

SYLFIRM X

Clinical Training

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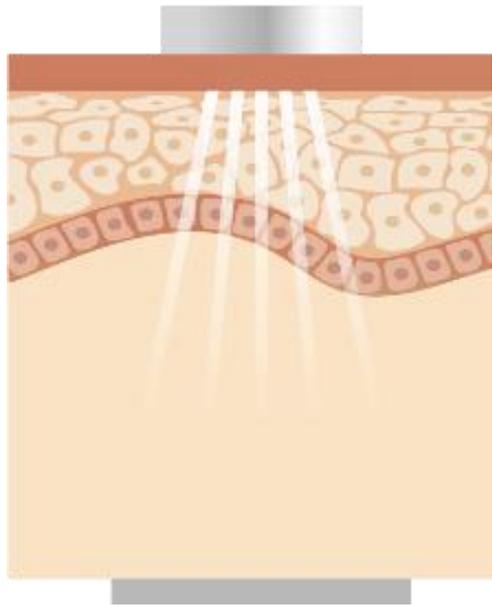
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CAUTION

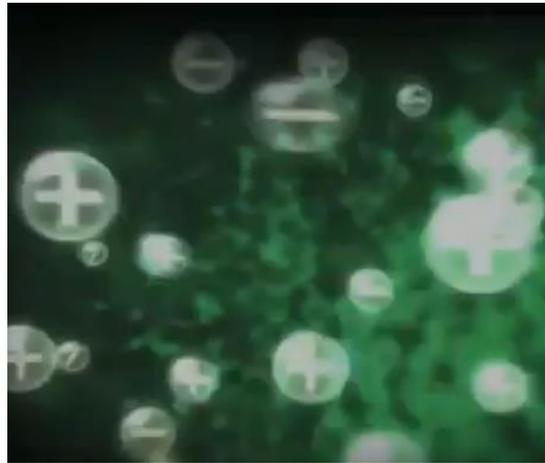
- ❖ These clinical treatment guidelines are based on physician feedback on and clinical experience with the use of SYLFIRM X, are provided for informational purposes only, and should not be considered as absolute clinical standards for all patients, lesions, or treatments.
- ❖ SYLFIRM X system should only be operated by qualified practitioners who have thoroughly read the user manual and have received appropriate training.

Radiofrequency (RF) Microneedling System

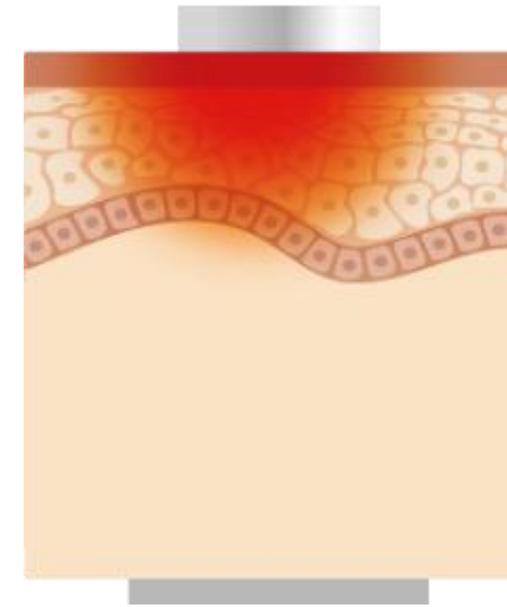
Treatment Mechanism of RF



When RF is transmitted to skin tissue,

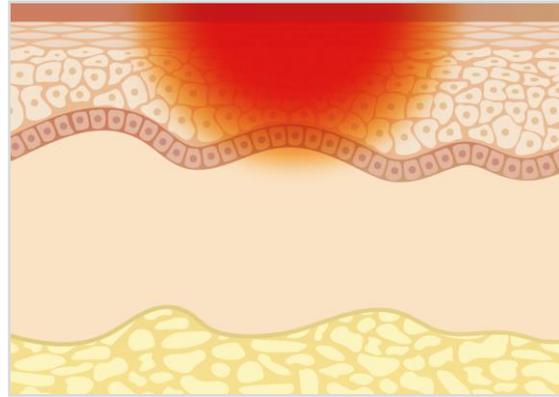


molecules in the skin create friction



and generate heat at 40-60°C, causing structural change, denaturation or coagulation of proteins and collagen, stimulating wound healing, and promoting the production of new collagen.

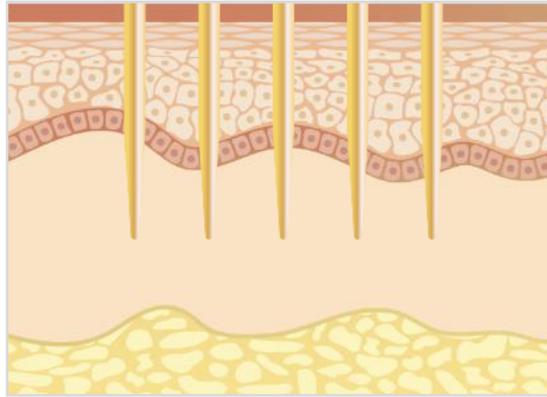
RF Microneedling System



Radiofrequency (RF)

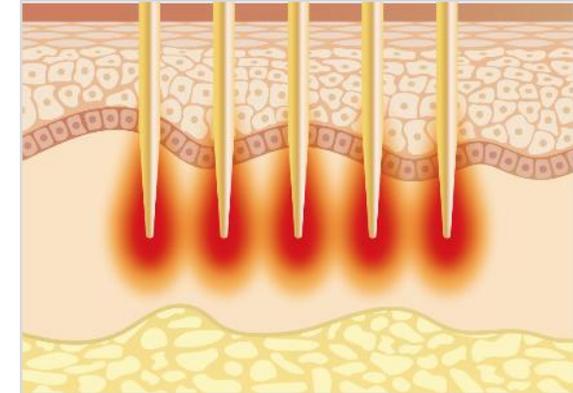
Radiofrequency (RF) is an electric current corresponding to the frequency that carry radio signals. When RF is transmitted to skin tissue, the molecules in the skin create friction, generating heat at 40-60°C. It causes structural changes, denaturation or coagulation of proteins and collagen, which promotes wound healing and stimulates collagen production.

Unlike lasers, RF is not affected by absorption coefficients of the chromophores, such as melanin. For this reason, there are almost no restrictions for RF microneedling on skin types and skin tone, such that all skin types, including dark skin, can be effectively and safely treated.



Microneedling

Microneedling induces wound healing and collagen production by creating mechanical damage to the skin. Also, the needling helps break down the scar tissue.

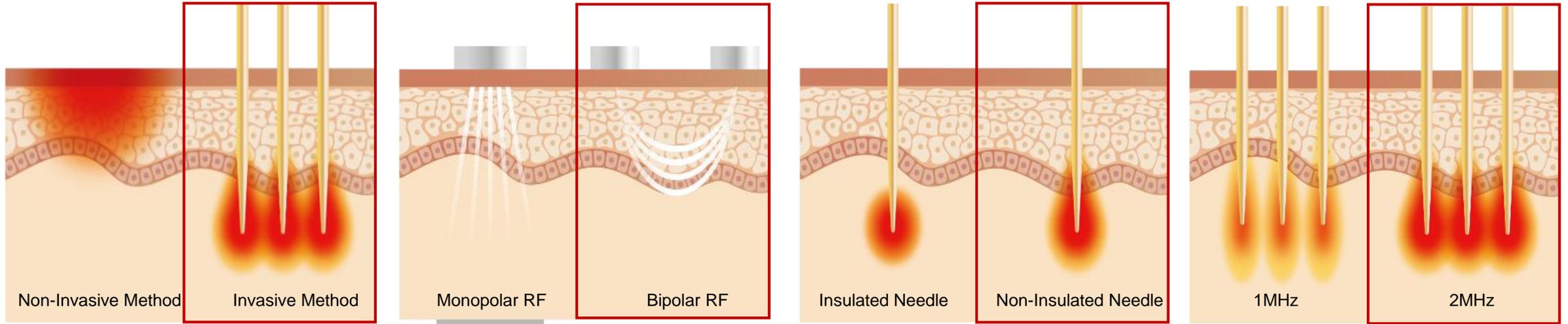


RF Microneedling System

RF microneedling is a combination of RF and microneedling into a single system to deliver RF energy precisely and deeply into the skin by creating controlled micro-injuries.

Stimulating wound healing and the production of new collagen, RF microneedling is primarily used for skin rejuvenation, tightening and lifting, and scar treatment to makes the skin look younger and better.

Types of RF Delivery and SYLFIRM X



Minimally-Invasive Method

SYLFIRM X is a minimally invasive device that utilizes microneedles to penetrate the skin and deliver RF energy in a controlled manner. As such, RF energy can be delivered to a targeted area more accurately than non-invasive methods.

In addition, since RF energy is transmitted in a fractional manner, not mere bulk heating, residual heat damage is reduced compared to non-invasive methods, allowing for faster recovery times.

Bipolar RF

Monopolar RF delivery relies on the use of one electrode and a ground pad attached to the back or leg of a patient to allow for the flow of an electric current. Although monopolar delivery can elicit therapeutic effects at deeper targets, electric flow between the electrode and the pad to other organs is a major concern.

Bipolar RF is delivered at a short distance between electrodes and does not pose a threat to other organs, making it safer to use. Still, bipolar RF delivery can generate therapeutic heating deep in the skin by controlling the depth of the microneedles.

Non-Insulated Microneedles

Microneedles for RF systems are largely divided into non-insulated needles that allow electric current to flow through the entire needle and insulated needles that transmit heat only at the tips of the needles. Compared to insulated microneedles, non-insulated needles generate heat over larger areas of skin, maximizing the therapeutic effect in the targeted tissue. In addition, non-insulated microneedles are safe from epidermal damage due to the "Na effect".

2MHz

At 2 MHz, the transmitted electrical current changes direction two million times per second. The higher the frequency, the narrower the range of generated heat and the higher the concentration of heat at the targeted tissue area, meaning that treatment at 2 MHz is more effective than that at 1 MHz.

SYLFIRM X

Main Features of SYLFIRM X



World's First Dual Wave

- Unlike conventional RF microneedling systems that only have CW, this innovative device is the world's first and only dual-wave (continuous and pulsed waves) system for skin rejuvenation, tightening, lifting, and scar treatment as well as for treating various pigmented and vascular lesions, such as melasma, diffuse redness, and rosacea, which are difficult to treat with conventional RF microneedling systems.
- Dual-wave energy delivery is subdivided into eight different modes, allowing for customized and delicate treatment in consideration of each patient's lesion, treatment area, and skin condition.

World's Only 300 μ m Targeted Therapy

- Another particularly distinguishing feature of SYLFIRM X is that it enables targeted treatment of 300 μ m (0.3mm), which belongs to the papillary dermis (upper dermis), located just below the basement membrane (boundary between epidermis and dermis), where factors affecting pigmented lesions, vascular lesions and skin rejuvenation are distributed (e.g. senescent fibroblasts, capillaries, blood vessels, and type III collagen).
- The 300 μ m targeted treatment can effectively treat melasma, diffuse redness, rosacea, uneven skin tone and texture, with less pain and less downtime.

Clinically and Technologically Proven

- 10 clinical papers related to continuous wave and 13 clinical papers related to pulsed wave
- Robust and excellent durability and high user satisfaction

Main Features of Needle Tip

Smooth & Accurate Linear Step Motor

- Smooth insertion minimizes pain and prevents bleeding or bruising.
- Precise insertion overcomes surface tension barriers without the needle being pushed back.

Elaborately manufactured Microneedle Tip

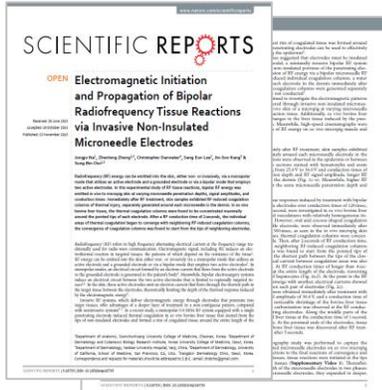
- SYLFIRM X offers the widest range of needle depth control of any existing RF microneedling systems: 0.3-4.0mm.
- SYLFIRM X uses non-insulated microneedles that provides maximized therapeutic effect and is safe from epidermal damage proven to be “Na effect”.
- SYLFIRM X’s microneedles are gold-plated and highly biocompatible.
- 300 μ m of the microneedle thickness penetrates the skin with minimal resistance while providing high energy transfer efficiency.

