CODE-X Treatments

All Treatments were performed with Circular, stroking, and Vertical insertion techniques with CODE-X.



Hair follicle stimulation with CODE-X after 10 treatments



Cheek wrinkles and uneven skin CODE-X 4 x treatments

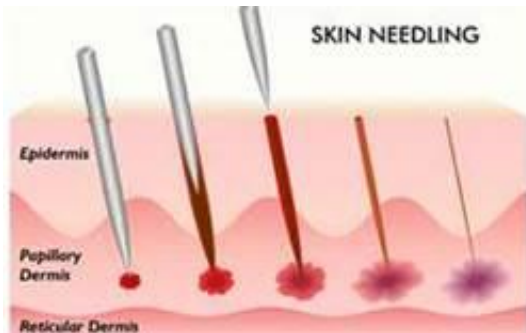


Stretchmarks with CODE-X after 6 treatments

Why choose microneedling?

In today's everchanging Cosmetic Industry, the objective of the treatments available are all the same, to achieve younger, healthier, firmer skin with long term benefits and results, with the least downtime, pain and risk.

Microneedling is the only treatment that is natural, highly effective that gives long term results and is safe if correct hygiene and needling protocols are adhered to.



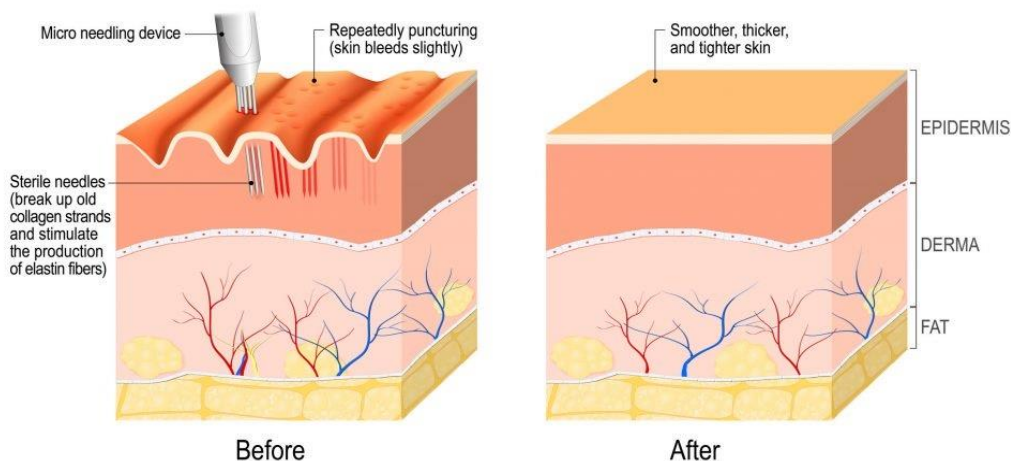
How Does Microneedling Work?

The purpose of microneedling is the stimulation of new collagen production in your skin. The Disposable Tips pricks the skin multiple times to stimulate regeneration via the wound healing cascade. The body responds to this trauma by sending blood to the area for healing. Blood platelets release clotting factors, cytokines, and essential growth factors. The fibroblasts are activated. When this

happens, the fibroblast undergoes cell division and produces collagen, elastin and Glycosaminoglycans which are responsible for firmness, tightness, plumpness and good hydration. As the skin repairs itself, new collagen builds up in the Papillary Dermis (middle layer) just below the surface. This is only one benefit of this treatment.

Micro-trauma of the skin appears to reset or reboot cellular function.

Collagen Induction Therapy



Melanocyte production is regulated for even skin colour.

Keratinocytes improve skin smoothness and create strong barrier function.

Sebocytes that overproduce oil are regulated, therefore microneedling is important in treating acne.

The result is wrinkles, lines and depressed scars plump from the bottom-up without the need of anything artificial. By repeating the needling procedure, the skin will gradually and continually build new collagen to fill-in the treated areas. The terms Collagen Induction and Collagen Induction Therapy(CIT) are used to describe this process.

Benefits of CODE-X MICRONEEDLING procedure

The CODE-X procedure rejuvenates **Collagen III** (produced quickly forming scarring, post inflammatory) **back to Collagen I**, most abundant end-product of healed tissue. The skin will be nourished, oxygenated, and restructured from the inside out, all without destroying the epidermis.

This process of skin renewal occurs continuously in the skin and takes around 30-40 days, 4-6 weeks to complete.

- Reset cellular function
- Normalize melanogenesis
- Regulate keratinocytes
- Scar Treatment (Reduction, Re-pigmentation, Relaxes, Diminishes)
- Stretch Mark Reduction/Re-pigmentation
- Tightens Skin & Retextures
- Evens Skin Tones/Balances Pigmentation
- Visibly Improves Cellulite
- Smooths wrinkles
- Smooths & Fills in Expression Lines
- Stimulates Hair Regrowth in Alopecia
- Tightens Sagging Jowls, Neck, Underarms & Breast Tissue
- Smooths because of undamaged and compact keratinocytes (epidermis left intact)
- Firms with abundant functioning collagen and elastin (stimulates collagen and elastin)
- Evens out skin tone due to richness in glycosaminoglycan (It promotes the ability of the collagen and elastin fibres to retain moisture, remains soluble).
- Efficient and continual skin cell renewal (stimulates cell renewal)
- Increase blood supply
- Quickly repairs micro-perforations (quick healing)
- Improves skin texture and tightness
- Relaxes scars- Breaks up Collagen & Elastin fibres formed to make scar, collagen and elastin realign to reduce visible signs of scarring
- Improves depressed acne scarring
- Improves skin pigmentation
- Improves stretch marks- by bringing Collagen & Elastin up into empty area.
- Helps repair smoker's lines
- Improve crow's feet around the eyes
- Smooths and tightens eyelid skin
- May be performed on the whole face or in a specific region
- Can help replace melanin in scars
- Can be done in conjunction with other cosmetic treatments

CODE-X can Improve

- Frown lines that run between the eyebrows (glabellar lines)
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- Smoker's lines which are vertical lines around the mouth (perioral lines)
- Marionette lines at the corner of the mouth (oral commissures)
- Worry lines that run across the forehead (forehead lines)
- Crow's feet at the corner of the eyes (per orbital lines)
- Deep smile lines that run from side of the nose to corners of the mouth (nasolabial furrows)
- Cheek depressions
- Acne scars (narrow "ice-pick" scars)
- Other facial scars (providing they don't have a sharp edge)

Continued rejuvenation for up to 12 months.

Wound Healing:

The epidermis and dermis form a protective barrier, once this is breached, the wound healing phase is initiated.

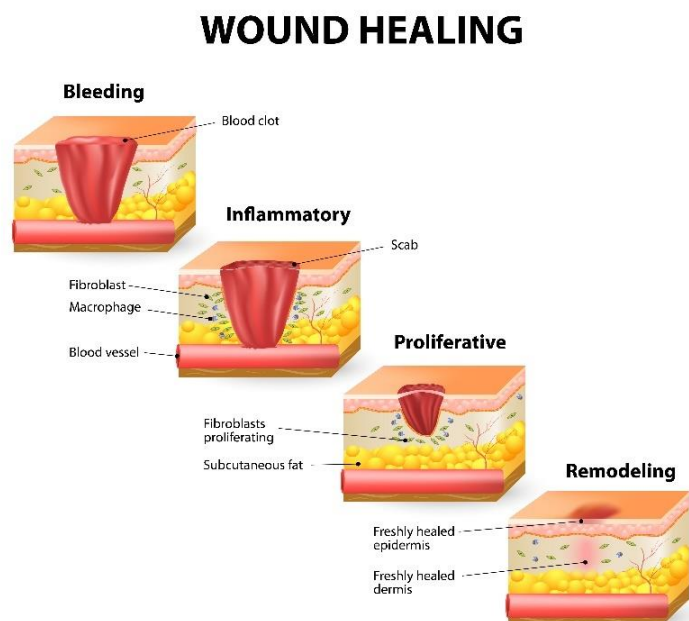
Wound healing is the process of restoration by which cellular structure and tissue arrangement are re-established following an injury.

The process of healing is generally divided into 4 stages, some of these overlap.

1. Hemostasis
2. Inflammatory
3. Proliferation
4. Remodelling

Hemostasis, the initial stage of wound healing begins immediately after injury, it is the process of vasoconstriction, by which blood flow is stagnated through the aggregation of platelets and the development of a fibrin clot, which in turn provides the structural support for the cellular constituents of inflammation.

The inflammatory phase is initiated by the release of cytokines from these aggregating platelets and delivery of leukocytes and later macrophages, which remove debris and bacteria through phagocytosis, but also release factors that cause the migration and division of cells involved in the proliferation phase.



The third phase is characterized by the formation of new blood vessels (Angiogenesis), the excretion of collagen and fibronectin from a newly forming extracellular matrix, the proliferation and migration of epithelial cells and wound contraction.

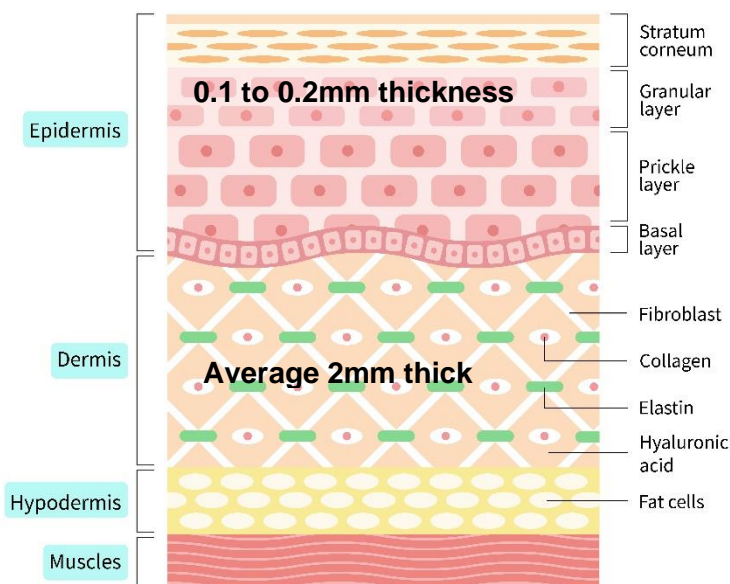
Remodelling can last from 20 days to 2 years, collagen is deposited along tension lines, and non-traumatized collagen appears, giving the skin a smoother, tighter appearance.

Skin Anatomy

The skin is composed of three major layers. The epidermis, the outermost layer of the skin, provides a waterproof barrier and creates skin tone. The dermis, beneath the epidermis, contains tough connective tissue, hair follicles, and sweat glands. The deeper subcutaneous tissue (hypodermis) is made of fat and connective tissue. These layers are directly and indirectly targeted by the CODE-X microneedling system, but the epidermis and dermis are the key skin layers that are targeted during a microneedling procedure.

Composition and Layers

The skin contains two main layers, epidermis and dermis.



The epidermis is the outermost layer of the skin its main purpose is to protect the underlying layers by forming a covering over the body that contains no blood vessels but has many small nerve endings.

The **Stratum Corneum** is the outermost layer of the skin. Its scale like cells are constantly being shed and replaced by underlying cells coming to the surface. These cells contain keratin which is a protein that is also water resistant.

The **Granular Layer** is a thin layer of cells that look like granules. These cells are almost dead.

The **Prickle Layer** is the layer found between the granular layer and the Basal layer. These Cells are keratin producing Epidermal cells owing their prickly appearance to their numerous intracellular connections. This layer of the epidermis provides a continuous net-like layer of protection for underlying tissue.

The **Basal Layer** is the innermost layer of the epidermis and contains small round cells called “basal cells”. These cells continuously divide and produce new cells thereby pushing older cells towards the surface or outer layer where they eventually shed. Melanocytes are also found in this layer; these cells contain and produce melanin a pigment which provides skin and hair colour and protects the skin from Ultraviolet rays.

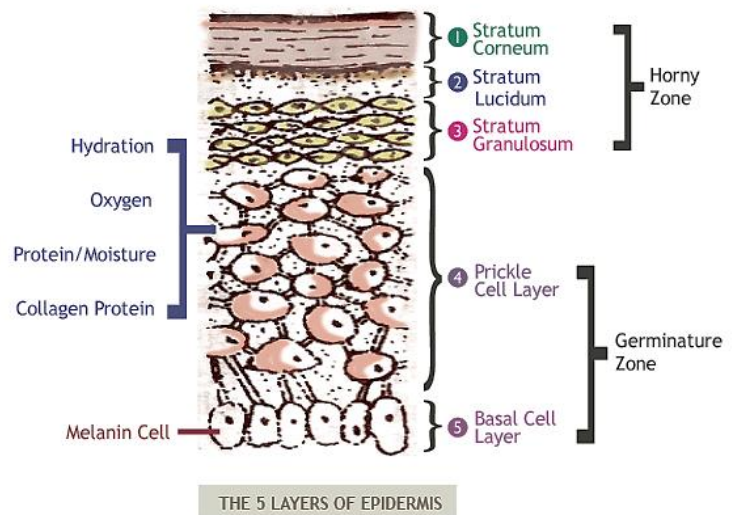
The **Dermis**, which is the underlying or inner layer of the skin, is called **the derma, corium, cutis or true skin**. It is highly sensitive and is a vascular layer of connective tissue. Within its structure are found numerous blood vessels, lymph vessels, nerves, sweat glands, oil glands, hair follicles, arrector pilli muscles and papillae. The dermis consists of two layers: the **papillary**, or superficial layer, and the **reticular**, or deepest layer.