Ergonomically designed Handpiece

- Lightweight
- Excellent grip and comfortable use.

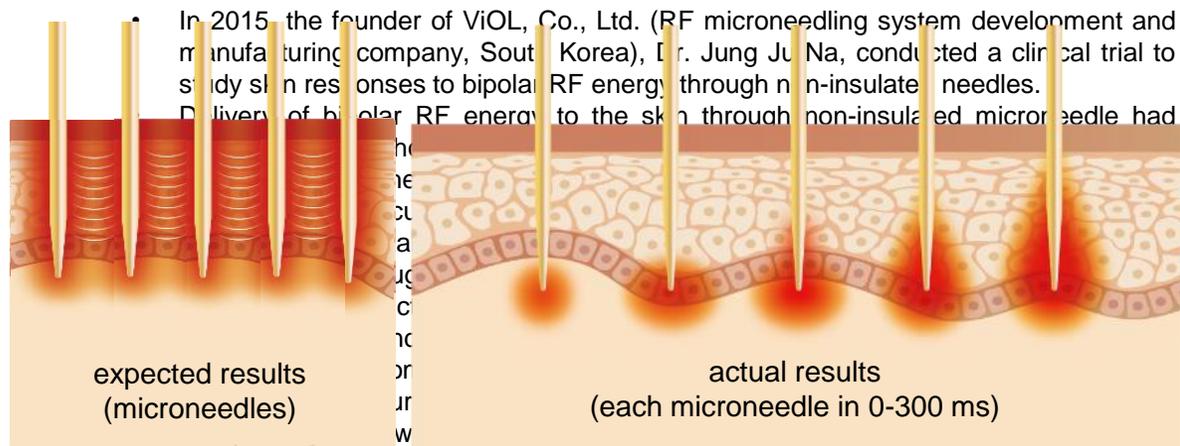


Na Effect

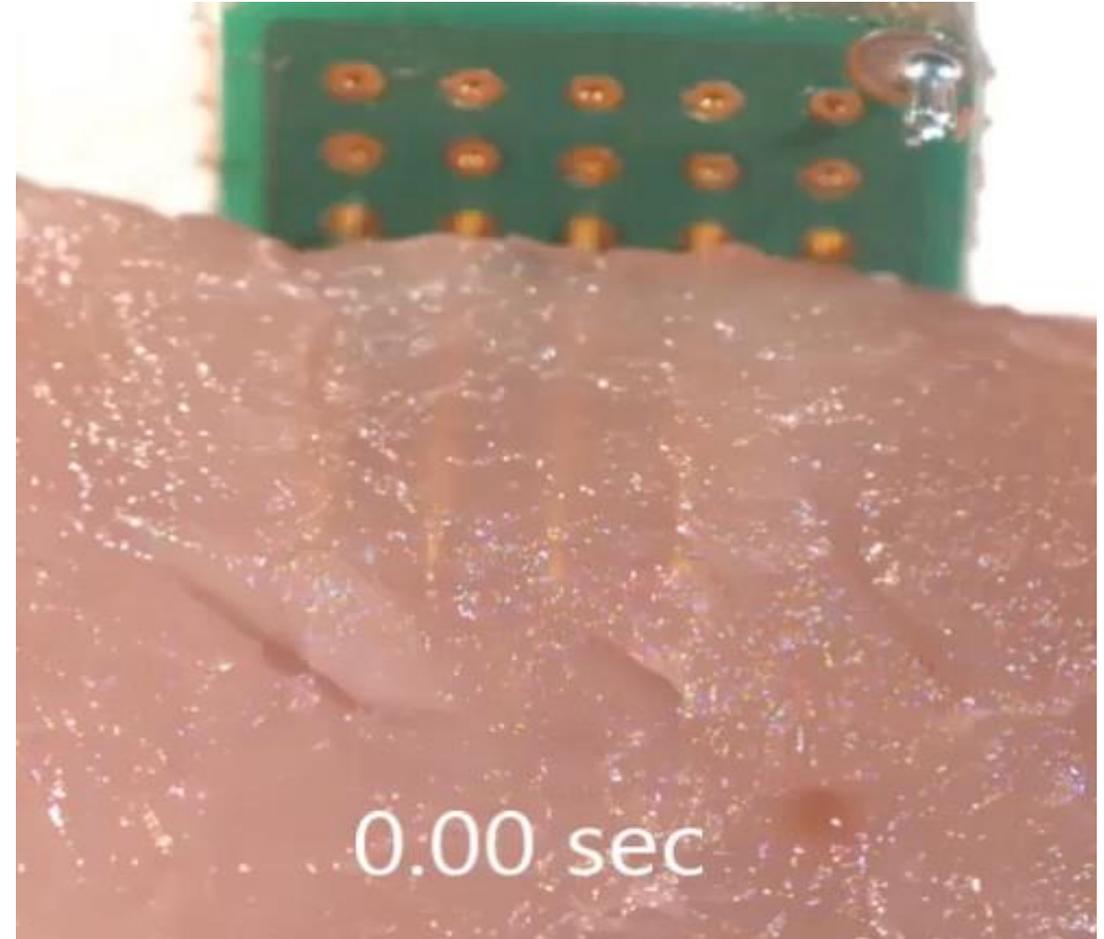


Electromagnetic Initiation and Propagation of Bipolar Radiofrequency Tissue Reactions via Invasive Non-Insulated Microneedle Electrodes **SCI(E) SCOPUS**

By Jongju Na, Zhenlong Zheng, Christopher Dannaker, Sang Eun Lee, Jin-Soo Kang, and Sung Bin Cho
 Scientific Reports, 2015, 5, 16735:
<http://doi.org/10.1038/srep16735>



target with little to no epidermal damage, enabling effective and safe treatment.

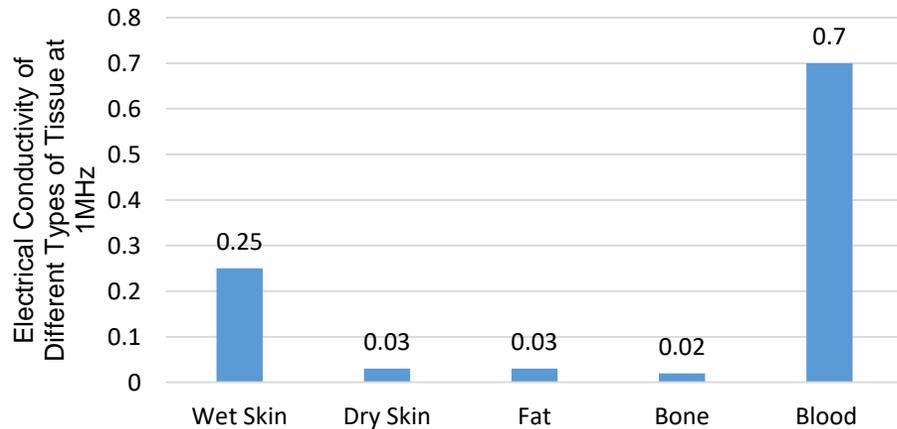


Treatment Principles

Treatment Principles

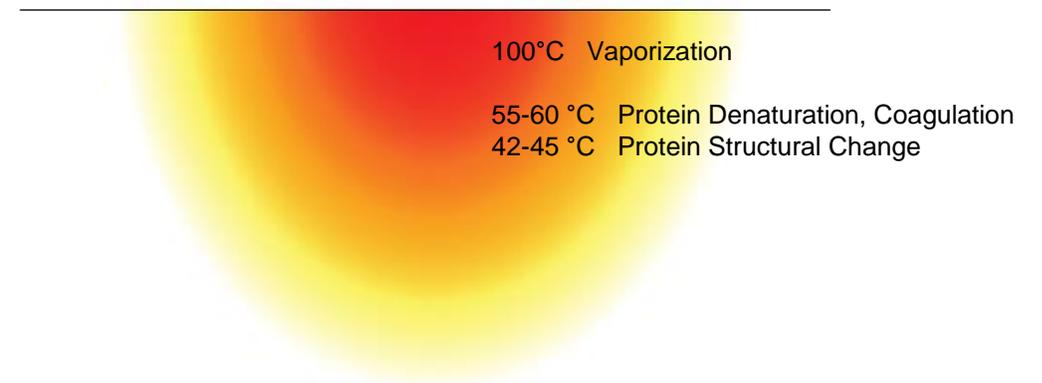
Selective Electrothermal Reactions

Impedance is, in other words, resistance. When impedance is high, conduction is low, and when impedance is low, conduction is high. Impedance varies across different tissues. As shown in the graph, blood and wet skin have relatively high conductivity, whereas fat and dry skin have low conductivity. Hence, even when given the same amount of RF energy, individual tissues exhibit different responses.



Thermal Damage and Skin Reactions

Treatment effects vary depending on the temperature reached within the skin. RF typically heats the skin to 40-60°C. Heating to 42-45°C causes structural changes in proteins, leading to tissue regeneration. Heating to 55-60°C causes denaturation or coagulation of protein and collagen, leading to tissue remodeling. Accordingly, temperature should be taken into account to achieve desired tissue reactions for treating different indications.



Dual Wave: Continuous Wave and Pulsed Wave

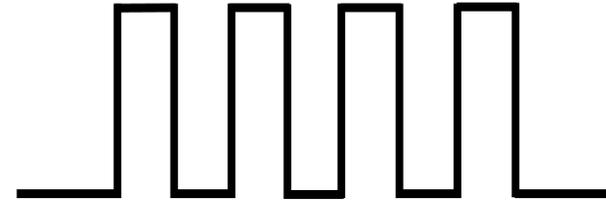
Continuous Wave (CW)

Continuous wave irradiates RF energy for a set period of time.



Pulsed Wave (PW)

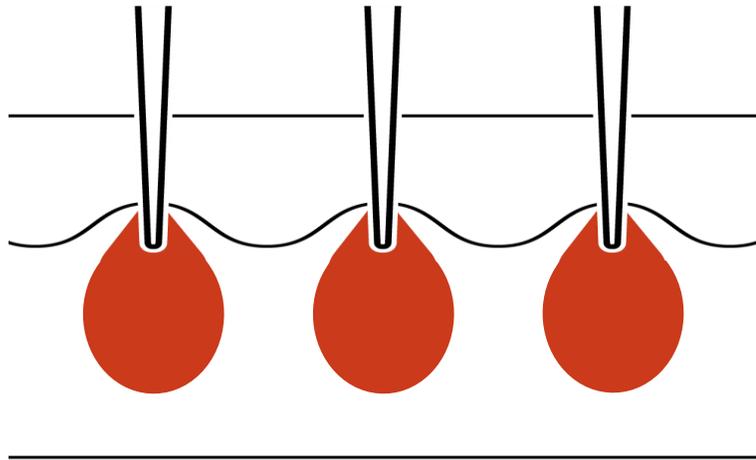
Pulsed wave emits RF energy in the form of multiple pulses.



Dual Wave and Electrothermal Reactions

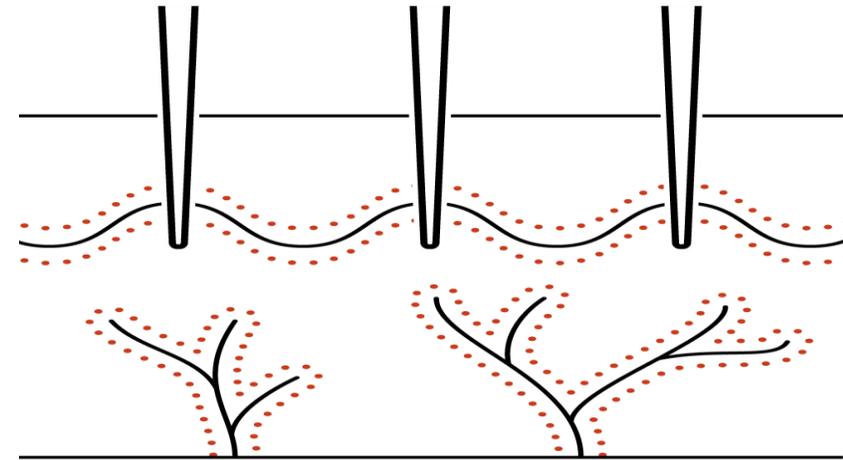
Non-Selective Thermal Reaction by CW

When RF energy is transmitted to the skin for a long time through CW, the skin tissue is non-selectively coagulated.



Selective Thermal Reaction by PW

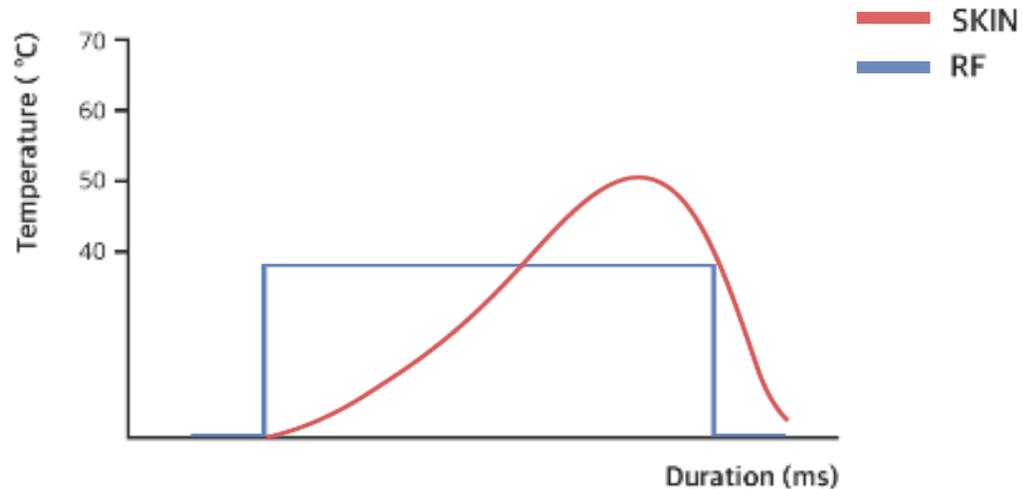
When RF energy is delivered to the skin in the form of pulses by PW, highly conductive tissues such as microvascular components, small blood vessels, or the basement membrane react and are selectively affected.



Dual Wave and Skin Reactions

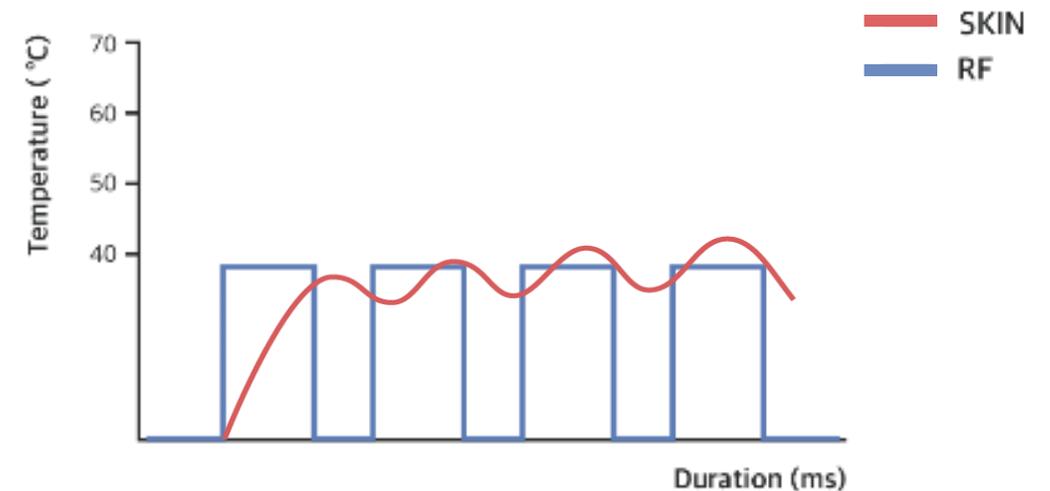
Protein Denaturation by CW

When RF energy is delivered to the skin by CW, the temperature inside the skin rises to 55-60°C. This temperature elicits denaturation or coagulation of protein and collagen, which stimulates the wound healing process and promotes tissue and collagen remodeling. It is suitable for skin rejuvenation, tightening and lifting, and scar treatment.



Protein Structural Change by PW

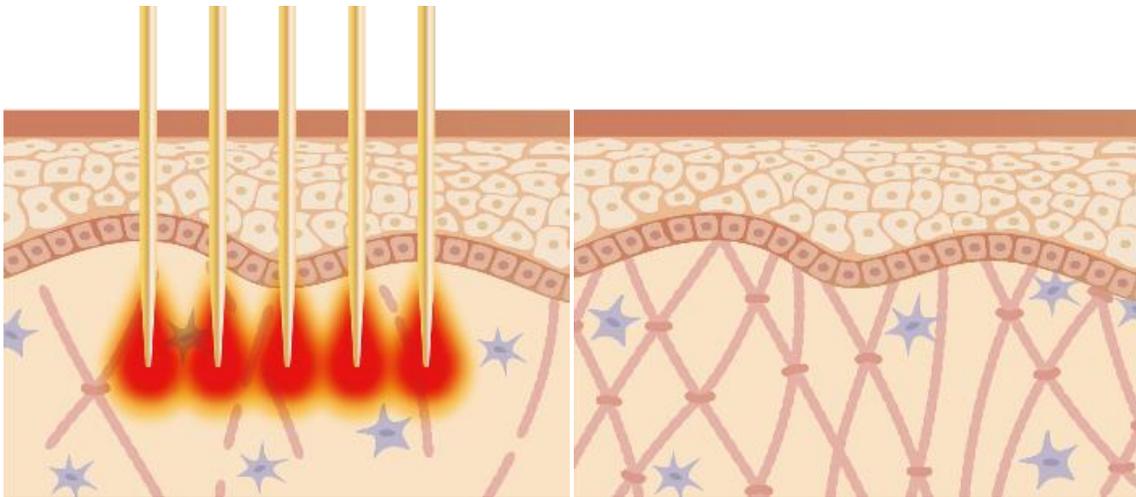
When RF energy is delivered to the skin by PW, the temperature of the skin tissue gradually rises to 42-45°C. This moderate temperature causes protein structural changes that stimulate the wound healing process and promote tissue regeneration. It is suitable for treatment of pigmented and vascular lesions such as melasma, diffuse redness, and rosacea.



Dual Wave and Treatment Mechanisms

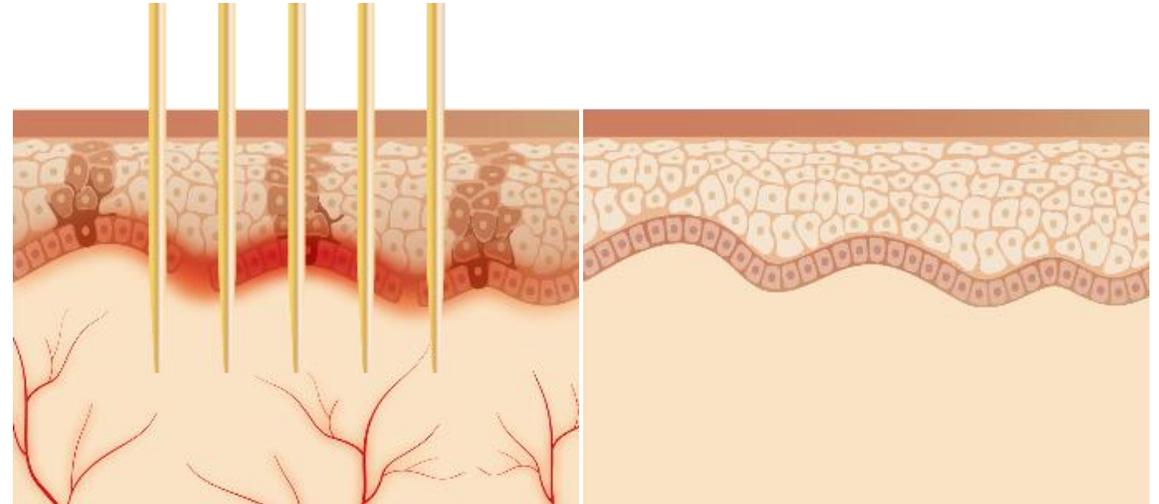
CW Treatment

Continuous wave is primarily used for skin rejuvenation, tightening and lifting, and scar treatment such as wrinkles, large pores, saggy skin, acne scars, and others.



PW Treatment

Pulsed wave is mainly used to treat pigmented lesions such as melasma and vascular lesions such as diffuse redness and rosacea.

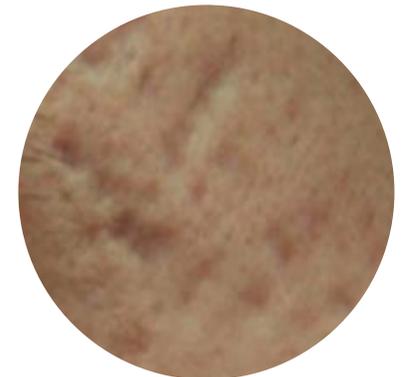


Main Applications of CW

Skin Rejuvenation, Tightening and Lifting



Scars and Stretch Marks



Main Applications of PW

Pigmented Lesions



Vascular Lesions



Inflammatory Lesions



Various Applications of SYLFIRM X

CW Treatment

Skin Rejuvenation



Tightening and Lifting



**Scars and
Stretch Marks**



PW Treatment

Pigmented Lesions



Vascular Lesions



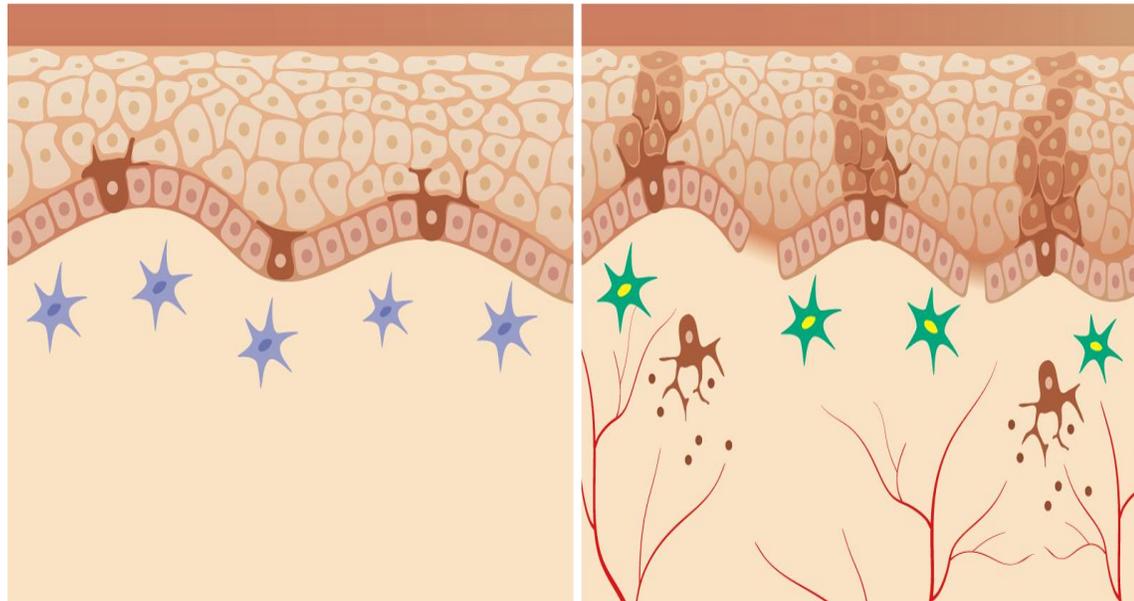
Acne Vulgaris



“All skin Types”

**“Face and
Body”**

Influencing Factors of Melasma



Normal skin

Melasma



Melanocytes



Young Collagen



Vasculature



Senescent fibroblast

Hyperactive Melanocytes

- UV irradiation stimulates melanogenesis by directly affecting melanocytes. An increase in the amount of melanin caused by overactive melanocytes is found in patients with melasma.

Disrupted Basement Membrane

- Metalloproteinases-2 (MMP2) mRNA levels, which are thought to degrade type IV collagen and lead to disruption of basement membrane structures, were found to be significantly upregulated in melasma patients. Also, disrupted basement membrane may cause pendulous melanocytes.