The **papillary** layer lies directly beneath the epidermis. It contains small cone shaped projections elastic tissue that point upward into the epidermis. These projections are called papillae. Some of these papillae have looped capillaries, others contain nerve fibre endings, called tactile corpuscles. This layer also contains some of the melanin skin pigment.

- The **reticular layer** contains the following structures within its network:
 - Fat cells
 - Blood vessels
 - Lymph vessels
 - Oil glands
 - Sweat glands
 - Hair follicles
 - Arrector Pilli muscles
- **Subcutaneous tissue** is the fatty layer found below the dermis, also called adipose or sub cutis tissue. It varies in thickness according to the age, sex and general health of an individual. It gives smoothness and contour to the body, contains fat for use as energy, and acts as a protective cushion for the outer skin. Circulation is maintained by network of arteries and lymphatics.

Functions of the Skin

- The skin prevents loss of essential body fluids.
- It protects the body against the entry of toxic environmental chemicals. If there is not stratum corneum, significant amounts of water would be lost to the environment, and quickly become dehydrated. The stratum corneum with its overlapping cells and intercellular lipid make diffusion of water into the environment very difficult.
- The skin is also an important part of the natural immunity (natural resistance) of the body against invasion by micro-organisms. The dryness and steady sloughing of the skin, the normal flora of the skin, the fatty acids of sebum and lactic acid of sweat, all characterized natural defence mechanisms against invasion by micro-organisms. Langerhans cells present in the epidermis have an antigen presenting capacity and might play an important role in delay hypersensitivity reactions. They also play a role in immune surveillance against viral infections. Langerhans cells interact with neighbouring keratinocytes, which emit several immunoregulatory cytokines, and epidermotropic T-cells forming the skin immune system: SALT (skin associated lymphoid tissue).
- Melanin pigment of the skin protects the nuclear structures against damage from ultraviolet radiation. The skin is also an enormous sensory receptor for heat, cold, pain, touch, and tickle. Parts of the skin are considered as erogenous zones. The skin has huge psychological importance at all ages. It is an organ of emotional expression. It is also a place for the release of anxiety.
- The skin is an important part of the body's temperature regulation system. It protects us against hypothermia or hyperthermia, both of which can be fatal.
- The skin plays a significant role in calcium homeostatic by contributing to the body's supply of Vitamin D. Vitamin D3 (cholecalciferol) is created in the skin by the action of ultraviolet light on



dehydrocholesterol. It is then hydroxylated in the liver and kidneys to 1.25, which is the active form of Vitamin D. This anti-rachitic vitamin acts on the intestine increasing calcium absorption, as well as on the kidneys promoting calcium re-absorption.

Skin Rejuvenation:

Our goal for skin rejuvenation is to attain the healthiest skin possible, and to restore a youthful appearance.

What are the features of a healthy skin?

Healthy skin is smooth, firm, evenly pigmented, well hydrated and free of damage, with the skins barrier and defence system intact.

The benefits of having healthy skin are that there is a functioning skin barrier defence, optimum cell to cell communication, healthy keratinocytes, producing a denser spinosum layer, smooth, soft and compact stratum corneum, the texture of the surface becomes smoother, melanin is evenly dispersed and skin becomes firmer and plumper with better dermal and epidermal hydration.

HEALTHY SKIN IS THE BEST-LOOKING SKIN!

The most important factor when rejuvenating the skin is to balance cell function. This allows us to achieve smooth, plump, firm, evenly pigmented skin. Ideal skin rejuvenation needs to target 3 key cells: the keratinocyte, melanocytes and fibroblasts, and to regulate their function.

It is also important to preserve the integrity of the epidermis, which many treatments don't do. The epidermis plays an important part in providing a natural barrier against pathogens and external environmental influences. It makes no sense to compromise or damage it in any way.

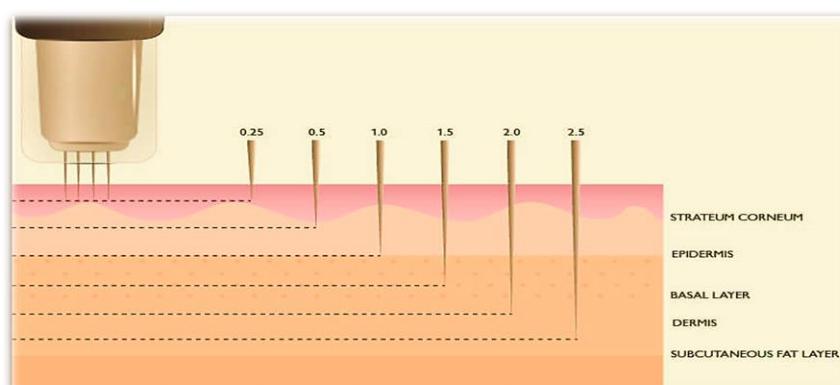
We also need to preserve the dermal papilla, which supplies the exchange of oxygen, nutrients and waste products between the epidermis and dermis. This layer also prevents the deterioration of the dermal/epidermal junction which as we know presents as loss of support to the epidermis and wrinkles.

And rejuvenation would be incomplete without the formation of glycosaminoglycans, (GAGS), collagen and elastin.

Where scar tissue is present, it needs to be mechanically broken down and reformed. Regenerative healing which forms collagen from the base upwards is optimal, rather than cicatricial healing, which leaves a scar when the formation of new connecting tissue overlies a wound.

DERMAL NEEDLING IS THE ONLY TREATMENT THAT RESPECTS ALL 3 MAIN TARGET CELL TYPES!

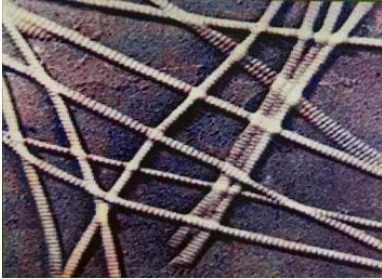
It is the most effective, affordable treatment that always results in a very natural look and is much safer than most other modalities.



Collagen and Aging

What Causes our skin to change over time?

Collagen and elastin make up a large part of the dermis. The thick fibres of collagen support the skin. If the elastin and collagen are in poor condition, the skin lacks resiliency, sags, and develops noticeable wrinkles. The major cause of skin aging is collagen loss. Collagen loss is determined largely by our genetics, lifestyle, diet, stress, excess sun exposure.



Seventy-five percent (75%) of the dermis is made up of collagen. In the healthy skin it is arranged in bundles in a **“basket-weave”** pattern, which provides the dermis with its strength and prevents tearing.



Collagen decreases as the skin ages; therefore, the skin becomes thinner and sags the older we are.

Five percent (5%) of the dermis is elastin. Elastin maintains the skin's tension and extensibility. Elastin fibres decrease, fragment and lose their normal structure as the skin ages. In sun damaged skin elastin becomes thickened and dysfunctional.

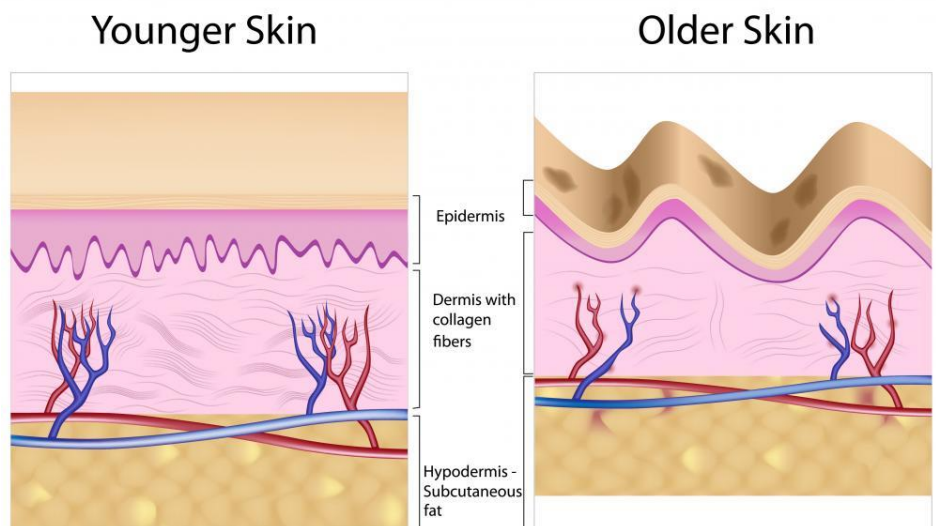
When a person is young, collagen production is at its best, and glycosaminoglycan (“Gags”) provides a strong support structure for the collagen. The two components work together to create dense, buoyant and hydrated skin.

When the loss of collagen occurs, skin has less ability to fight gravity. Thus, the loss of structural collagen and elastin proteins causes skin to lose its firm, wrinkle-free appearance and ability to stay hydrated also decreases. The naturally occurring glycosaminoglycan, which contribute to skin density, volume and essential hydration also diminish with the aging process. Dead skin cells begin to build up causing wrinkles to appear deeper and the skin now appears dull. Furthermore, dead surface skin cells do not slough off as frequently as in youthful skin, thus compounding the depths of wrinkles, and leaving skin looking dull and uneven.

The major cause of skin aging is collagen loss and inflexibility (stenosis). Excess sun exposure, smoking and other environmental exposures like altitude accelerates collagen loss. These types of exposure can lead to premature skin aging.

Five percent of the dermis is elastin. Elastin maintains the skin's tension and extensibility.

Elastin fibres decrease, fragment and lose their normal structure as skin ages. In sun, exposed skin, elastin increases and becomes thickened and dysfunctional.

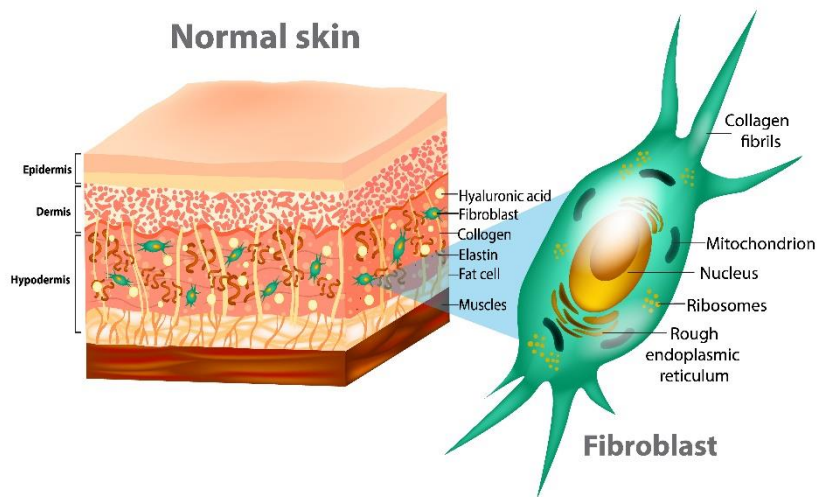


Self-Rejuvenating from the Inside Out!

Fibroblasts are the master cells responsible for making the extracellular matrix and producing new collagen and elastin, they form the structural framework of tissues and play an important role in tissue repair and skin rejuvenation!

Natural electro signals induce the body's own natural human growth factors. This increases blood circulation to the penetrated area while at the same time stimulating collagen and elastin production. This

influx of collagen and elastin at the site of the perforations, fills in wrinkles, scars and can even lighten pigmented areas of the skin. The result is beautifully repaired skin from the inside out without causing unnecessary damage to the epidermis.



Can all skin types be treated?

CODE-X microneedling is promoted as safe on all skin types.

In isolation needling normalizes melanogenesis, however any treatment that induces inflammation may trigger PIH (post inflammatory hyperpigmentation). Therefore, aggressive treatments should be avoided on darker skins (Fitzpatrick 3-6), less passes with shorter needle depth.

Also being cautious not to combine therapies and avoid photosensitizing ingredients and medications. If a client (Fitzpatrick 3-6) has melasma or pigmentation, this could appear darker post needling before an improvement is seen.

What areas of the skin can be treated?

- **Disposable Tips 9 Needles** can be used around the nose, lips, eyes, and eyelids. They can also be used on any area where the skin might be thinner, more sensitive, and harder to reach as well as on Face, Neck and Décolleté. Larger parts of the body, such as legs, buttock, arms, thighs, breasts, and abdomen.
- **It will increase skin thickness and lessen the appearance of stretch marks and scars**

How much time does it take to recover from a CODE-X procedure?

- The skin may be red and swollen for one to two days with a light grazing over the treated area appearing on day two. Most patients can return to work within 24 hours of treatment.
- Multiple treatments are usually necessary to achieve significant improvement to lines and scars. Treatment effects are cumulative and will usually be seen within 4-8 weeks of each treatment. Treatments can be safely repeated every 6-8 weeks
- In comparison to prolonged recovery time from laser and chemical peels, a few days healing time makes microneedling a more desirable alternative, no 'weeping' dressings to be changed, and no burns.

Does CODE-X Hurt?

- Anaesthetics need to be the most effective at the lowest level of inclusion of the actual Active Ingredients. Lignocaine, Tetracaine, Prilocaine and Epinephrine to name a few. Topical numbing cream (supplied by client) is used for the comfort of the client. Before any procedure, the topical anaesthetic is applied and allowed to set for at least thirty (20-30) minutes. Most clients remain very comfortable throughout the entire procedure. There could be potential “hot spots” on certain areas.
- Most clients can have Microneedling done up to 0.5mm without anaesthetic if they can tolerate it.

Other Skin Rejuvenation Methods

Some popular skin rejuvenation methods such as: Laser resurfacing, microdermabrasion, chemical peels, etc., can all produce wrinkle and skin texture improvements, but have significantly high risks involved such as: extended healing and downtime, epidermal thinning, melanocyte heat injury, and can potentially cause scarring or hypopigmentation. The importance of the keratinocyte (to improve epidermal density, smooth the skin and produce strong barrier function) is also overlooked and in most ablative treatments is damaged.

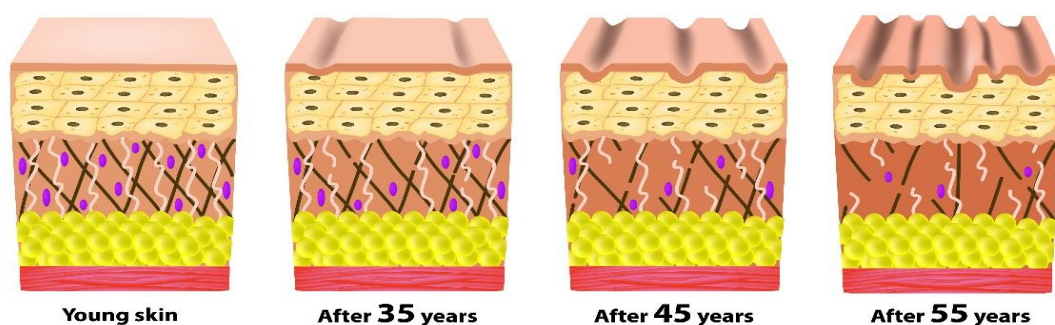
Ideal skin rejuvenation should:

1. Optimize cell function
2. Preserve the integrity of the epidermis
3. Strengthen dermal/epidermal junction
4. Preserve dermal papillae
5. Break down scar tissue
6. Release epidermal growth factors (EGF)
7. Increase natural collagen
8. Induce regenerative healing

Ideal skin rejuvenation needs to target the 3 key cells (keratinocyte, melanocyte, fibroblast) and regulate their function. Microneedling is the only treatment that respects all three main target cells!

CODE-X microneedling system offers the very best in skin rejuvenation by optimizing skin health through regulating cell function to induce collagen production. This type of skin rejuvenation is ideal as it protects the epidermis. While other skin rejuvenation methods involve controlled injury or trauma to the skin, the inflammation is minimal with microneedling, which provides amazing results with minimal downtime!

WRINKLE FORMATION



Disorders of the Skin

The CODE-X Technicians may encounter certain common skin disorders, so this information has been compiled.

Any patient with a skin condition that the MICRONEEDLING technician does not recognize to be a simple disorder should be referred to a physician for evaluation.

The most important thing to know is that a patient who has an inflammatory skin disorder, which may not be infectious, should not be treated.

Listed below are several important terms with which the MICRONEEDLING technician should be familiar with:

- **Acne**: also known as acne vulgaris, is a long-term skin disease that occurs when hair follicles are clogged with dead skin cells and oil from the skin. It is characterized by blackheads or whiteheads, pimples, oily skin and possible scarring. It primarily affects areas of the skin with a relatively high number of oil glands, including the face, upper chest and back. The cause is generally microbe, but predisposing factors are adolescence, stress, hormones, medication side effects and disturbances of the digestive tract.
- **Eczema**: also known as atopic dermatitis, is inflammation of the skin characterized by red, dry, itchy patches, which can occur anywhere on the body.
- **Dermatitis**: is a common condition that has many causes and occurs in many forms. It usually involves itchy, dry skin or swollen reddened skin. It may also cause the skin to blister, ooze, crust or flake off. Examples of this condition are atopic dermatitis (eczema), dandruff and contact dermatitis.
- **Rosacea**: an inflammatory condition of the face that is characterized by redness, dilated vessels, papules, pustules and occasionally by the overgrowth of nasal connective tissue. Superficially it resembles teenage acne, but it occurs in adults. Persistent facial flushing is an early sign of skin's uncontrolled sensitivity to certain naturally produced inflammatory chemicals.
- **Psoriasis**: a chronic inflammatory, genetic condition where you develop scaly red bumps that coalesce into plaques, typically but not limited to scalp, elbows and knees.
- **Mole**: moles are growths on the skin that are usually black or brown. Moles occur when melanocyte cells in the skin grow in a cluster instead of being spread out. There are many types of moles.
- **Cold sores**: Herpes labialis is caused by the herpes simplex virus. Cold sores commonly occur in or around the outside of the mouth. The virus can remain dormant, meaning that cold sores may never appear. Factors can cause the virus to become active resulting in a cold sore include, stress, fatigue, sun, cold and wind, alcohol, a break in the skin, cold and flu. Cold sores usually last 7-10 days.
- **Hives**: also known as urticaria is a common allergic skin condition, often due to antibodies in the bloodstream that recognize foreign substances. Itchy, raised welts that occur after exposure to an allergen. Red, warm and mildly painful to touch. Can be small, round and ring-shaped or large and randomly shaped.
- **Vitiligo**: vitiligo is a disease that caused the loss of skin colour in blotches. It can affect the skin on any part of your body. Normally the colour of hair and skin is determined by melanin. Vitiligo occurs when the cells that produce melanin die or stop functioning.
- **Scars**: a scar is an area of fibrous tissue that replaces normal skin after injury. Scars result from the biological process of wound repair in the skin, as well as in other organs and tissues in the body.

Types of Scars:

* **HYPERTROPHIC:** occurs when the body overproduces collagen, which causes the scar to be raised above the surrounding skin. Hypertrophic scars take the form of a red raised lump on the skin. They usually occur within 4-8 weeks following wound infection or wound closure with excess tension and/or other traumatic skin injuries.

***KELOID:** these are a more serious form of excessive scarring, because they can grow indefinitely into large tumorous neoplasms. *Hypertrophic scars are often distinguished from keloid scars by their lack of growth outside the original wound area*, but this commonly taught distinction can be confusing. *Keloid scars can occur on anyone but are most common on darker skins.* They can be caused by skin trauma such as, surgery, accident, acne, body piercing, etc. In some people keloid scars can form spontaneously. Keloid scars are an inert mass of collagen and are completely harmless and not cancerous.



When the scar from a cut or wound widens and spreads past the size of the original wound, it is known as a *keloid*. *Keloids* may vary in size, shape, and location and occur more often in African American skin.

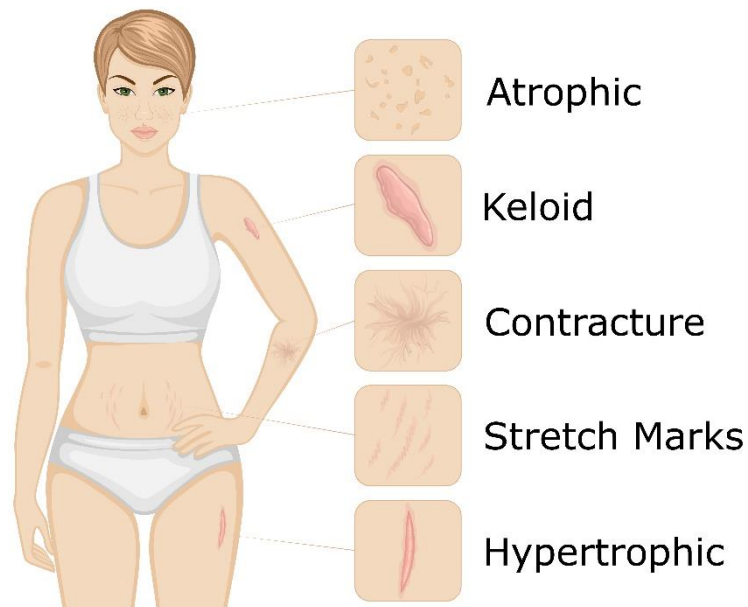
Keloids are common on the ear lobes, neck, hands, or forearms, and usually occur after an injury or infection. Occasionally, they occur spontaneously, especially on the mid-chest area. *Keloids* often follow the injury caused by acne on the face, chest, and back. Some people develop keloids after surgery (i.e. they may appear on the ear lobes after ear piercing). Depending on the location of the keloids, treatment may consist of cortisone injections, pressure, silicone gels, surgery, laser treatment, or radiation therapy. Unfortunately, keloids tend to return and even enlarge, especially after treatment with surgery.



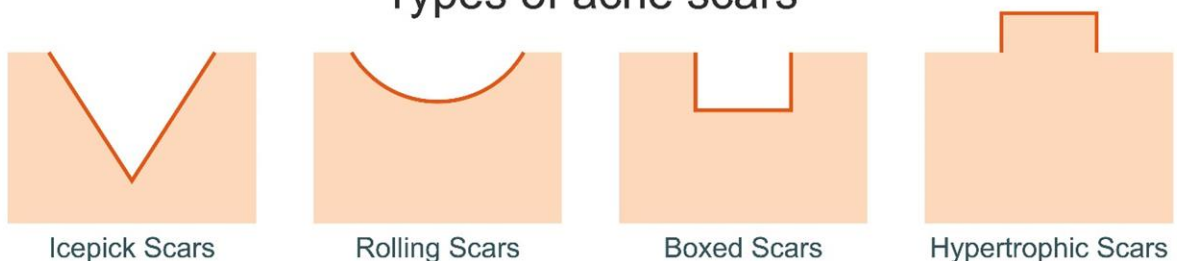
***ATROPHIC:** an atrophic scar takes the form of a sunken recess in the skin, which has a pitted appearance. These are caused when underlying structures supporting the skin, such as fat or muscle, are lost. This type of scarring is often associated with acne, chicken pox, insect bites or accidents. It can also be caused by a genetic connective tissue disorder, such as Ehlers-Danlos syndrome.

***STRETCH MARKS:** are also a form of scarring. These are caused when the skin is stretched rapidly (for instance, pregnancy, weight gain, growth spurts) or when skin is put under tension.

Types of scars



Types of acne scars



Lesions of the Skin

A **lesion** is a structural change in the tissues caused by injury or disease. There are three types of lesions:

- **Primary**
- **Secondary**
- **Tertiary** (*Not applicable for CODE-X technicians*)

The CODE-X technician is concerned only with the primary and secondary lesions. Knowing the principal skin lesions helps the CODE-X technician to distinguish between conditions that may or may not be treated in the clinic setting.

A **symptom**, a sign of disease, is divided into two groups: subjective and objective.

- **Subjective** refers to symptoms that can be felt, such as itching, burning or pain.
- **Objective** refers to symptoms that can be seen, such as pimples, pustules or inflammation.

Types of Primary Lesions

- **Bulla** is a blister containing a watery fluid, similar to a vesicle, but larger.
- **Macule** is a small, discoloured spot or patch on the surface of the skin neither raised nor sunken, i.e. a freckle.
- **Papule** is an elevation of the skin having an inflamed base, containing pus.
- **Tubercle** is a solid lump larger than a papule. It projects above the surface and lies within or under the skin. It varies from the size of a pea to a hickory nut.
- **Tumour** is an external swelling varying in size, shape and colour.
- **Vesicle** is a blister with clear fluid in it, which lies within or just beneath the epidermis (poison ivy produces small vesicles)
- **Whelp** is an itchy, swollen lesion that lasts only a few hours (hives or bites of an insect).

Types of Secondary Lesions

- **Crust or scab** is an accumulation of serum and pus mixed perhaps with epidermal material (scab on a sore).
- **Excoriation** is a skin sore or abrasion produced by scratching or scraping (a raw surface due to the loss of the superficial skin after an injury).
- **Fissure** is a crack in the skin penetrating the derma, as in the case of chapped hands or lips.
- **Scale** is an accumulation of epidermal flakes, dry or greasy (abnormal or excessive dandruff).
- **Scar or cicatrix** forms after the healing of an injury or skin condition that has penetrated the dermal layer.
- **Stain** is an abnormal discoloration remaining in after the disappearance of moles, freckles or liver spots, sometimes apparent after a certain disease.
- **Ulcer** is an open lesion on the skin or mucous membrane of the body accompanied by pus and loss of skin depth.