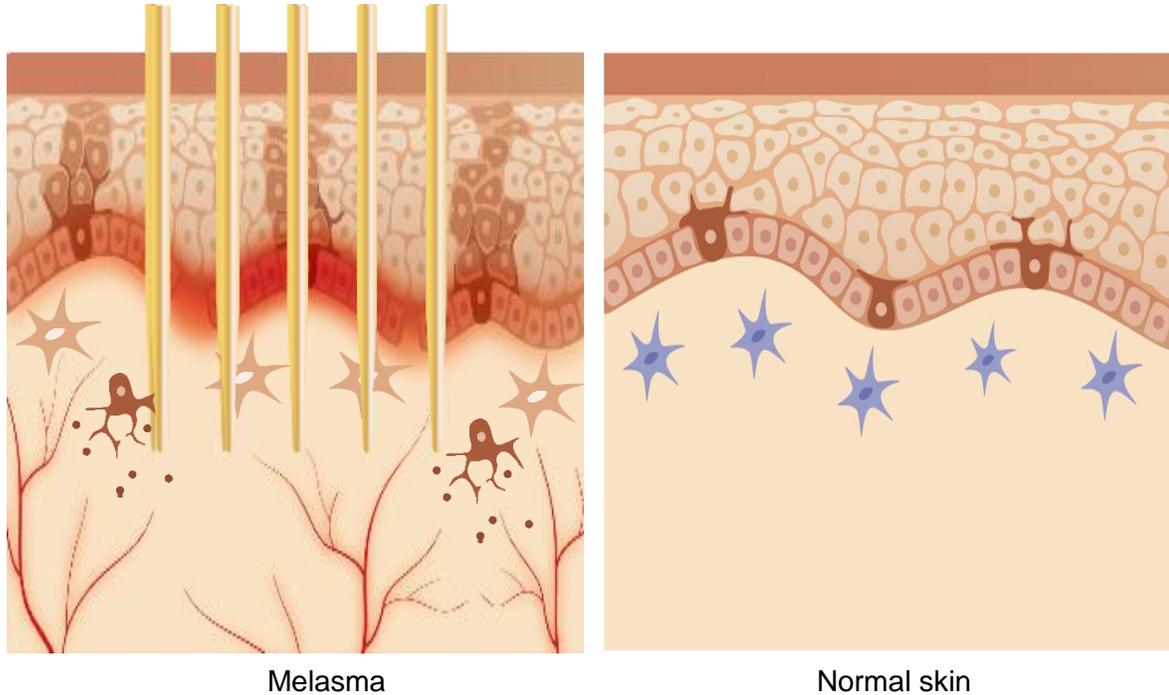
Increased Vasculature

- An increase in the number of dilated blood vessels and a prominent vascular endothelial growth factor (VEGF) were observed in the melasma lesion compared to the perilesional normal skin. VEGF is an angiogenic factor in the skin and is thought to directly affect melanocyte behavior through its receptor.

Increased Senescent Fibroblasts

- Accumulation of UV irradiation is associated with senescent fibroblasts, which lead to upregulation of melanogenic factors. It has been found that a large number of senescent fibroblasts are distributed throughout the upper dermis of melasma lesions.

Influencing Factors of Melasma



Regulation of Hyperactive Melanocytes

- PW treatment alleviates hyperactive melanocyte activity by improving factors that affect melanogenesis.

Strengthen Disturbed Basement Membrane

- PW treatment stimulates the basement membrane to improve interactions between the epidermis and dermis and improves pendulous melanocytes.

Reduction of Increased vascularization

- PW treatment eliminates dilated vessels and VEGF that affect melanogenesis, ultimately improving melasma.

Reduction of Senescent Fibroblasts

- PW treatment stimulates senescent fibroblasts that affect melanogenesis, ultimately improving pigmentation.

Options for Melasma Treatment using Energy-Based Devices

Considerations	SYLFIRM X (PW)	Conventional RF (CW)	Long-Pulsed Laser (Genesis)	Q-Switched Laser (Laser Toning)
Symptoms				
• Removal of Pigments	Δ	X	X	v
Influencing Factors				
• Regulation of Hyperactive Melanocytes	v	X	X	X
• Strengthen of Damaged Basement Membrane	v	X	Δ	X
• Removal of Increased Vasculature	v	X	v	X
• Reduction of Increased Senescent Fibroblast	v	X	X	X
• Increase of Collagen	v	Δ	Δ	X
Procedures				
• Pain	↓	↑	↓	↓
• Downtime	↓	↑	↓	↓
• Side Effects	↓	↑	↓	↓



PW and Basement Membrane, Vasculature

Accepted: 1 January 2018
DOI: 10.1111/srt.12433

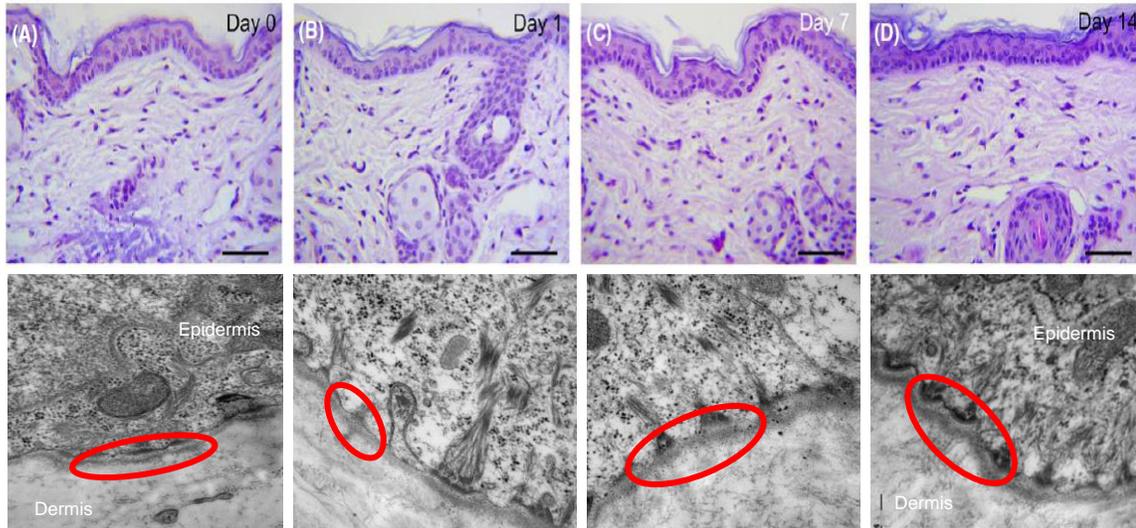
ORIGINAL ARTICLE

WILEY

In vivo skin reactions from pulsed-type, bipolar, alternating current radiofrequency treatment using invasive noninsulated electrodes

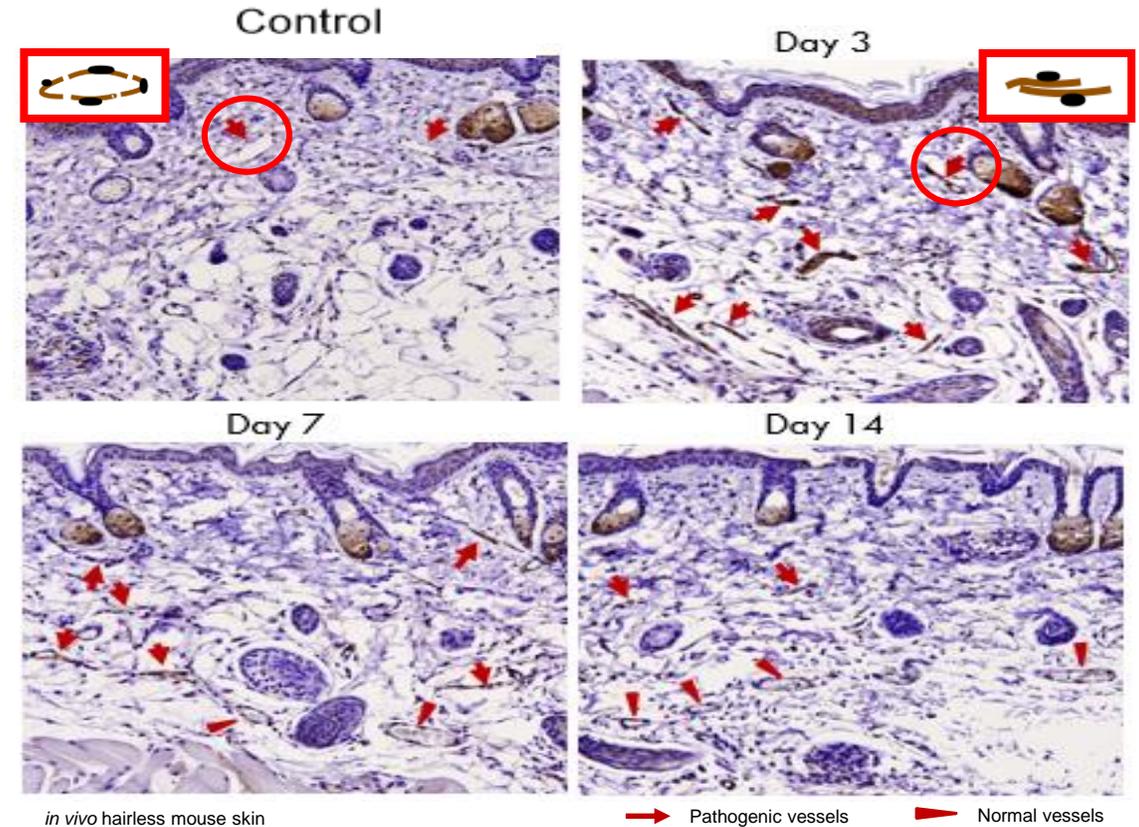
S.B. Cho^{1,2} | J. Na³ | Z. Zheng^{1,4} | J.M. Lim⁵ | J.-S. Kang² | J.H. Lee⁵ | S.E. Lee⁵

Immunohistochemical staining for type IV collagen highlighted moderate thickening of the basement membrane.



in vivo hairless mouse skin

After pulsed-type bipolar treatment, pathogenic vessels are selectively contracted and collapsed. In normal vessels, there was no effect after treatment, but the blood flow was increased.



PW and Photoaged Pigmentation



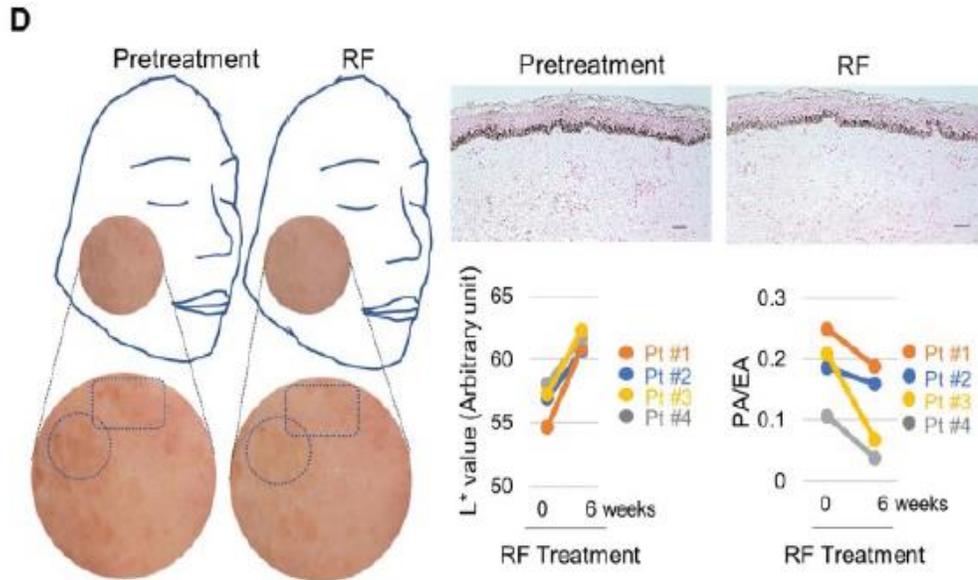
2018; 8(17): 4620-4632. doi: 10.7150/thno.26975

Research Paper

Senescent fibroblasts drive ageing pigmentation: A potential therapeutic target for senile lentigo

Jung Eun Yoon^{1,4}, Yeongeun Kim^{2,4}, Soohyun Kwon², Misun Kim², Young Hwa Kim¹, Jang-Hee Kim³, Tae Jun Park^{1,4,5,6}, Hee Young Kang^{2,4,6}

Pigmentation was improved by improving SDF1 deficiency and excessive senescent fibroblasts that stimulate melanogenesis after pulsed- RF treatment for senile lentigo.



*L : lightness
*PAVEA : the pigmented area per epidermal area

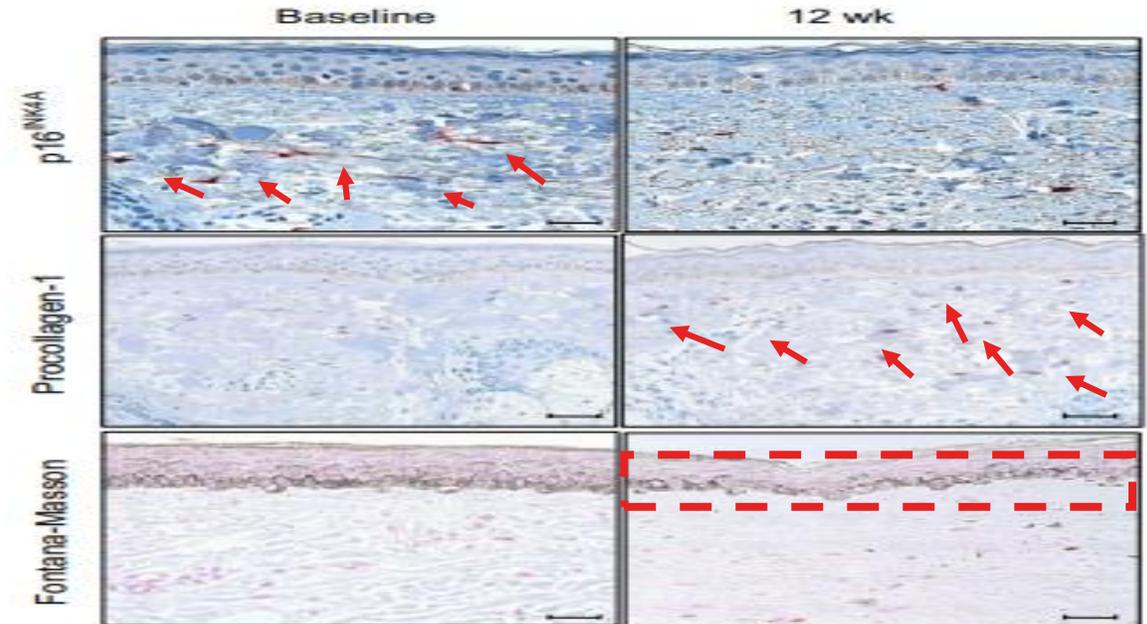
ORIGINAL ARTICLE

WILEY Experimental Dermatology

Senescent fibroblasts in melasma pathophysiology

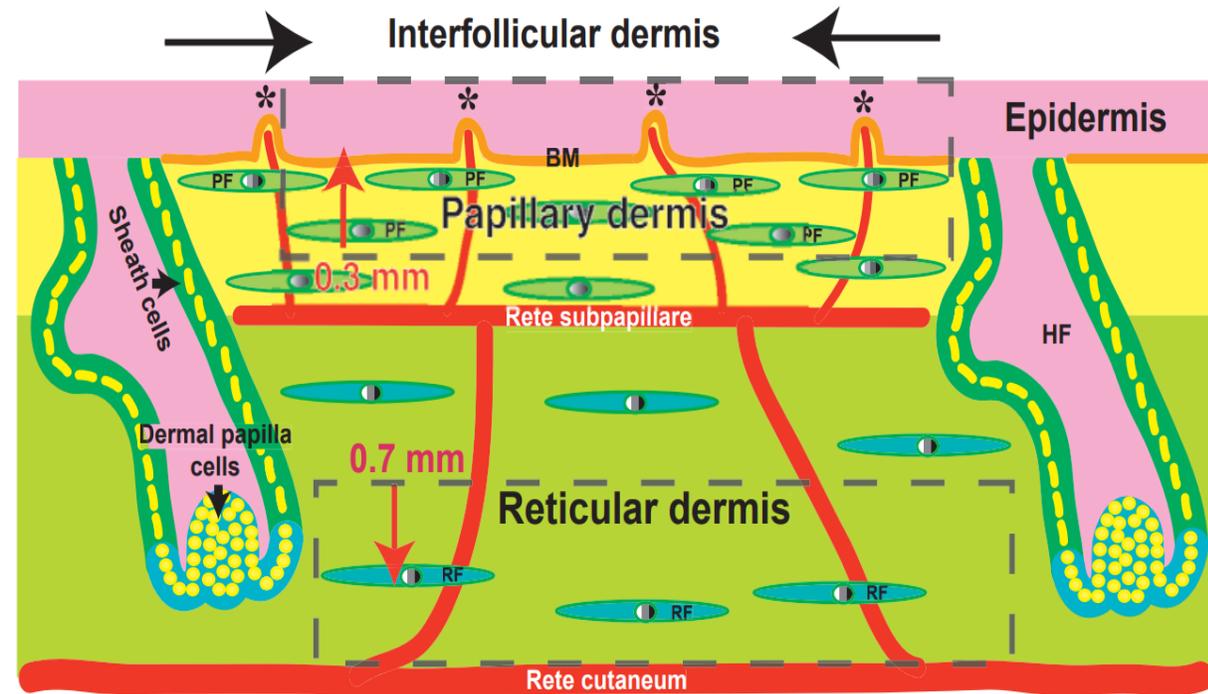
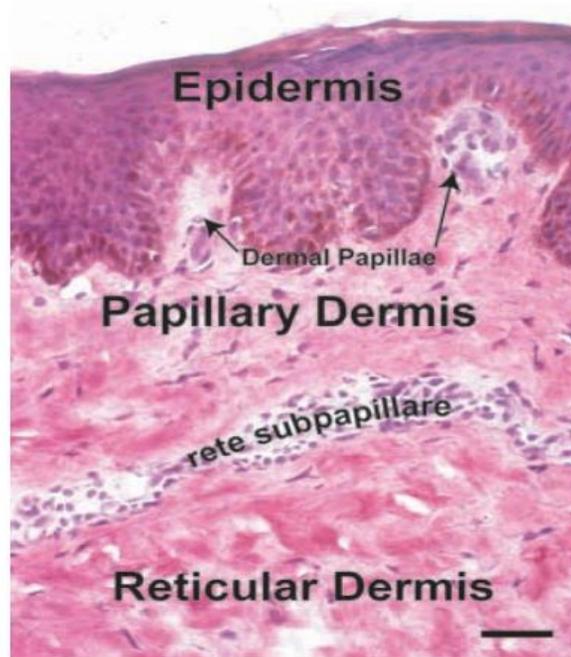
Misun Kim¹ | So Min Kim¹ | Soohyun Kwon¹ | Tae Jun Park^{2,3,4} | Hee Young Kang^{1,4}

After pulsed-RF treatment for melasma, age-related pigmentation, senescent fibroblasts that stimulates melanogenesis were reduced, resulting in improved pigmentation.



*P16INK4A : a marker of cellular senescence
*Procollagen : collagen precursor

Papillary Dermis at a depth of $300\mu\text{m}$ (0.3mm)



- The papillary dermis (upper dermal layer) is located just below the basement membrane (the boundary between the epidermis and the dermis) at a skin depth of $300\mu\text{m}$ or 0.3mm.
- It contains factors associated with pigmented lesions, vascular lesions and skin rejuvenation such as senescent fibroblasts, capillaries and blood vessels, and type III collagen.
- The $300\mu\text{m}$ targeted treatment can effectively treat melasma, diffuse redness, rosacea, uneven skin tone and texture, with less pain and less downtime.

Papillary Dermis and Photoaged Pigmentation

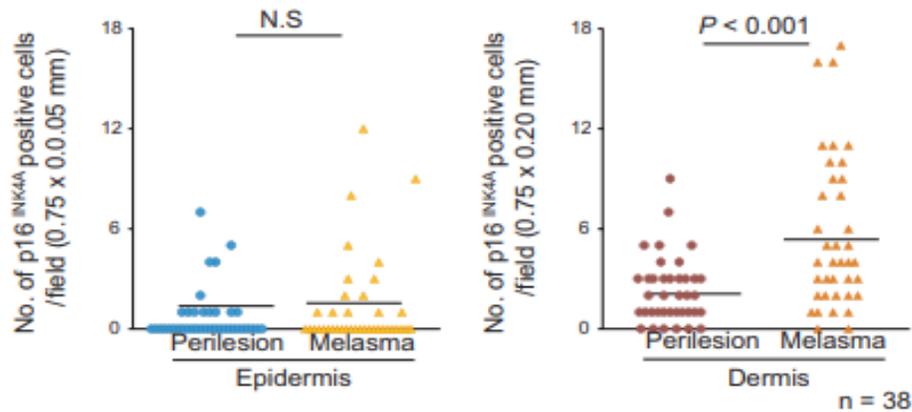
ORIGINAL ARTICLE

WILEY Experimental Dermatology

Senescent fibroblasts in melasma pathophysiology

Misun Kim¹ | So Min Kim¹ | Soohyun Kwon¹ | Tae Jun Park^{2,3,4} | Hee Young Kang^{1,4} 

Senescent fibroblasts, which stimulates melanogenesis, are distributed across melasma lesions, unlike the perilesional area, and are more readily found in the papillary dermis than in the reticular dermis.



IVYSPRING INTERNATIONAL PUBLISHER

Theranostics

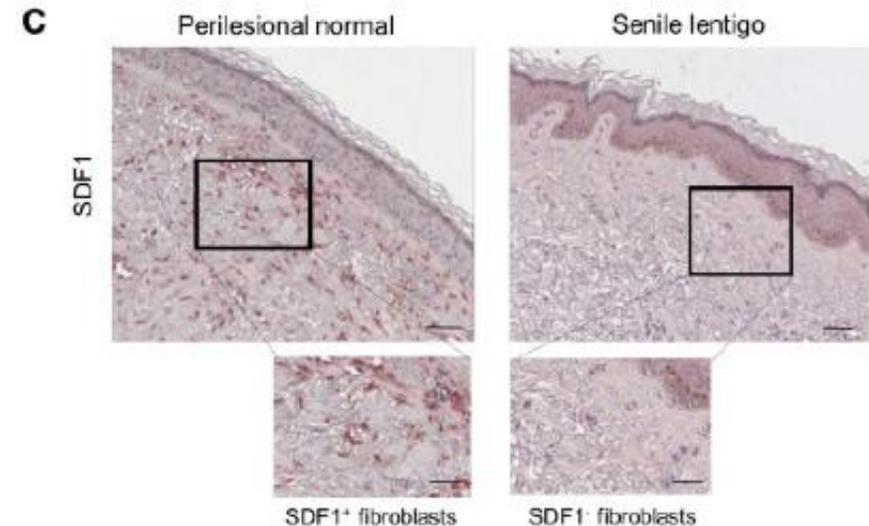
2018; 8(17): 4620-4632. doi: 10.7150/thno.26975

Research Paper

Senescent fibroblasts drive ageing pigmentation: A potential therapeutic target for senile lentigo

Jung Eun Yoon^{1,4}, Yeongeun Kim^{2,4}, Soohyun Kwon², Misun Kim², Young Hwa Kim¹, Jang-Hee Kim³, Tae Jun Park^{1,4,5}, Hee Young Kang^{2,4}

In addition, the expression of SDF1 mRNA is smaller in senescent fibroblasts than in normal fibroblasts.



*P16INK4A : a marker of cellular senescence

*SDF1 : stromal derived factor-1, a chemokine that regulates tissue homeostasis and inflammatory responses

Device Preparation

Device Preparation



Cable Connection

Make sure the power cable, handpiece cable and foot switch cable are securely connected to the back of the device.



Power Button

Press "I" to turn on the main power switch on the back of the device.
Press the power button on the top left of the front of the device.



Foot Switch

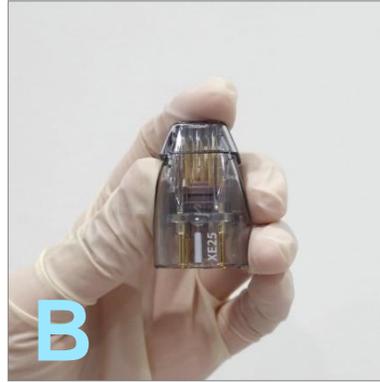
Place the foot switch near where the practitioner will sit.

Needle Tip Guide

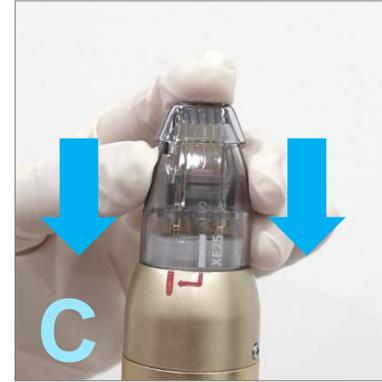
BEFORE



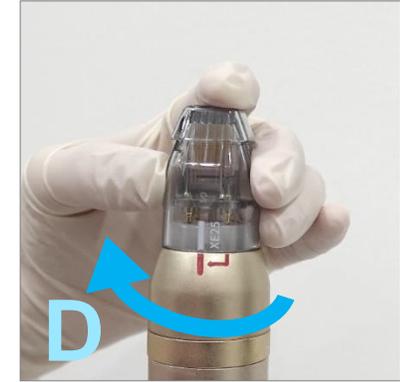
Remove the sterile packaging prior to the procedure.