Skin Lesion Reference Guide



Bulla
Circumscribed
collection of free
fluid, >1 cm



Macule
Circular flat
discoloration,
<1 cm brown, blue, red
or hypopigmented



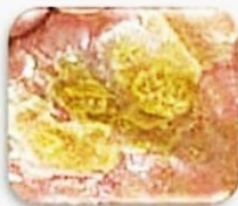
Nodule
Circular, elevated, solid
lesion, >1cm



Patch
Circumscribed flat
discoloration, >1cm



Papule
Superficial solid
elevated, ≤0.5 cm,
color varies



Plaque
Superficial elevated
solid flat topped
lesion, >1 cm



Pustule
Vesicle containing
pus (inflammatory
cells)



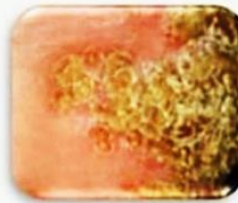
Vesicle
Circular collection of
free fluid, ≤1 cm



Wheal
Edematous, transitory
plaque, may last few
hours



Scale
Epidermal thickening;
consists of flakes or plates
of compacted desquamated
layers of stratum corneum



Crust
Dried serum or
exudate on skin



Fissure
Crack or split



Excoriation
Linear erosion



Erosion
Loss of epidermis (superficial);
Part or all of the epidermis has
been lost



Lichenification
Thickening of the
epidermis seen with
exaggeration of normal
skin lines

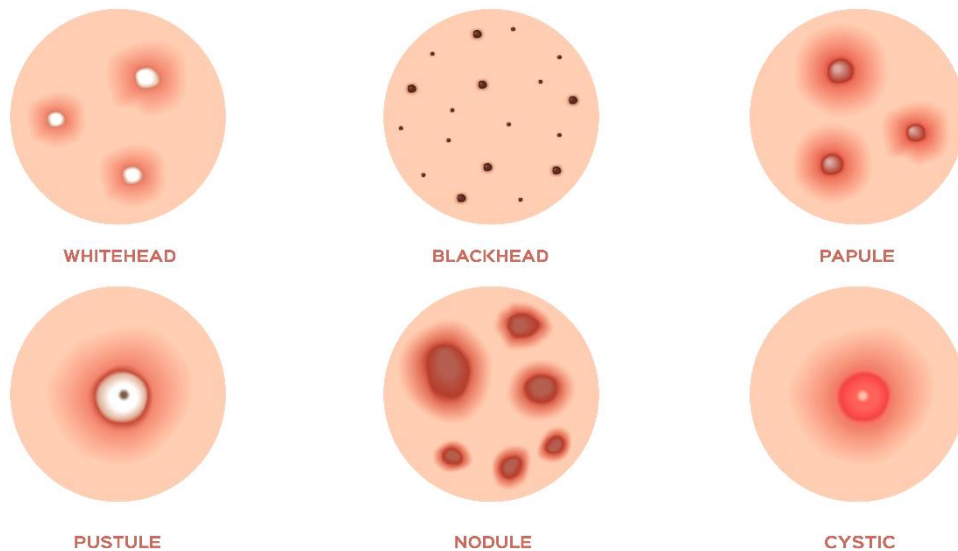


Scar
Thickening; permanent
fibrotic changes that occur
on the skin following
damage to the dermis

Disorders of the Skin

There are several common disorders of the skin, which the MICRONEEDLING technician should be able to identify and understand.

ACNE TYPE



- **Comedones or blackheads**, are worm-like masses of hardened sebum, emerging most frequently on the face, forehead and nose. **Blackheads** accompanied by pimples often occur in youths between the ages of 13 and 20. During the adolescent period, the activity of the sebaceous glands is stimulated, thereby contributing to the formation of blackheads and pimples.
- **Milia**, or **whiteheads** are a disorder of the sebaceous (oil) glands caused by the build-up of sebaceous matter beneath the skin. Milia may arise on any part of face, neck, and sometimes on the chest and shoulders. Whiteheads are usually associated with fine-textured, dry types of skin.
- **Acne** is an inflammatory disorder of the sebaceous glands, occurring most frequently on the face, back and chest. The cause of acne is generally microbe, but predisposing factors are adolescence and disturbance of the digestive tract. **Acne** or common pimple is also known as acne simplex or acne vulgaris. Acne appears in a variety of different forms, ranging from the simple pimple to serious, deep-seated skin conditions. It is advisable to have the condition examined and diagnosed by a physician before any service is given.
- **Seborrhea** is a skin condition caused by excessive secretion of the sebaceous glands. An oily or shiny nose, forehead, or scalp, indicates the presence of seborrhea. On the scalp, it is readily recognized by the unusual amount of oil on the hair.
- **Rosacea**, formerly called **acne rosacea**, is a chronic inflammatory congestion of the cheeks and nose. It is characterized by redness, dilation of blood vessels, and the formulation of papules and pustules. Rosacea is usually caused by poor digestion and overindulgence in alcoholic beverages. It may also be caused by over-exposure to extreme climate, faulty elimination, and hyperacidity. It is usually aggravated by eating and drinking hot, highly spiced, or highly seasoned foods and drinks.

- **Steatoma** or **sebaceous cyst** is a subcutaneous tumour of the sebaceous gland. It is formed by sebum, and its size ranges from a pea to an orange. Steatoma usually occurs on the scalp, neck and back. A steatoma is sometimes called a wen.

Contra Indications Important: Pre-Treatment Information

Aspirin, Nurofen, Vitamin E and any homeopathic herbs and vitamins that are blood thinning drugs all cause increased bruising. For this reason, it is advised that you abstain from taking them prior to treatment - optimally two weeks prior to treatment, however (3) days prior is acceptable.

If not stopped two weeks prior (if possible), you may experience more bruising and transient swelling in the treatment area, causing a longer time for skin recovery. If you take blood thinners for a **medical condition** and cannot stop taking them prior to treatment, you may experience the above-mentioned conditions more severely. The skin will recover; however, you must expect longer recovery time.

Cold sores or Herpes Simplex: If prone to cold sores, you will need to take an anti-viral drug such as Zovirax, Famvir, Valtrex or another prescribed by your Physician. Take the medication as prescribed for 1 week prior and one week after the lip, or full face MICRONEEDLING procedure.

You cannot have the CODE-X micro-needling procedure if you have a history of any of the following: This is just an example.

Please read the following and check the appropriate response.

- poor wound healing
- blood problems
- collagen disease
- open cuts
- wounds to the skin
- sun burned skin
- active herpes simplex breakout
- acute infection or inflammation of the skin
- pregnant or lactating
- prone to Keloid scarring
- diabetic

Contraindications:

- Roaccutane use within the last 6 months (oral Isotretinoin) this type of medicine increases skin's susceptibility to damage.
- Pregnancy
- Keloid tendency
- Anaesthetic allergies
- Active bacterial/fungal infections
- Skin cancer
- Herpes simplex (anti-viral medication may be required)
- Papulopustular rosacea
- Anti-coagulant medications (client may have prolonged healing or bruising)
- Cardiac conditions, pacemaker (seek doctors' clearance)
- Auto-immune disorders (seek doctors' clearance)

- Photo-sensitizing medication or supplements (take precautions to prevent hyperpigmentation)
- Solar keratosis
- Raised moles or warts
- Very irritated skin
- Active acne/eczema (previously contraindicated, however some physicians have reported improvement in these conditions with microneedling. This may be due to normalizing keratinocyte
- Be aware of any skin infections, as treatments should **not** be given on areas with lesion or sores.
- Instruct the client to avoid extended sun exposure, tanning beds and self-tanner for at least one week before and after treatment.

While microneedling is suitable for almost everybody, it is not recommended for those who have active infections, chronic skin disorders, blood clotting problems, poor healing, clear-cut keloids diathesis, or skin malignancies

Topical Anaesthetics:

- Anaesthetics are always a tricky point but are vital to us performing our procedures with client comfort being paramount to enable us to get the best results for them.
- The Client should contact the compounding pharmacy you refer them to and discuss the anaesthetic required as per your script. The client then must pay the pharmacy direct and the anaesthetics can be collected and brought with to the appointment or alternatively the pharmacy can post the anaesthetics to your clinic with the client's name on them.
- Alternatively, if your client has a strong pain threshold, they can purchase either Numbit 30g or Emla (more expensive) in a tube directly from the pharmacy, these are usually not strong enough, but it depends on the treatment being performed.
- Don't occlude aesthetic, if you do any occlusion it should be only on the forehead and for 10 minutes, then removed and left to absorb on the skin.
- You can use a Numbing Gel as a secondary aesthetic if you need to come back to an area that has been opened to give it an additional pass where needed. Also, if the client is very sensitive.
- the Gel will make the client white, as the Epinephrine will pull back the blood supply.
- Apply gel sparingly, in a thin layer, remember the least aesthetic we use the better.

The FDA and TGA is working with healthcare professional organizations and others that distribute healthcare information to spread the message about the potential hazards and safe use of topical anaesthetics.

Topical anaesthetics work by blocking pain sensation in the skin. Some of the medication in a topical aesthetic can pass through the skin into the blood stream. If the topical anaesthetic is applied over a large area of the skin, it is possible for the medication to pass into the bloodstream. If topical anaesthetics are applied to irritated or broken skin, there is also the potential for absorption into the bloodstream. Under these circumstances, the amount of anaesthetic medication that reaches the blood stream is unpredictable and may be high enough to cause life-threatening adverse effects such as irregular heartbeat, seizures, breathing difficulties, coma and even death. (Lambertz CK et al. Premedication to Reduce Discomfort during Screening Mammography. Radiology 2008; 248 (3): 765-72.).

There are several topical anaesthetics available by prescription and over the counter. When used correctly, these products may provide safe and effective pain relief. When a topical anaesthetic is used, the lowest needed amount should be used. If a topical anaesthetic is used, then technicians should:

- Use a topical anaesthetic that contains the lowest possible amount of medication that will relieve the pain.
- Apply the topical anaesthetics sparingly and only to the area where pain exists or is expected to occur.
- Do not apply the topical anaesthetic to broken or irritated skin.
- Be aware that wrapping or covering the skin with any type of material can increase the chance of serious side effects, as can applying heat to the treated area while the medication is still present.

Client Consultation

- This is a very important part of the procedure and can set you up for success or failure. This is the clients first impression of you and your clinic and trust is usually built during this time.
- We need to be able to choose the right clients for the procedure and to make sure that you are qualified and capable to treat the concerns and conditions the client presents.
- It is also important to manage client's expectations of the procedure as well as making them aware of the downtime post procedure and what to expect.
- Make sure the client fills out and signs the consent form and that you take before photos.
- Microneedling results are gradual and it's important to have good photos to show client progress.
- Every skin responds differently, and most skins will need multiple treatments at 3-6-week intervals, dependent on the condition being treated, and of course the desired outcome.
- This time frame allows for maximum new collagen deposition and to assess the success of the treatment.
- 2-6 initial treatments, and then top ups every few months.
- Prior to performing microneedling, we recommend that the skin is properly prepped and exfoliated for a successful outcome.
- Suggest a Pre-Microneedling regime/program to prepare the skin, depending on the conditions to be treated.

Forms and Agreements

Have client fill out a Consent, Medical History and Release form and have them sign them. If they do not want to sign it, do not proceed.

The medical profile can help you identify any possible problems. If in doubt, do not proceed.

It is very important to have client fill out and sign all forms included in your resource Folder.

Discuss with the client exactly what they expect.

Have client agree on procedure, but never guarantee or make any promises. Reassure the client that you will do your best but ensure that their expectations do not exceed your expertise.



Aftercare

- Discuss all aftercare instructions and have the **client initial the box on the consent form** to indicate that he or she has received written aftercare instructions.
- It is important that the client understands that the potential outcome of any CODE-X procedure is based on them following the Aftercare protocol.
- **A good consultation can ensure that you will have happy clients!!**

Procedure Pricing

Prices can and will vary. Remember that the CODE-X Treatment is unlike having pen needling (microneedling) treatments. These treatments are designed to give optimal results with a unique microneedling system. Your clients need to know that this is a medical needling treatment and is safe, does not cause micro scarring. You have the advantage over every other clinic /salon using cheap non-medical needling pens.

- Check your competitor's prices – Do not cheapen this to Non-Medical Pen needling prices!
- **DON'T GUARANTEE ANYTHING!** Rather under promise and over deliver.

Practice Safe Procedures

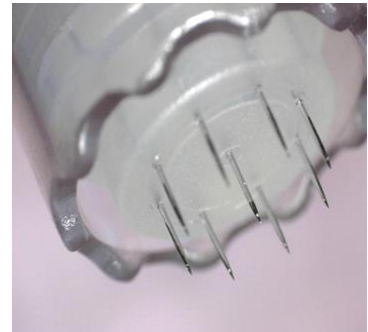
Individually sealed sterile Disposable Tips are used for each procedure.

All Disposable Tips are for individual use and are discarded after each client.

Always open single use Disposable Tips in front of the client to show that sterile instruments are being used.

- Carefully check needle tips for bending or hooking. Damaged needles will cause excessive bleeding and bruising as well as unnecessary pain to the client. Use an Eye Loupe to check needles upon opening.