Caution: Do not open the tip cap immediately after opening the tip.



Align the line of the tip with the L-shaped line of the handpiece and connect while pressing.

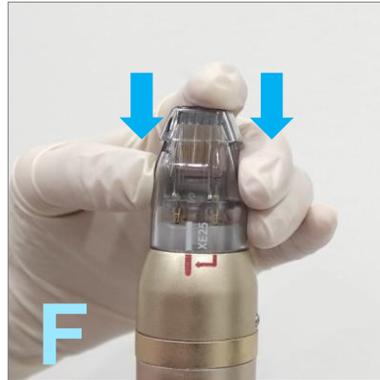


Turn clockwise to secure the tip.

AFTER



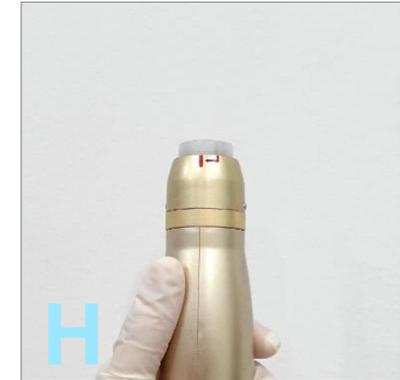
CAUTION: Do not remove the tip without the cap after the procedure.



Close the tip cap.



Turn it counterclockwise to align the tip line with the L-shaped line on the handpiece.



Remove the tip from the handpiece.

Precautions

Keep the tip cap closed at all times except during treatment.



When connecting and removing the tip with the cap removed,



The needle protrudes out of the tip.

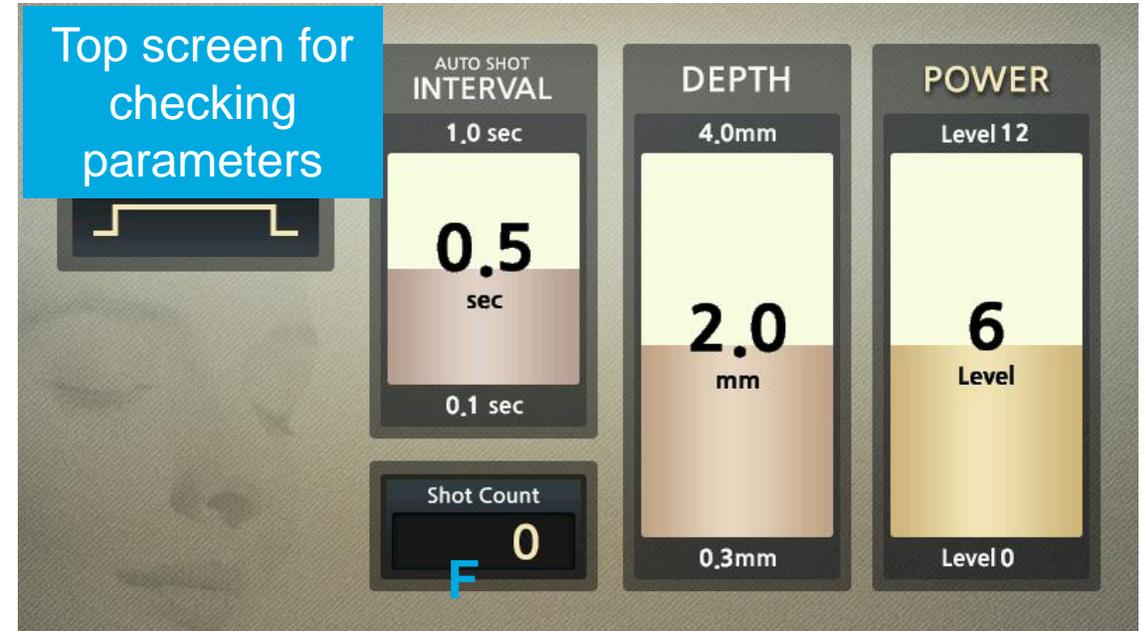


After the tip is connected to the handpiece, the protruding needle cannot be inserted back into the tip until the tip is removed.

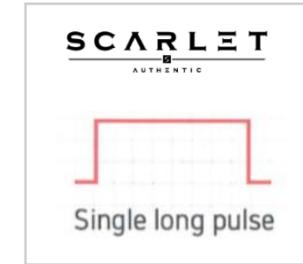
This product is a disposable sterilized medical device, and used products must be discarded.
Viol Co., Ltd. is not legally responsible for any problems caused by reuse.

User Interface

Name	Function	Range
A INTERVAL	Time interval between shots	0.1-1.0 sec
B DEPTH	Needle depth	0.3-4.0 mm
C POWER	RF power	level 0-12
D SINGLE/AUTO	To set single or continuous shot irradiation. Pressing down the foot switch fires only one shot in single state and continuous shots at set intervals in auto state.	
E STANDBY/READY	To start the operation	
F SHOT COUNT/RESET	To check/reset the number shots used	



8 Modes and Main Applications



Continuous Wave Mainly for Skin Rejuvenation & Scar Treatment			Pulsed Wave Mainly for Pigmented & Vascular Lesions		
Mode	Pulse Duration	Main Applications	Mode	Pulse Duration	Main Applications
CW1 	120 ms	Scalp	PW1 	30 ms	Melasma, Diffuse Redness (sensitive)
CW2 	160 ms	Face	PW2 	40 ms	Melasma, Diffuse Redness
CW3 	200 ms	Body, Scar	PW3 	50 ms	Telangiectasia
CW4 	300 ms	Body, Scar	PW4 	60 ms	Acne Vulgaris

Needle Depths

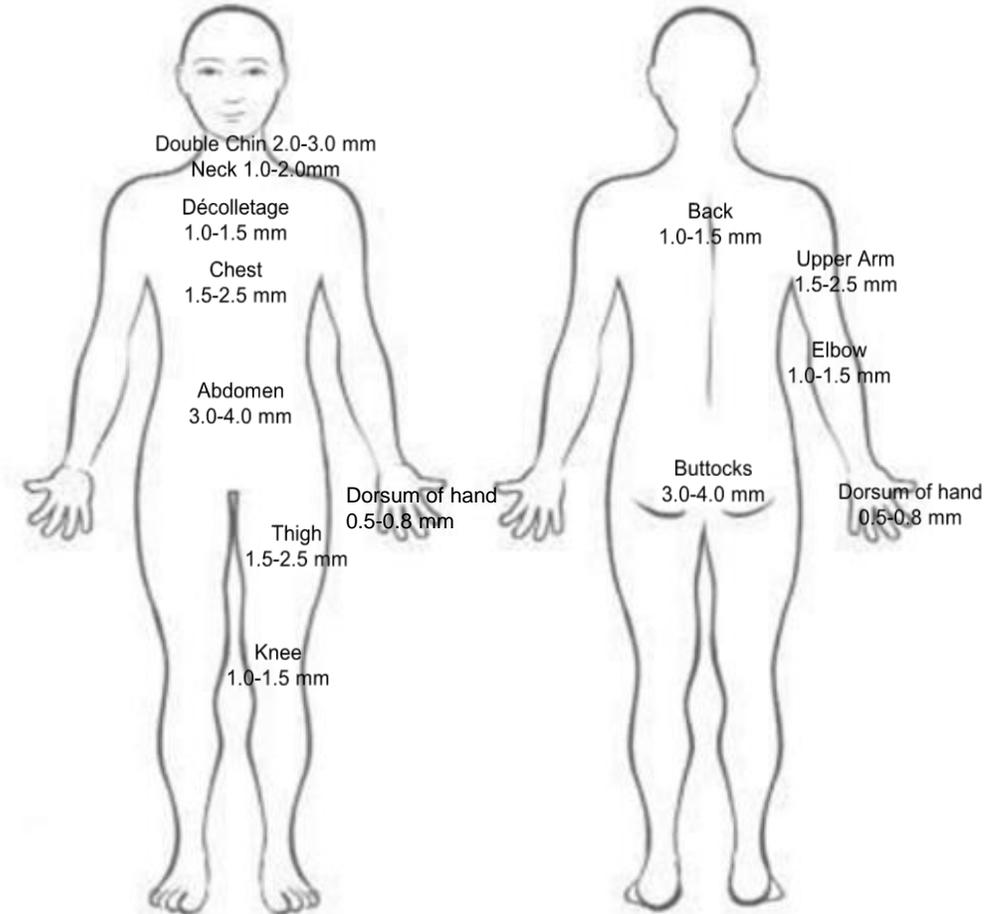
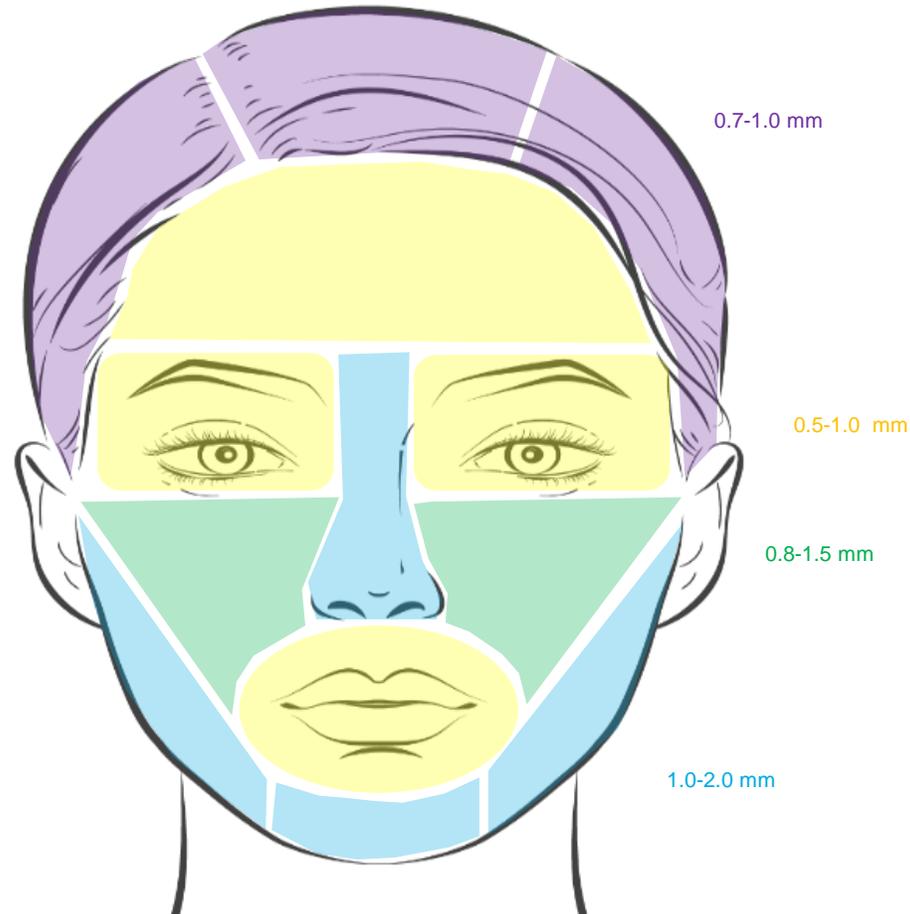
300 μ m (0.3mm) Targeted Treatment

- Melasma
- Diffuse redness

Different Depths depending on the Treatment Area

- Scalp: 0.7-1.0 mm
- Forehead: 0.5-1.0 mm
- Periorbital area: 0.5-1.0 mm
- Malar area: 0.5-1.0 mm
- Cheeks: 0.8-1.5 mm
- Nose: 0.8-1.5 mm
- Perioral area: 0.5-1.0 mm
- Mandibular area: 1.0-2.0 mm
- Double chin: 2.0-3.0 mm
- Neck: 1.0-2.0 mm
- Décolletage: 1.0-1.5 mm
- Chest: 1.5-2.5 mm
- Back: 1.0-1.5 mm
- Abdomen: 3.0-4.0 mm
- Buttock: 3.0-4.0 mm
- Upper arm: 1.5-2.5 mm
- Elbow: 1.0-1.5 mm
- Dorsum of hand: 0.5-0.8 mm
- Thigh: 2.0-3.0 mm
- Knee: 1.0-1.5 mm

Different Depths depending on the Treatment Area



Considerations with Needle Depths

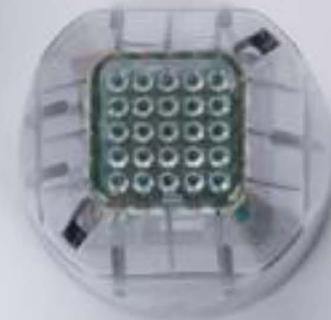
- If the skin is relatively thin or the patient complains of pain, use a lower depth than indicated above.
- For treating deep wrinkles, deep scars or fat, targeting the location of specific lesions, or for a more dramatic lifting effect, a deeper depth than indicated above may be used at the discretion of the physician. However, special attention is required and above all, it is important to carefully adjust the needle depth in consideration of each patient's skin thickness in the treatment area and treatment safety.