Do not work on skin that has any keloids, rashes or open sores (blisters, pimples, cuts or signs of infection, redness, swelling or pus).



Are Disposable Tips used sterilized?

The highest standards for safety and sterilization are used.

Disposable Tips are sterilized using EO Gas sterilization system.

Procedure Set-Up

Procedure should be done close to a build-in sink.

Materials Needed:

- Plastic Apron
- Face Mask
- Hair Cap- for client
- Disposable gloves
- Facial bed covered with disposable Pads
- Comfortable stool/chair
- Magnifying lamp-covered in barrier film
- Blue barrier film-to cover surfaces and mag lamp, etc.
- Mirror- handheld – Barrier wrapped
- **Sterile Pack** or disposable containers
- Clinell Wipes - to clean surfaces. Kills 99.99% of germs. Surface disinfecting and cleaning. Nontoxic.
- Tissues
- Chlorhexidine Facial antimicrobial cleanser
- Alcohol swabs
- Hyaluronic Acid
- Cotton Rounds- approx. 10 per treatment on disposable plate or in your Sterile Pack Container
- Disposable mascara brush- to clean ECIT heads during procedure (if Necessary)
- Cotton-tips
- Lined dustbin with Biohazard bag
- Sharps Container- for disposable needles
- Anaesthetics of your choice (bought by Client)
- Optrex Eyewash- contains a neutralizing agent to stop stinging from aesthetic (Boric Acid)
- Saline Solution-Soak cotton rounds
- Plastic cup with water and a drop of chlorhexidine liquid(optional)
- After Procedure cream/Serum of choice
- CODE-X Disposable Tips
- CODE-X Digital Machine- covered in barrier film.
- Client After procedure cloth Mask
- **Remember: Always have good lighting during all procedures.**

CODE-X microneedling procedure:

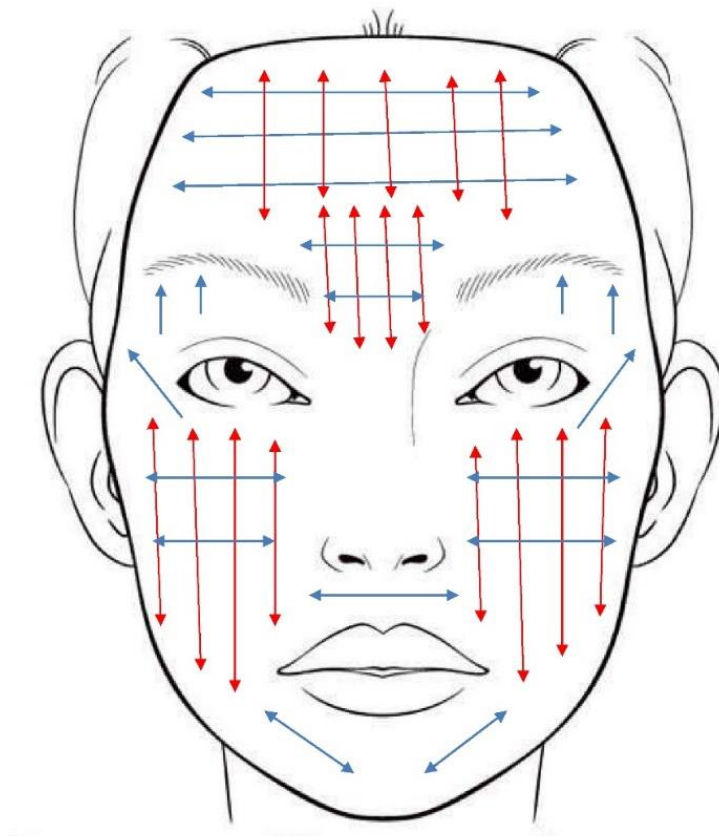
Step 1: Client to fill out consent form. Take before photographs.

Step 2: Cleanse the treatment area with a cleanser, followed by alcohol.

Step 3: Apply a topical anaesthetic to the area and leave on for prescribed time. (take care below and around the eyes). Unless performing a light 0.2-0.5mm microneedling treatment then no anaesthetic is necessary.

Step 4: Remove anaesthetic on area, clean the treatment area again with alcohol to sterilize.

Step 5: Apply Hyaluronic acid Serum and begin microneedling in circular movements with a light pressure and map the face out to avoid over-working an area.



- The eye area requires lighter pressure. Pull the skin down below the eye, to position it over the bone. Get client to close their eyes.
- Where the lines are deeper, pull the skin with a firm stretch and needle slower over these areas, doing a double pass or a slow stamping or Hovering/floating in the area.
- Treat the forehead last, so that it has more time to numb as the anaesthetic has been on longer. Because the forehead is a 'bony' area the client will often be more sensitive.

- If bleeding or pinpoint bleeding occurs during procedure, wipe the skin with cotton pads soaked with saline. It is advisable to only wipe the blood away once the erythema has come up, it is not necessary to clean away the pinpoint bleeding immediately.
- Once the desired endpoint has been achieved and the area has an even erythema, and maybe some pinpoint bleeding. Wipe the area clean with saline.

Step 6: Apply a layer of Hyaluronic serum over area. (if doing LED immediately after microneedling, this should be done before the application of hyaluronic).

Step 7: Give the client their post procedure instructions. Client should follow aftercare instructions carefully.

CODE-X Microneedling Procedure Extra Information:

- Proper holding and stretching of the skin are vital to the procedure and results. Skin needs to be held taut whilst needling with the CODE-X
- The Layout of the of the Needles on the Disposable Tips have been designed for shorter procedure times. By having the needles evenly dispersed throughout the device you can do the procedure in two passes over the skin. This ensures full coverage in minimal time. A third pass over the more **difficult areas** can then be performed slowly with vertical Insertion motions and **slow** forward and backwards movements or circular slow movements.
- The CODE-X Disposable Tip has adjustable needle depths from 0.1mm to 2.0mm. Depending on the procedure, treatment area and Specific skin conditions and concerns you will adjust your needle depth accordingly.
- When treating wrinkles, the skin should be stretched so that the needles touch the base or floor of the wrinkle, if this cannot be achieved by stretching then the needle depth should be lengthened. This applies to all areas being treated.
- Your endpoint should be even erythema and areas of pinpoint bleeding are normal.
- For best results, the CODE-X machine should always be held a 90-degree angle throughout the procedure. **(SEE TRAINING VIDEO)**
- We recommend microneedling on a clean disinfected skin and applying Hyaluronic acid serum directly after the procedure.

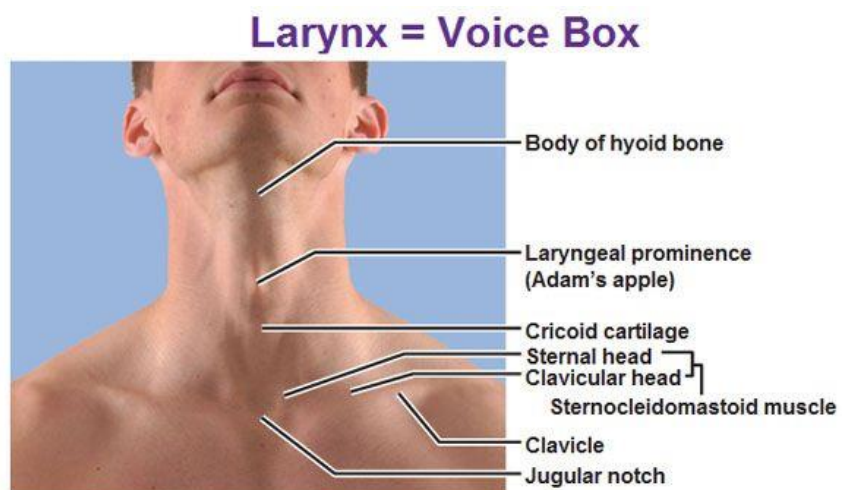
Eye Area

- For fine, thin skin around the eye area (approx. 0.04mm to 0.06mm skin thickness) adjust your needle depth and pressure accordingly.
- If too much pressure is applied, it will result in under bleeding and bruising and if petechiae or hematoma occur stop and apply pressure for a few minutes.

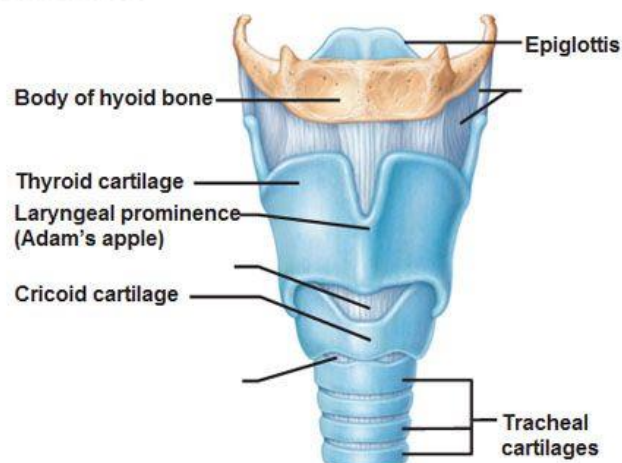
- Hold skin firmly, stretch and pull the skin away from the eyeball under the eye. Use the brow bone to be your working area on the top lid. Be sure that you are working away from the eye before performing the MICRONEEDLING procedure.
- The CODE-X Digital Machine should be set at speed 2 and needle depth at 0.25mm to 0.5mm initially to gauge client tolerance and end point. It is best to work away from the eye itself.

Important tips:

- **The Lip or perioral area** is particularly sensitive and may need anaesthetic for sufficient pain control.
- **The forehead** is another sensitive area to treat due to its bony nature, treating this area last allows the anaesthetic (if used) adequate time to numb. The thinner the skin the shorter the needle depth.
- **The neck** has underlying structures that need consideration, this includes correct stretching and lighter pressure. Needle depth is also a consideration when using the CODE-X machine.
- **Hypertrophic scarring** may need longer needle lengths to break down contracted scar tissue.
- **The endpoint with scarring** is often purpura which is a rash of purple spots which don't dissipate on pressure.



(a) Surface view



(b) Anterior view

Other Treatment Protocols:

CONDITION	SUGGESTED NEEDLE LENGTH	TREATMENT COURSE GUIDE	BENEFITS OF TREATMENT
Anti-ageing/collagen induction	0.5-1mm Speed 2-4	4-6 treatments 4-6-week intervals	Fibroblast stimulation results in increased collagen production. Smoother, firmer, tighter looking skin. Plumper, skin with a more even skin tone.
Hyperpigmentation	0.5 mm Speed 2-4	4-6 treatments 2-4- week intervals	Increases availability of skin lightening actives. Restores fibroblast function which normalizes cell cross signalling with melanocytes. Normalizes melanogenesis which regulates and rebalances skin tone.
Hypopigmentation	0.5mm Speed 3-4	2-6 treatments 2-4- week intervals	Can stimulate melanocytes to increase pigment and colour of skin.
Hypotrophic/depressed scarring	1-1.23mm Speed 4	6-8 treatments 8- week intervals	Texture of skin becomes smoother. Depressed scarring becomes less visible as the texture of the skin is evened out.
Hypertrophic scarring/stretchmarks	1-1.5mm Speed 4	8-10 treatments 6-8-week intervals	Texture is smoothed. Colour of skin is evened out. Stretchmarks appear less visible as the density of the epidermis is improved.
Rosacea	0.5mm Speed 2-3	4-6 treatments 6-8- week intervals	Stimulates epidermal growth factor which increases the density of the epidermis to lessen appearance of vessels and redness. Strengthens collagen in vessel walls and connective tissue that supports vessels.
Hair Stimulation	0.5-1mm Speed 4	8-10 treatments 4-8- week intervals	Stimulates blood flow. Increases availability of topical actives. Improves follicle vascularization which promotes hair growth and increasing follicle and hair size. Can stimulate hair growth through fibroblast growth factor-7 upregulation.

Post treatment Care:

Aftercare:

- **Immediately after microneedling** the skin will appear red and will look flushed or mildly sunburnt.
- Bruising or areas of pinpoint bleeding may be apparent if the client has had a deeper treatment in certain areas of the skin.
- The skin will feel tight and dry, and can also appear slightly puffy, especially around the eyes.
- There is normally not much discomfort.
- Our Moisturizing Hyaluronic Acid Serum is a good soothing moisturizer at this point.
- Only a medicated, breathable makeup can be applied immediately post procedure, and no sunscreen is to be applied the day of treatment. (Client must keep out of sun)
- **The following day** the skin will still appear to be red, upon waking there is likely to be mild inflammation and swelling around the eyes. (Depending on treatment)
- Medical Mineral make up and SPF can be applied.
- **On day 3**, the swelling will subside, skin can still be slightly pink, and if any bruising occurred during the treatment it should start to lighten.
- Clients may now return to regular skin care products as recommended by their technician. Alcohol based toners should be avoided for 10-14 days and Acids (e.g.: glycolic) are only recommended 14 days after treatment.
- **Days 4-6** there is minimal, if any, redness and swelling. Dry and flaky skin is normal at this point as well as Red bumps especially on the jawline and Décolleté.
- **Normally by day 7**, very few signs of treatment are visible in most clients.
- We recommend a “**lift Off**” Enzyme mask treatment to loosen and remove dry flaky skin.

We recommend you avoid the following activities 48 hours post procedure:

- Sun exposure
- Intense exercise or gym that may cause sweating.
- Sauna, hot baths/showers, spa.
- Self-tanning.
- Swimming in pool or ocean.
- Chemical peels, muscle relaxants or dermal fillers.
- Other facial treatments.
- Occasionally clients with a history of cold sores may have an outbreak post procedure and may need to take an antiviral before treatment.
- Small pustule outbreaks may also occur as well as some bruising.
- Most commonly clients will experience redness, stinging, dryness and flaking after microneedling.

Clean up after Microneedling Procedure:

Remove the Disposable Tips from the CODE-X Machine and dispose of it into a Sharps Container.

- After sterilization/ disinfection, all instruments used for micro-needling shall be stored in a dry, clean cabinet, or other tightly covered container reserved for the storage of such instruments.
- All Disposable Tips shall remain stored in sterile packages until just prior to performing the procedure.
- Place dirty articles that do not require sterilization in separate cleaning area and clean them as soon as possible.
- Dispose of all used single-use items such as spatulas, pigment cups, used tissue and Q-tips into the waste bin. If any of these items are visibly covered in blood, dispose of them by placing them into a bin that is lined with a biohazard bag and marked “infectious waste”. Waste should be disposed of at the end of the day.
- Clean the workstation and wipe your machine a damp **(not wet)** Clinell Wipes - to clean surfaces. Kills 99.99% of germs.
- All tweezers, scissors or any instrument used during the MICRONEEDLING procedure should be Sterilized in an Autoclave.

Disposal of Hazardous Items

- Used Disposable Tips must be disposed of in a Sharps container to eliminate the risk of anyone being stuck with a contaminated needle
- Never reach into a Sharp’s container.
- When the container is filled, call to have the proper authorities pick it up or take it to the nearest disposal site, i.e. the hospital.
- If spray bottles are used to dispense liquids, the liquid shall be sprayed onto a single use wipe rather than directly onto the client.



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Installation/Operation Procedure

Your **CODE-X** Microneedling machine comes boxed with Power cord, Stand and two Disposable Tips.

Step 1

Press and hold the button to turn on the CODE-X.
Check the battery status first.

Step 2

Install the disposable tips into the CODE-X Digital Machine tip.
Gently twist till it clicks into position and then push down and screw gently until firm (not tight)

Step 3

Press the button shortly to start the CODE-X.
Speed is adjustable when the button is pressed.(5steps)
Number of 1 to 5 is shown on a display and 5 is the fastest.

Step 4

Tun the dial to adjust the depth of disposable tips up to 2.0mm.
Never let the needles feel like they are dragging, this means your speed is too slow.

Step 5

Turn to Off to stop machine.

A. Disposable Tips (Do not re-use)

Sterilized with EO gas and should be checked the status before use

B. Multiple screw to keep the powerful microneedling

Adjustable up to 2.0mm (0.1mm steps)

C. Button on/off type

for easy to use

- Professional use with adjustments 0.1mm up to 2.0mm (0.1mm increment steps)
- Hygienic, disposable, sterilized cartridge (EO gas) for safe use
- Fuse for protecting from over-current/overheating
- Comfortable for using and luxurious design
- Minimized pain through rapid movement
- Great effectiveness for wide range in a short time
- Simple type of on/off button



Needle Depth control on your CODE-X Machine

Fully adjustable mechanism lets you have Cartridge needle lengths from **0.0mm** to **2.0mm**. (in 0.1mm increments) This gives you more choice, is very cost effective and you have the option to work at your **correct scope of practice**.



Speed Control on your CODE-X Machine

The **CODE-X** is a 5 Speed machine with a Button control.



Safety Precautions & Warranty

- Do not allow the CODE-X Digital Machine to drop on the ground nor into liquid to avoid damage.
- When wiping down your machine, **please ensure** that the Clinell wipe or Steri-wipe is not soaking wet as you do not want to get liquid into your machine.
- CODE-X will assume no responsibility for any failure caused by using other accessories on CODE-X Digital Machine not provided by us.
- Before operation, please read the operating instructions and refer any questions to your sales representative.
- Following precautions and normal use of CODE-X Digital Machine will ensure a longer life to the machine. **Noncompliance with any of these points will nullify the Warranty.**
-

Important

Never submerge your **machine** in water, or wipe with a very wet wipe or cloth as this will cause damage to your machine and components.

CODE-X Disposable Tip

- Medical Grade Stainless Steel Nickel and Titanium free Needles
- 0.20mm thickness 33-gauge needle (the finest available)
- Disposable Tip contains 9 needles adjustable from 0.1 to 2.0mm in length.



The Disposable Tip is used for face, around the nose, lips, eyes, browbone, neck, chest and décolleté. Use on any area where the skin might be more thin, sensitive, and harder to reach as well as Stretch Marks, scarring and lax skin.

The CODE-X Digital Machine and our Disposable Tips make a powerful combination.

Together they create thousands of micro-needle channels/perforations.

This system rejuvenates the skin from the inside out.

Specifications and Warranty

Product / Model	Auto MTS (Microneedling Therapy System) / CODE-X
Input / Output	AC100-240V / 5V, 1.0A
Battery	3.7V 600mAh / Lithium-polymer rechargeable
Frequency	50-60Hz
Warranty	5 Year from the Invoice purchase date

PHOTOGRAPHY

Create a Portfolio

A picture is worth a thousand words, therefore you; the **CODE-X** technician should take before and after photos. These photos are legal records that should be kept for as long as you have your business.

Ensure to take a picture of the client during the consultation and have the client sign the picture and keep the photo along with the Procedure Release and Medical Forms. Four or more photos (before, right after procedure, at each follow up treatment photos, and a 1-2 months' post treatment photo) should be taken and kept in clients record folder.

The portfolio could be used for insurance purposes and legal records if ever needed for evidence.

Photographs are also great to show clients the progress of their skin from one treatment to the next. Clients see themselves every day and may therefore think the results are not so visible! But pictures are a sure way to let them see the Results!

Any type of camera will do but a digital camera or Smartphone is preferable. All photos should be well focused and large enough for the potential client to see the differences in the before and after photos!

Putting together a portfolio of procedures and presenting them to potential clients during your consultations will assist in helping them make a final decision.

Please have the client sign the Photo Use Consent on their Consent Form.



Promote Micro-needling therapy through your Photos.

- Build your portfolio with “before and after” pictures that include your client’s comments.
- CODE-X offers full colour brochures with an area where you can put your own personal information stamp.
- Do not work on a relative or friend until you are skilled. There are more lawsuits from relatives/friends than clients. Always make relatives and models fill out consent forms.
- Free models: people who will give you honest, detailed feedback.
- You must practice. The more you practice, the better you will become. You can practice on anyone but always ensure they sign and fill in the consent forms.

Find a Reputable Insurance

Insurance is very important part of your business.

Be sure to find an insurance company that will insure you for Microneedling.

When approaching an insurance company there are a few things to take into consideration to tell them:

1. You will be using topical anaesthetics
2. What ingredients are in those anaesthetics
3. How you obtain your topical anaesthetics according to the laws of your country/State
4. What products you will be using during and Post Treatment
5. Also, send them a copy of your client Consent, photo consent and any other important forms
6. A Copy of your Skin penetration Certificate/ your training Certificate’s etc.
7. A copy of you Infection Control Certificates
8. Each Member of your staff operating the Microneedling machine will need Insurance cover
9. Malpractice Insurance should cover all Technicians

Sanitation Basics for Infection Control

STANDARD PRECAUTIONS

Standard precautions shall be followed during skin penetration procedures. It must be assumed that all blood and body fluids are potentially infectious, thus standard precautions shall be undertaken wherever skin penetration procedures are conducted.

Standard precautions include:

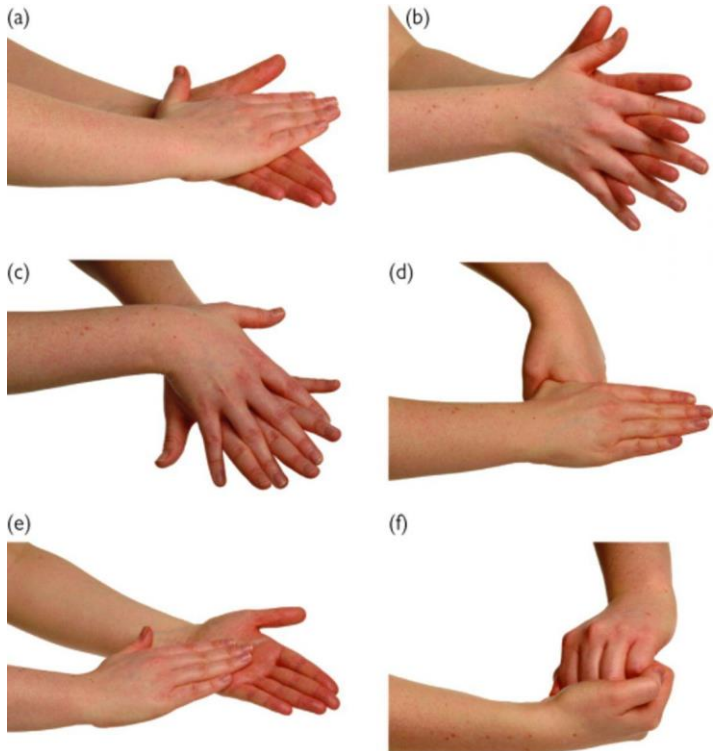
Good hygiene practices

- Washing and drying hands before and after client contact,
- The use of protective barriers such as gloves, gowns, plastic aprons, masks etc.,
- Appropriate handling and disposal of sharps and other contaminated materials

Hand Washing

Hand washing is the first step in infection control.

- Hands shall be washed with soap and water and dried before and after direct low risk contact with clients. Hands shall be washed with soap and water for a minimum of 10-15 seconds.
- Hands or skin surfaces subjected to high risk contact with blood or body substances shall be washed immediately or as soon as possible after contamination. Hands shall be washed with soap and water for a minimum of 10-15 seconds.
- Hands shall be washed before and after using gloves.
- Scrub brushes are not recommended for scrubbing hands as they may cause damage to the skin.
- Cuts and abrasions on hands shall be covered with a water-resistant occlusive dressing which shall be changed as necessary or when the dressing becomes soiled.
- Hands shall be dried thoroughly using disposable paper towels.
- Operators with weeping cuts, abrasions or dermatitis shall not come into direct contact with clients.



Personal Protective Clothing

- Gowns and/or disposable plastic aprons should be worn where there is a reasonable likelihood of splashing or contamination of clothing.
- Where high risk contact is likely to occur where an operator may come into contact with blood or other body substances disposable examination gloves shall be worn.

- c) Gloves shall be discarded and replaced with new if there is any evidence of tearing or deterioration. d) Gloves shall be changed when performing separate and distinct procedures on the same client to avoid cross contamination.
- d) Gloves shall be changed between each client to avoid cross contamination.
- e) General purpose rubber utility gloves should be worn when performing cleaning duties.
- f) General purpose utility gloves may be reused unless there is peeling, cracking, puncturing, tearing or any other evidence of deterioration.
- g) Face protection, eye protection or masks should be worn when performing any procedure that may cause splash or spray of blood or body substance.

Steps for Glove Removal and Disposal

Proper glove disposal will prevent the spread of germs, disease and infections.

- Carefully pinch one glove near the wrist
- Slowly pull off the glove and turn it inside out as it is removed.
- With remaining gloved hand, ball the dirty glove (just removed) into the gloved hand.
- Examine the cuff of the soiled glove for a clean area. Slide the ungloved finger under the cuff touching only the inside (clean side) of the glove.
- Slowly pull the soiled glove off inside out, with the first glove contained inside of it.
- Dispose of the gloves in a biohazard bag.

Handling and disposal of sharps

Sharps represent the major cause of accidents involving potential exposure to blood-borne diseases.

- a) Operators using sharps are responsible for their management and disposal.
- b) All sharps shall be placed in an appropriate container when not in use.
- c) Contaminated sharps shall not be passed from the hand of one operator to another.
- d) Needles should not be removed from disposable syringes for disposal, purposely broken or otherwise manipulated by hand except when the removal of the needle is technically necessary; or when performing procedures where needles should be bent. Needles should be bent only when required prior to contamination with blood or any bodily substance.
- e) All used sharps shall be placed in a designated puncture resistant container.
- f) Sharps shall be discarded immediately after the skin penetration procedure is completed.
- g) Reusable sharps are prohibited unless of a class or type that has been exempted by the Chief Health Officer.



Management of waste

- a) Contaminated waste shall be placed into waste receptacles at the source of generation.

- b) Receptacles for contaminated waste shall be clearly identified.
- c) Sharps shall be discarded into a designated puncture resistant container.
- d) All waste shall be stored and disposed of in a manner that complies with local government requirements.