New Tip

X Tip (Original Tip)
5x5 (25) pins, 2mm spacing



XE (Eye) Tip
5x5 (25) pins, 2mm spacing



NEW

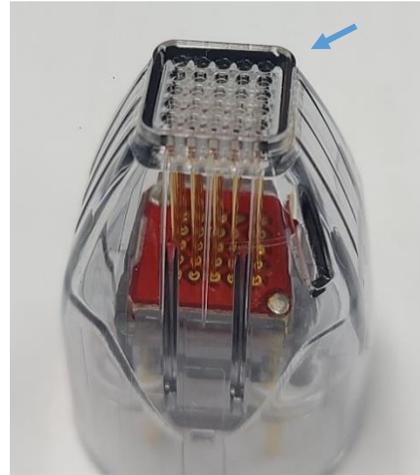
Differences between Original Tip and New Tip

- The rim protrudes, the needles is less slippery and needle insertion is easy even with little force.

Original Tip



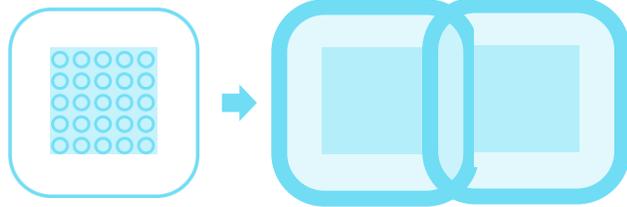
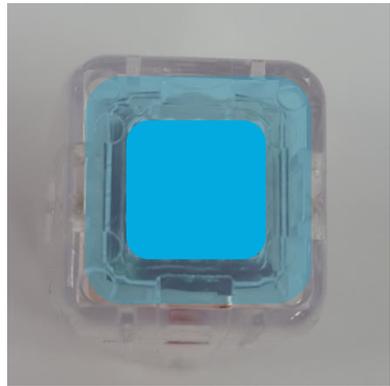
New tip



Differences between Original Tip and New Tip

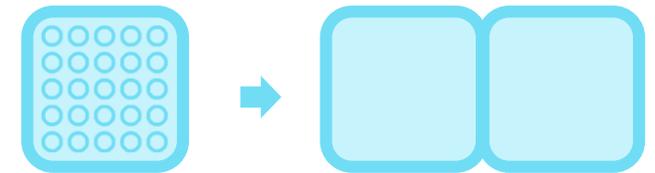
➤ The dead space on the edge is eliminated to make the overlapping easier.

Original Tip



20-30% overlapping

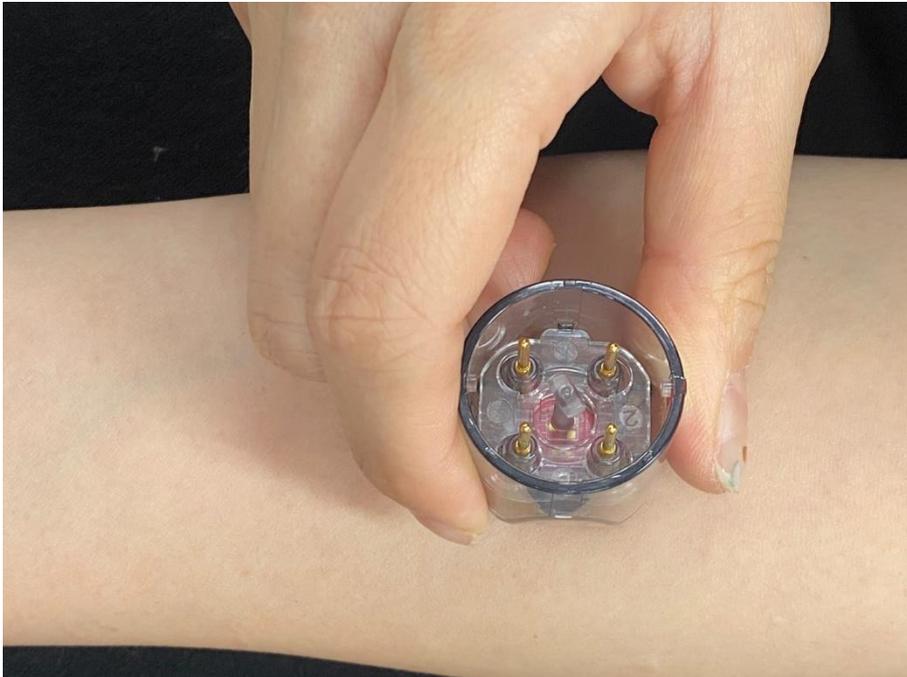
New Tip



No overlapping

Differences between Original Tip and New Tip

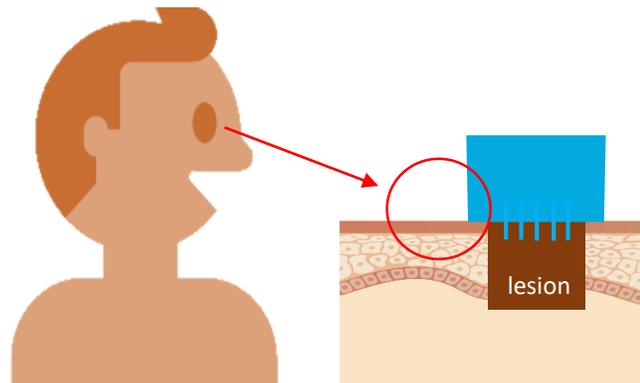
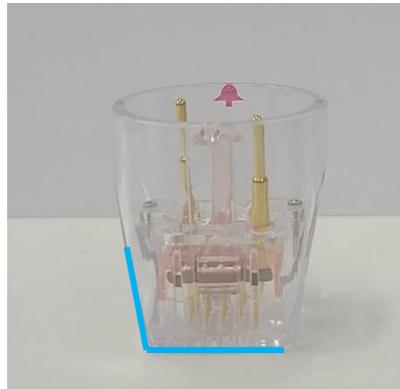
- It is easy to identify the location where the RF was irradiated because the mark of the rim remains.



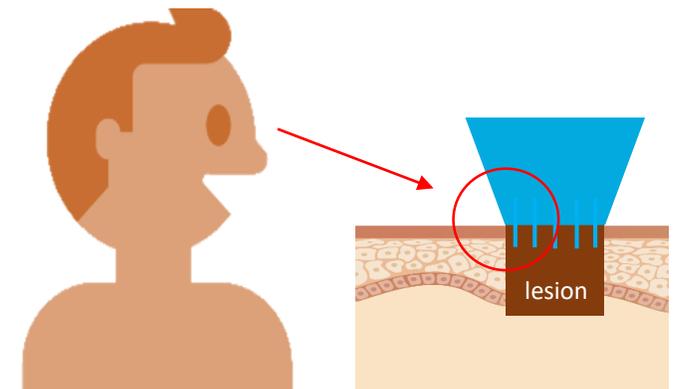
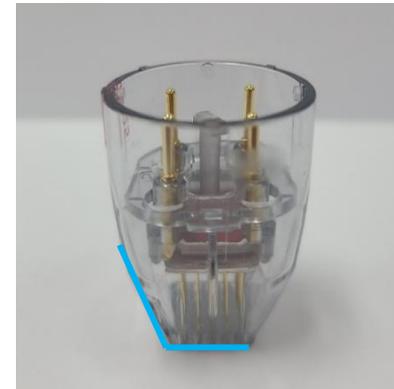
Differences between Original Tip and New Tip

➤ The side of the needle tip is inclined to improve visibility of the treatment area during the procedure.

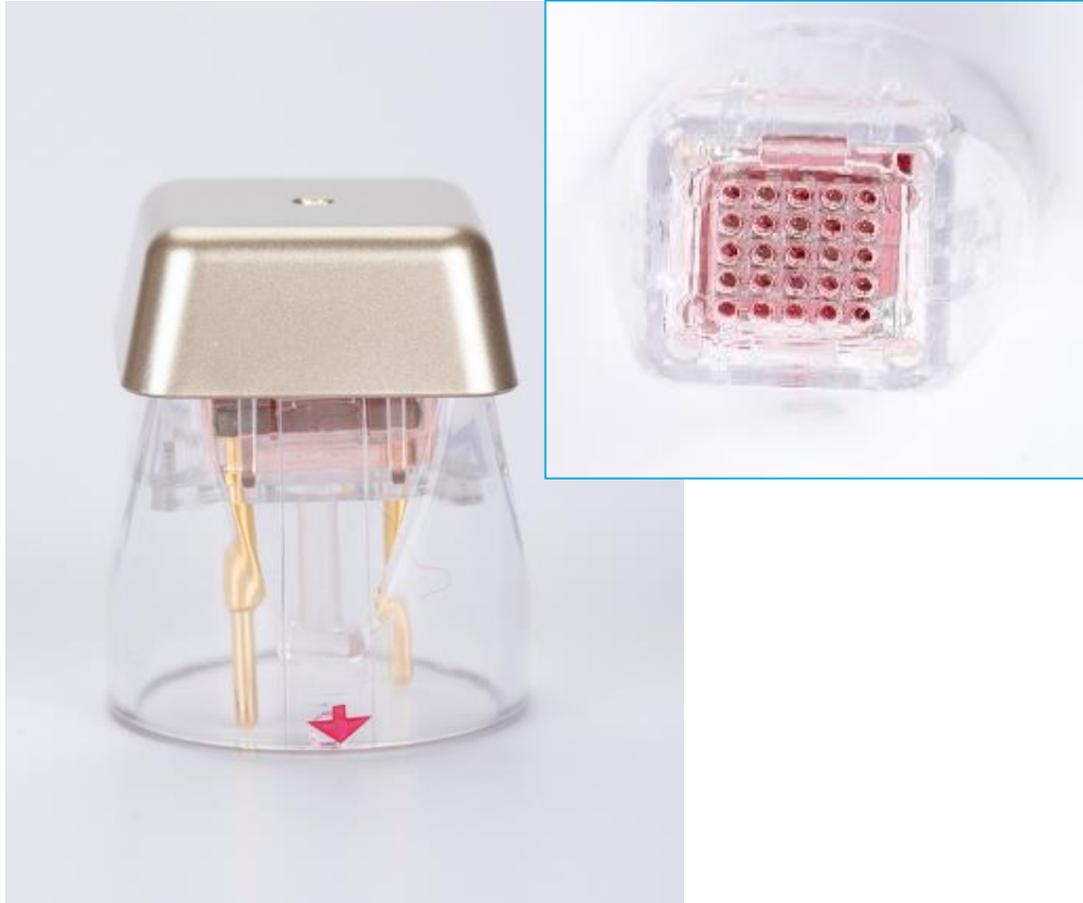
Original Tip



New Tip



X Tip: 5x5 (25) pins, 2mm spacing



- X tip is **the original tip** of SYFIRM X.

Applications

- All indications and treatment areas

Remarks

- 20-30% overlap, considering a dead space on the edge.

XE Tip: 5x5 (25) pins, 2mm spacing



- SYLFIRM X needle tip for Eye Treatment

Features

- Energy transferred per area is same as X tip.
- But, eased overlapping and improved visibility of the treatment area during procedure, due to the removed dead space on the edge and the inclined side of the needle tip.

Applications

- All indications and treatment areas
- Narrow or small area (e.g. periorbital area, perioral area)

Treatment Protocols

- Use the same parameters as X tip.
- Desired endpoint : mild to moderate erythema
- Adjust the power according to skin reaction.

Remarks

- No overlap.

Treatment Procedures

Treatment Procedures



Consultation (5-10 min)

During consultation, the physician should discuss the patient's main concerns, check their medical history, provide treatment information, and obtain patient consent.