Blood and/or body fluid spills

Blood and body fluid spills pose a significant health risk. If a spillage of blood or body substances occurs:

- a) Wear disposable gloves and protective clothing.
- b) Pick up broken glass or any other sharp object included in the spill with forceps and dispose of in a sharp's container.
- c) Clean the surface that has been contaminated with detergent and water using disposable wipes or paper towels.
- d) Rinse and dry the surface.
- e) All soiled materials, excluding sharps, should be placed in a plastic bag and then disposed of in a manner that complies with local government requirements.
- f) If a spill occurs on a carpeted area, the area should be shampooed, or steam cleaned as soon as possible after the spill occurs.

Needle stick and blood accidents

Workplaces where skin penetration occurs shall have a policy concerning needle stick and blood accident exposure. Practitioners shall be aware of and comply with the hygiene and health laws of each country.

Information for the affected person (Accident immediate steps)

- If your skin is penetrated by a needle or other sharps injury, wash the area well with soap and water (alcohol-based hand rinses or foams 60%-90% alcohol by weight should be used when water is not available).
- If blood gets on your skin, irrespective of whether there are cuts or abrasions, wash well with soap and water.
- If your eyes are contaminated, rinse the area gently but thoroughly with water or normal saline while the eyes are open.
- If blood gets in the mouth, spit it out, then rinse the mouth with water several times.
- If you are an employee, you should report immediately to your supervisor the nature of the incident and complete an Incident Report Form which should include: the date and time of exposure, how the incident occurred and the name of the source individual, if you know it.
- If you are the owner, manager, or an employee, you should report the incident to your doctor or the Accident and Emergency Casualty Department at the nearest hospital.
- If a needle syringe was involved, place it in a rigid walled container, such as a lunch box. Take it to your doctor, do not attempt to cover the needle because you may run the risk of further injury.
- In the event of an exposure to a source individual who has been previously tested and confirmed as HIV, HBV or HCV positive, the affected person should immediately be evaluated by a doctor with experience in the management of these infections.

Information to Supervisors, Managers and Occupational Health and Safety Officers

- **If an employee has suffered a possible or definite exposure it is important that you make sure that immediate steps are taken to reduce the risk to the employee of contracting a serious illness. An exposure may include one of the following:**
- a superficial injury with a needle contaminated with blood or body fluid.
- a wound that is not associated with visible bleeding produced by an instrument.
- contaminated with blood or body fluid.
- a skin lesion contaminated with blood or body fluid.
- a mucous membrane or conjunctival contact with blood.
- skin penetrating injury with a needle contaminated with blood or body fluid.
- an injection of blood or body fluid.
- a laceration or similar wound which causes bleeding.
- any direct inoculation.
- Ensure that the exposed area has been washed thoroughly.
- Arrange for blood to be taken from the employee.
- Find out whether a known source individual is involved in the incident, and if so, contact a medical officer to organise for blood to be taken from the source individual to be tested for HIV antibody, Hepatitis B surface antigen, and Hepatitis C antibody. Blood samples should be collected as soon as possible after the incident and processed urgently. Remember informed consent is required.
- When the source individual is known to be positive to either HIV antibody, Hepatitis B surface antigen or Hepatitis C antibody, be sure that a doctor with experience in management of these infections has been contacted.
- Ask the employee to complete an Incident Report Form.
- Check to see that it is correctly filled out.
- Make sure that the form includes the date and time of the incident, how the incident happened and whether the affected person has been stabbed by a syringe or other sharp or has been splashed.
- Reassure the employee that only a small proportion of accidental exposure to blood results in infection.

The risk of infection with HIV following one needlestick exposure to blood from a client known to be infected with HIV has been reported as 0.3% (Annals Int. Medicine 1990; 113:740-746). The risk may vary according to the stage of infection of the source individual. Low risk is asymptomatic and high risk with symptomatic HIV infections (AIDS). This rate is considerably lower than for HBV.

Hepatitis

Hepatitis is a virus that can cause a lifelong infection cirrhosis (scarring of the liver), liver cancer, liver failure, and in some extreme cases, death. Technicians and clients could contract Hepatitis B or Hepatitis C if strict sanitation, sterilization, and safety guidelines are not followed.

The term **hepatitis** means an inflammation or infection of the liver. There can be several causes of inflammation including, viral infection (what most people think of as Hepatitis), bacterial infection and inflammation due to exposure to toxic chemicals. There are a few other rare causes such as a parasitic infection that will not be covered in this course.

Viral Hepatitis is caused by any of several types of RNA viruses. Each type of Hepatitis displays variables of incubation period, type and severity of symptoms, duration of illness and potential for long-term or chronic infection. The primary symptoms seen in all forms of Hepatitis include:

- a low-grade fever

- nausea and vomiting
- diarrhea
- loss of appetite
- avoidance of smoking in those who smoke
- a varying degree of jaundice. Jaundice is most readily seen in the skin under the tongue (sublingual), as well as the whites of the eyes
- (sclera) and the pink lining of the eyelid (conjunctiva).

Hepatitis A is not normally transmitted by exposure to blood products or tears, but can be spread by faecal-oral route, as well as, by food or water. An immunization for Hepatitis A is available and provides lifetime immunity once the series of two shots is completed. Previous infection with Hepatitis A also confers immunity.

The Hepatitis B or C virus is spread when blood or body fluids from an infected person enters the body of a person who is not immune through a wound or needle stick, or from unprotected sex or sharing drug needles.

Hepatitis B is far more serious than Hepatitis A. The two methods of contracting Hepatitis B are by direct blood to blood transmission (such as from a needle stick) or via sexual contact. While the same constellation of symptoms is present, the severity and intensity of each is significantly higher, especially the level of fatigue and malaise.

There is usually an incubation period of three to six weeks after infection before the onset of symptoms. The person can pass the infection to someone else even before the symptoms are present. This reinforces the importance of strict adherence to sanitation standards and the use of universal precautions with all clients. Another aspect of Hepatitis B that is different is that it can cause chronic for of Hepatitis. This is a condition in which the virus continues to reproduce in the body, causing additional damage to the liver and other organs, and is continuously shed from the patient. With long-term infection, it is usually necessary to perform a liver transplant on the patient to allow some possibility of prolonging life. An immunization, consisting of a series of three injections, is available. While it is believed to provide life-long immunity, it is possible that a booster infection may be necessary in the future to ensure adequate protection. Previous infection with Hepatitis B does not ensure protection from possible re-infection.

Hepatitis B About 30% of people do not have any symptoms. A vaccine is available to prevent infection. If a technician or client, who has not had the vaccine, is exposed to Hepatitis B, they can get an intramuscular infection of Hepatitis B Immune Globulin (HBIG) within 14 days and the Hepatitis B vaccine.

Hepatitis C About 80% of people do not have any symptoms and there is no vaccine for Hepatitis C. **Hepatitis C** has recently been recognized as a distinct viral infection. It is likely the Hepatitis C is the agent responsible for what was previously called "non-A/non-B" Hepatitis. It is transmitted exclusively through blood-to-blood transfer. This has been a significant problem in Hepatitis due to blood transfusions. Since the early 1990s, all blood products have been specifically tested for Hepatitis C. The most dangerous aspect is that there are little or no initial symptoms of infection. This does not mean that there is no damage. Hepatitis C is frequently a chronic low-level infection that causes ongoing damage to the liver, necessitating a liver transplant if the person is to survive.

There are no strains of Hepatitis that have been discovered recently. The significance and the disease associated with these new strains have yet to be seen. There are no specific tests for these strains.

This is the reason that clients who have recently been ingesting alcohol or taken large amounts of aspirin should be deferred from having an MICRONEEDLING procedure.

Hepatitis D is related to Hepatitis B. due to several genetic factors in the Hepatitis D virus, the virus is unable to cause an infection on its own. A patient must either get both viruses together or already be infected with Hepatitis B before contracting Hepatitis D. While there is no difference in the acute symptoms, there is an increased risk of significant organ damage and a higher rate of chronic infection if both viruses are present. There is no immunization for Hepatitis D as you are protected if you have the Hepatitis B immunization.

Animals

Animals are prohibited in areas where skin penetration procedures are undertaken. The only exception being seeing-eye dogs in company of a blind person.

Linen

Linen used in premises where skin penetration procedures are undertaken shall be stored to prevent contamination.

Only fresh, clean linen shall be used on each client.

Used, dirty or soiled linen shall be stored in a suitable receptacle.

Household laundering procedures are adequate for processing all soiled linen.

Sterile materials and solutions

- (a) Single dose vials and single use sterile skin penetrating equipment shall be used in all cases. Unless of a type approved or exempted by the Chief Health Officer, multiple use vials and skin penetrating equipment are prohibited.
- (b) All equipment must be appropriately cleaned or sterilised between each client in accordance with the Code.

Smoking and Preparing Food

Smoking and food preparation are prohibited in areas where skin penetration procedures are undertaken.

Cleaning appliances

- a) Cleaning is adequate for non-critical appliances which come in contact with intact skin but not in contact with blood or body fluids.
- b) Cleaning is essential for all appliances before disinfection or sterilisation to remove all organic matter and other residue.
- c) Agents for cleaning include detergents, proteolytic enzyme cleaning agents and ultrasonic cleaners.
- d) Ultrasonic cleaners are not suited for cannulated appliances or plastics. Appliances of dissimilar metals should not be cleaned together. Ultrasonic cleaners shall be used according to the manufacturer's recommendations.

Disinfection of appliances

All appliances that may come in contact with blood, mucosa or other body fluids shall be disinfected before use on a client.

All reusable appliances used in procedures that may become contaminated with blood, mucosa or other body substances shall be cleaned and disinfected before being reused on another client.

Procedures for disinfection of appliances are:

- a) Clean and dry appliances.

- b) If appliances can withstand heat and moisture and do not require sterilisation, thermal disinfection is the simplest and most efficient method of disinfection. The minimum surface temperature, time relationship for disinfection is greater than or equal to 80oC, minimum time of 2 minutes; 75oC minimum time of 10 minutes; and 70oC minimum time of 15 minutes;
- c) Chemical disinfection should only be used when thermal disinfection is unsuitable.

Sterilisation and storage of appliances

Sterilisation means the complete destruction of all organisms including bacterial spores. All reusable appliances used in procedures involving contact with normally sterile areas of the body or contaminated with blood or body substances shall be cleaned and sterilised before being reused on another client. Appliances shall be sterilised by one of the following methods.

Steam under pressure (moist heat) sterilisation - autoclaving.

Dry heat sterilization

Skin Preparation

The client's skin shall be clean and free of infection. Prior to any skin penetration procedure, the area to be penetrated shall be wiped with a sterile disposable swab containing an approved disinfecting solution. The skin should be allowed to dry for 30-60 seconds.

Skin disinfectant for skin preparation should be decanted from its container on a client-by-client basis. Fluid remaining at the end of each procedure shall be discarded and the container cleaned and re-sterilised before reuse.

Approved disinfecting solution

The following solutions have been approved for disinfecting skin.

- a) 70% W/W isopropyl alcohol.
- b) 80% V/V ethyl alcohol.
- c) 60% V/V isopropyl alcohol.
- d) Alcoholic (isopropyl and ethyl formulations of 0.5 - 4% W/V chlorhexidine); or
- e) 10% W/V aqueous or alcoholic providine iodine (1% W/V available iodine).

Use-by-dates

Operators shall ensure that the use-by-date on disinfectants is current. Disinfectants shall not be used after the expiry date and shall be disposed of in a manner that complies with the local government requirements.

SAFE WORK ENVIRONMENT

Duty of Care

Employers have a responsibility to provide a safe work environment. The workplace environment should have proper facilities and equipment arranged to minimise the potential for hazard. Workers should be offered immunisation e.g., Hepatitis B vaccine against infections which are a potential risk in skin penetration environment.

Education and Training

It is the responsibility of any person who performs skin penetration procedures, to ensure that they are familiar with infection control and safe working procedures.

Employers have a responsibility to provide adequate levels of staff training to ensure the maintenance of adequate infection control procedures and safe working practices.

STANDARDS FOR PREMISES

Skin penetration procedures areas

All floors, floor coverings, walls, ceiling, shelves, fittings, and other furniture shall be constructed of materials suitable for the procedures undertaken and shall be kept clean and in good repair.

Surfaces that come into direct contact with a client's skin or mucous membranes must be smooth, impervious and in good repair.

All operators shall ensure that a hand basin supplied with hot and cold water, soap and paper towels is available in the immediate area where skin penetration procedures are undertaken and that all waste is stored and disposed of in a manner that complies with the local government requirements.

For new premises or premises that are undergoing refurbishment an approved hand free type of handbasin supplied with hot and cold water through a single outlet shall be installed in the immediate area where skin penetration procedures are to be undertaken. The handbasin shall be supplied with soap and disposable paper towels.

Workspace/Preparation Area

A workspace or preparation area shall be separate from the client treatment or work area. The workspace shall have a cleaning area separated from the preparation area. There should be enough bench space to accommodate the necessary equipment (e.g., steam steriliser).

All appliances shall be positioned and stored safely to minimise the risk of an injury.

All work surfaces shall be smooth and impervious. All floors should be smooth impervious and non-slip.

The work area shall have available at least two sinks, one for hand washing and one for cleaning and decontaminating appliances.

Cleaning

All floors, floor coverings, walls, ceiling, shelves, fittings and other furniture shall be regularly cleaned and maintained in good repair. A cleaning and maintenance schedule shall be written and be available upon request by an Environmental Health Officer.

When not in use, cleaning equipment should be kept clean and dry. Buckets shall be clearly identified for their purpose. Buckets should be emptied after use, washed with detergent and hot water and stored dry. All equipment used for cleaning shall be stored separately from any appliance.

Work surfaces shall be cleaned before and after each client session.

Trays used to hold and carry instruments shall be sterilised before use.

Average Skin Thickness measurements

Site	Subject A*(mm)	Subject B*(mm)	Subject C*(mm)	AVG ABC
Upper lip	0.68 ± 0.09	1.01 ± 0.01	0.79 ± 0.16	0.83 ± 0.17
Lower lip	0.78 ± 0.21	0.83 ± 0.07	0.85 ± 0.15	0.82 ± 0.15
Philtrum	0.90 ± 0.08	0.83 ± 0.09	0.76 ± 0.09	0.83 ± 0.10
Chin	1.16 ± 0.10	1.24 ± 0.05	1.06 ± 0.11	1.15 ± 0.11
Upper eyelid	0.41 ± 0.13	0.40 ± 0.06	0.32 ± 0.05	0.38 ± 0.09
Lower eyelid	0.84 ± 0.06	1.04 ± 0.04	0.57 ± 0.05	0.82 ± 0.21
Forehead	0.90 ± 0.13	1.16 ± 0.11	1.04 ± 0.04	1.03 ± 0.15
Right cheek	1.04 ± 0.10	1.07 ± 0.06	1.11 ± 0.11	1.07 ± 0.09
Left cheek	1.11 ± 0.09	1.20 ± 0.09	1.20 ± 0.04	1.17 ± 0.08
Malar eminence	0.97 ± 0.07	1.62 ± 0.05	0.57 ± 0.04	1.05 ± 0.45
Submental	1.06 ± 0.04	0.97 ± 0.05	0.65 ± 0.09	0.89 ± 0.19
Nasal tip	1.37 ± 0.14	1.17 ± 0.09	1.11 ± 0.06	1.22 ± 0.15
Nasal dorsum	0.60 ± 0.06	0.79 ± 0.06	0.81 ± 0.09	0.73 ± 0.12
Right neck	0.55 ± 0.09	0.25 ± 0.04	0.77 ± 0.07	0.52 ± 0.23
Left neck	0.38 ± 0.04	0.43 ± 0.03	0.80 ± 0.05	0.54 ± 0.20

Subject A was an 82-year-old female subject, subject B was a 51-year-old female subject, and subject C was a 78-year-old male subject.

By using the relative thickness index (See photo on next page), surgeons have a template that describes the nasal tip skin thickness to be approximately 3.3 times thicker than the upper eyelid.

CONCLUSIONS

The relative thickness index serves as a quantitative guide for differences in skin thicknesses between areas of the face. This information can help guide reconstructive choices by matching similar skin thickness between donor and recipient sites.

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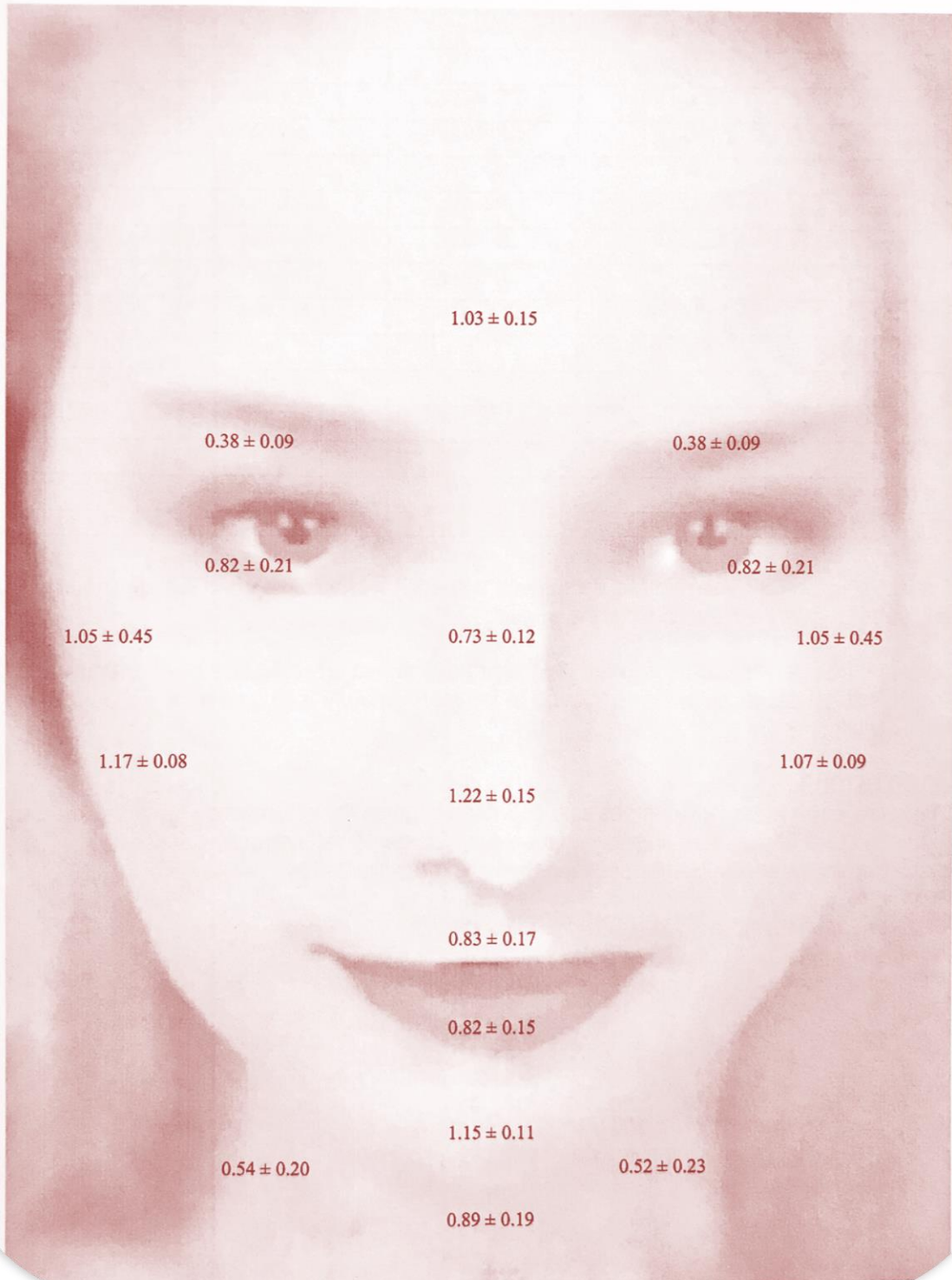
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Facial Relative Skin Thickness Map



History of Microneedling

Microneedling has been performed for many years, using a variety of instruments, to soften depressed scars and deep lines. Dr. Philippe Simonin, a Swiss French dermatologist, published his results in Baran's Cosmetic Dermatology 1994, but his ground-breaking technique, which he named Electroridopuncture (ERP), remained largely unknown to the wider medical community.

In Dr. Simonin's study of 600 patients, he examined results for two patient groups- one with skin aging and the other with old scars. He performed ten treatments on all patients. In the patient group with skin aging, 40% showed a significant improvement, 22% moderate improvement and 13% some improvement – as measured by comparative skin imprints. In the patient group with old scars, 60% improvement with 5-6 treatments. Best results were obtained for old fibrous and depressed scars.

Another pioneer of microneedling was Dr. Andre Camirand, a Canadian Plastic Surgeon who made a chance observation of improvement in the texture and depression of the scars of some of his facelift patients, who had undergone tattooing for scar camouflage.

Dr. Camirand experimented with tattooing facelift scars without pigment and noted improvements in texture and colour. He published an article on his results in JACPS in 1992.

Dr. Camirand postulated that hypochromic skin re-pigmented through transplantation of melanocytes from normal skin into the hypo chromic skin during the microneedling procedure.

He also reported flattening of hypertrophic scars. He performed his microneedling procedures using a high-speed tattoo gun, under local anaesthesia and treated each scar to pinpoint bleeding.

He repeated the procedure every 2 to 8 weeks and no side effects or complications were reported.

Clinical Studies

The earliest form of microneedling, **acupuncture**, can trace its roots to the Chinese centuries long ago. Nappage, a French skin rejuvenation technique used the past fifty years, is another form of microneedling. Micro incisions are made into the skin while placing a drop of vitamins, minerals, and antioxidants to replace depleted cellular levels.

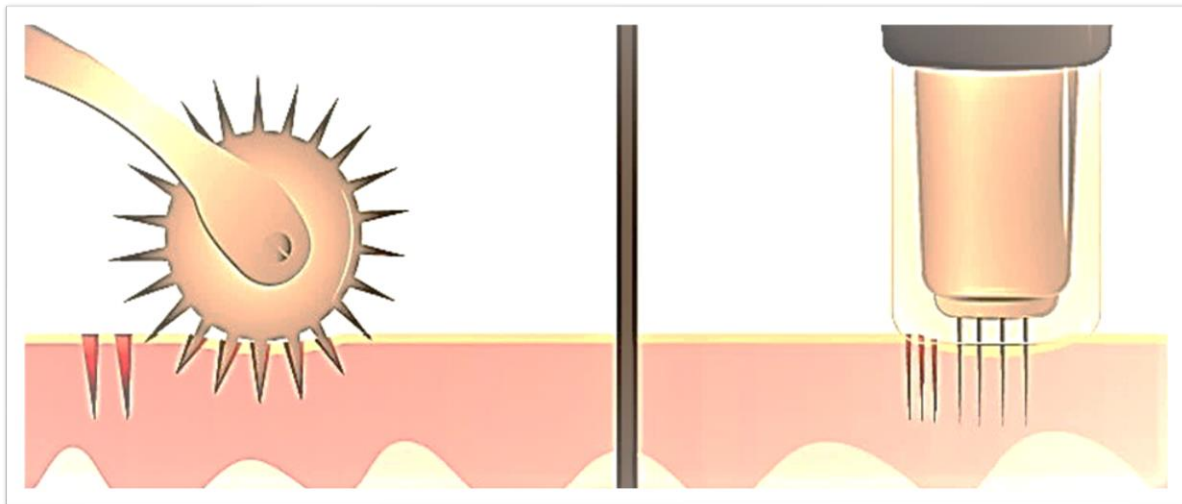
In the 1990s "subcision" with a needle was used to treat wrinkles near the lip lines. (Orentreich, 1995). In 1997, hypochromic facial scars were tattooed with a skin colour pigment. One to two years later, even after the pigment was gone, the pigment was replaced by actual melanin. The scars improved in texture, appearance and colour. (Comrade, et al.) Scars were then tattooed without pigment with the idea that breaking down the scar collagen in this manner would cause realignment and stimulate melanogenesis.

The technique of medical microneedling showed an increase in the remodelling of the skin by creating thousands of microscopic channels in the skin. This process increased the formation of new tissue by activating the body's healing cascade.

One of the microneedling procedures is that the epidermis, the protective layer of the skin, is left unharmed. In his studies, (Fernandes, 2005) promoted the fact that "we should never purposefully destroy the epidermis." The micro-channelling caused the release of growth factors that promote scar less healing. The procedure also stimulates the deposition of normal woven collagen rather than scar collagen.

The different microneedling delivery methods; however, microneedling using a **roller system**, which creates literally thousands of micro perforations through the epidermis, is the method most widely used. This method is considered safe and cost effective. The needle depths are pre-set, which means that they cannot penetrate the skin deeper than the length of the needles. The rollers are FDA approved.

“Dry” microneedling is one delivery method. Dry meaning, “no substance was used or infused into the skin” while microneedling. In this study, twenty blinded biopsies taken from 10 different patients from various parts of their body demonstrated an average increase in new fibres of 206%, one biopsy a 1000% increase was recorded.



The penetration forces (Strength) and needle length were also studied. After careful evaluation of all the biopsies, new collagen fibres were only found at the corium not deeper than 0.5mm to 0.6mm. Even though 2.0mm needles were used, no new collagen fibres were found in the sub dermal layer, thus showing that there is no benefit to using longer more evasive needles.

Another study done by Korean Dermatologist (Kim, et al, 2006) compared IPL to microneedling to evaluate collagen synthesis. Patients received three at two-week intervals. Microneedling demonstrated: 1) more skin thickness, than IPL or control, 2) histology (MT stain) more collagen fibre than IPL or control 3) and a higher collagen qualitative analysis via (ELISA, WB) than IPL or control.

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