Pre-Treatment Care (10-30 min)

The clinician prepares the device. In the meantime, the patient removes makeup, washes the face, takes photos of the treatment area, and applies an anesthetic cream.



RF Microneedling Treatment (10-20 min)

Considering the patient's lesion, treatment area and skin condition, set parameters and perform RF microneedling treatment.



Post-Treatment Care (5-10 min)

Immediately after the procedure, use an ice pack or facial mask to calm the treated skin and apply a product that is good for skin recovery. Provide the patient with instructions for post-treatment care.

01

Consultation



During Consultation



Patient History

- Evaluate the lesion and skin.
- Discuss the patient's main concerns, goals and expectations.
- Check medical history related to treatment.
 - Current or previous medical conditions, illnesses, or diseases
 - Current medications, vitamins, herbal supplements
 - Alcohol, tobacco, and drug use
 - Medical/non-medical treatment performed recently or previously at the treatment site



Treatment Information

- Provide the patient with the following treatment information:
 - Diagnosis
 - Treatment plan and process
 - Estimated number of treatment sessions and time interval between sessions
 - Instructions before and after treatment
 - Normal skin reactions after treatment
 - Expected outcomes
 - Potential adverse effects



Informed Consent

- When the patient is provided with sufficient information about the lesion and treatment, a consent form must be signed.

During Consultation

Contraindications

- Patients with a current history of skin cancer or other cancer or undergoing cancer treatment
- Patients with hemorrhagic disorders, hemostatic dysfunctions or taking anticoagulants
- Patients with immune disorders (e.g. HIV) or undergoing immunosuppressive therapy
- Patients with severe or chronic medical diseases (e.g. heart disease, diabetes, epilepsy)
- Patients with severe or chronic skin diseases (e.g. psoriasis, eczema), scleroderma, lupus
- Patients with implantable medical devices (e.g. a pacemaker or a defibrillator)
- Open wounds at the treatment site
- patients with herpes simplex infection or infection
- Patients with precancerous warts/moles at the treatment site
- Patients with moderate to severe keloid tendencies
- Patients who received gold or metal thread lifting procedures
- Pregnancy, breast feeding

Precautions

- Avoid topical agents that may increase skin sensitivity (e.g. retinoids, hydroquinone, isotretinoin, benzoyl peroxide) for about 1 week.
- Avoid non-steroidal anti-inflammatory drugs (NSAIDs) that may interfere with skin healing response (e.g. ibuprofen) for about 1 week.
- Avoid blood thinners (e.g. aspirin, warfarin) for about 1 week.
- Patients with a past history of skin cancer or other cancer, require conservative treatment and careful monitoring.
- Patients with manageable skin/medical conditions, disorders or diseases, require conservative treatment and careful monitoring.
- Patients who have received Botox, fillers, or thread lifting, should receive SYLFIRM X treatment after 4 weeks.
- Patients who have received exfoliation, microdermabrasion, or phototherapy (e.g. lasers, IPL), should receive SYLFIRM X treatment after 4 weeks.
- Patients who have permed or dyed hair, should receive scalp treatment with SYLFIRM X after 1 week.
- If the patient has dental implants, place dry gauze between teeth and gums during the procedure.

02

Pre-Treatment Care



Pre-Treatment Care



Cleansing the Skin

- Remove all jewelry that is electrically conductive (e.g. earrings, neckless, piercings) from the face and body.
- Thoroughly remove makeup, skin products, or deodorants from the treatment area.
- Thoroughly cleanse the skin with a mild soap or cleanser.
- For beards, shaving is recommended to treat with precise needle insertion.
- For acne, extrude before the procedure.



Taking Photographs

- Take photos of the treatment area before treatment. These may be used as a reference before and after treatment.
- When taking photos before and after treatment, maintain constant angle, background, lightening and camera settings for more objective evaluation.



Applying Anesthesia

- Topical anesthetics are most commonly used to reduce pain and discomfort during the procedure.
 - 300 μ m (0.3 mm) targeted treatment: 10 minutes
 - Other treatments: 30-60 minutes
- The anesthetic cream must be thoroughly removed before the procedure.
- Local anesthesia (injection) can be used instead.



Wiping with Antiseptic Solution

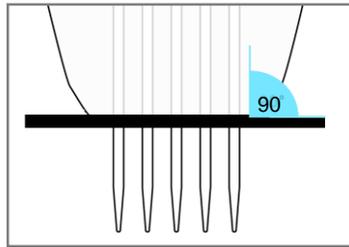
- Since RF microneedling treatment is a minimally-invasive procedure, wipe the treatment area with an antiseptic solution (e.g. chlorhexidine gluconate).

03

RF Microneedling Treatment

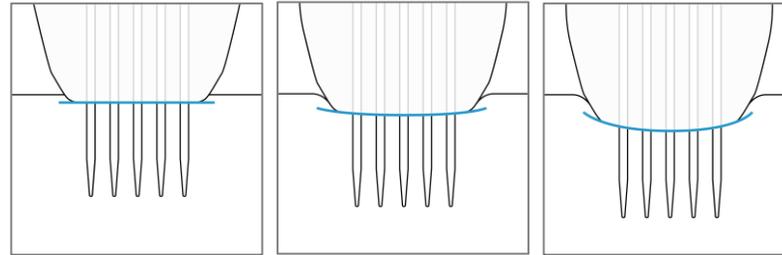


GENERAL TECHNIQUES



Angle of the Needle Tip

Maintain the needle tip of the handpiece perpendicular to the skin, and then irradiate RF energy by pressing the footswitch. This ensures that the energy is delivered accurately to the target location. Make sure the needle tip is completely in contact with the skin.



Pressure

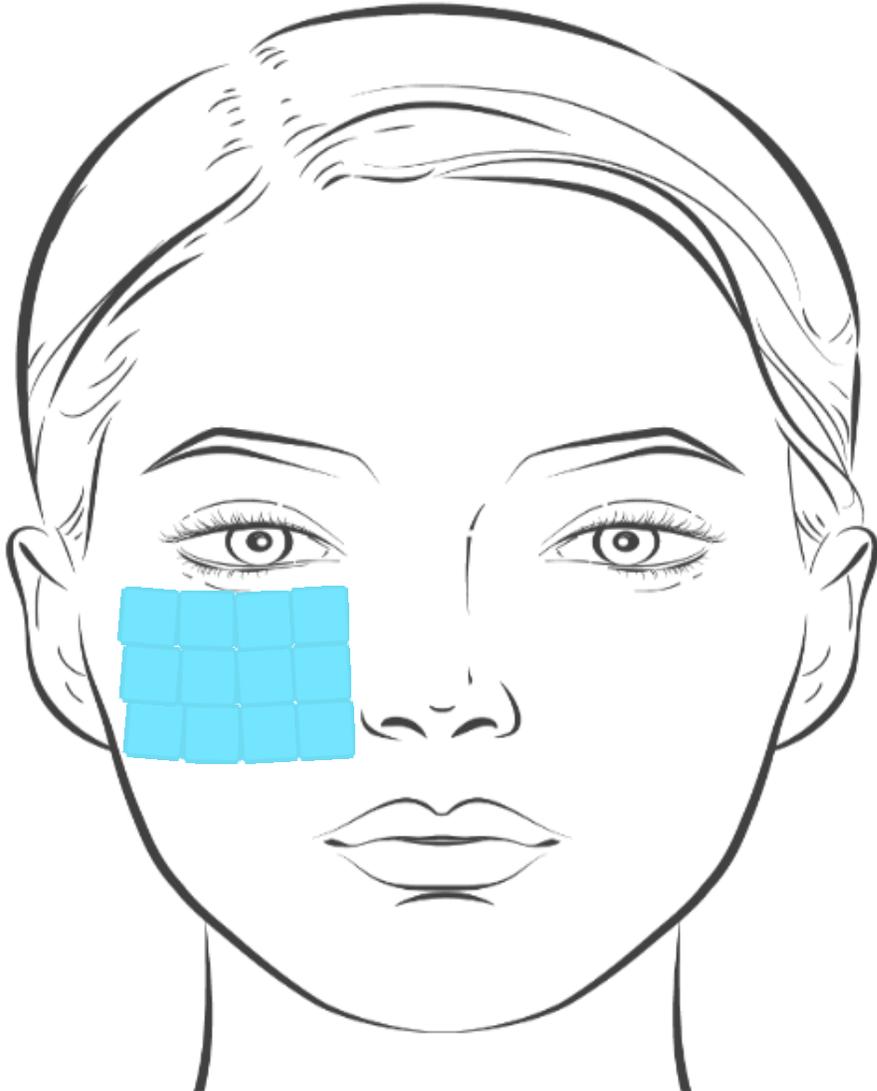
Vary the pressure of pressing the needle tip of the handpiece against the skin in accordance with the thickness or firmness of the skin. Gently press on thinner skin areas, like the upper eyes or upper lips, firmly press in general areas, and forcefully press on fleshy areas, such as the cheeks.



Handpiece Movement

- Do not move or pull the handpiece from the skin during RF energy irradiation as indicated by red light at the needle tip connected to the handpiece.
- Keep the set interval in mind and move the handpiece to the next treatment area after the red light goes out.

Treatment Technique: **Stamping**

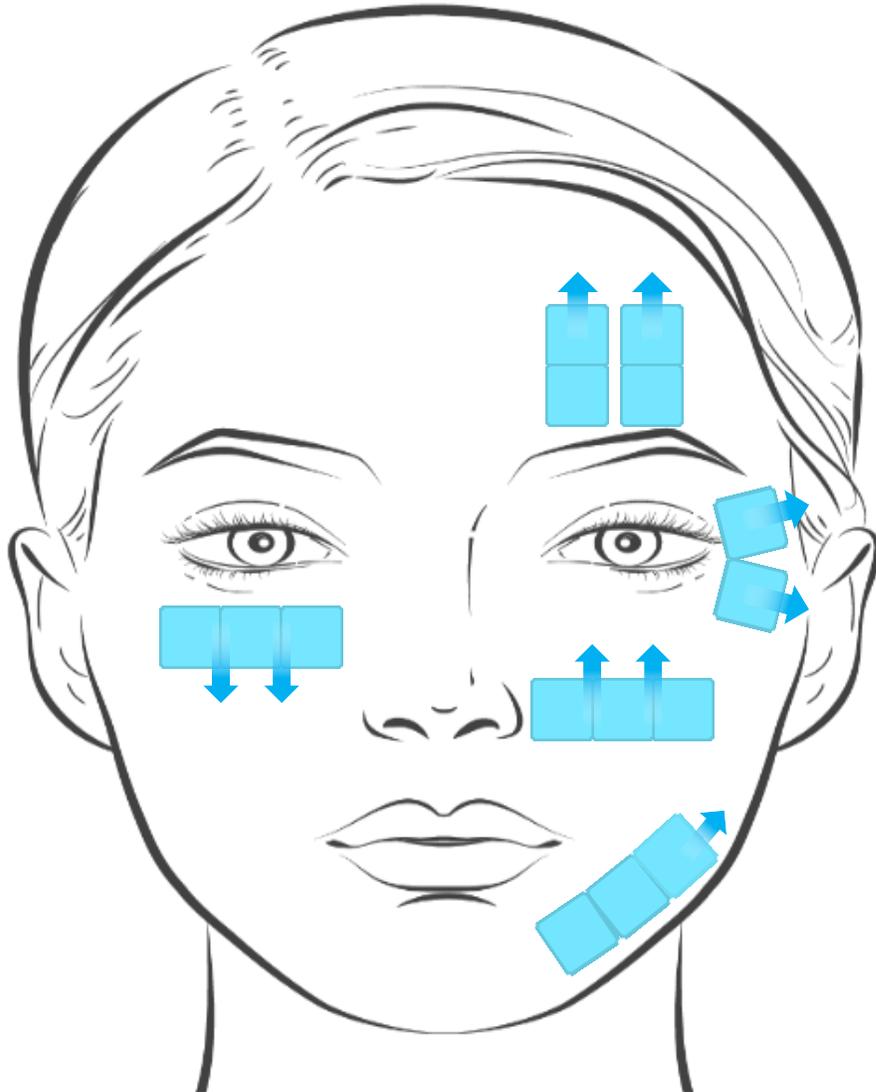


- This technique is a general technique used for all the procedures except skin rejuvenation, tightening, and lifting.
- Make sure that the needle tip of the handpiece is in full contact with the skin and is perpendicular to the skin.
- And then press the footswitch to irradiate RF energy.
- Carefully cover the treatment area while paying attention to the set interval and overlap.

Treatment Video: Stamping Technique



Treatment Technique: Pulling



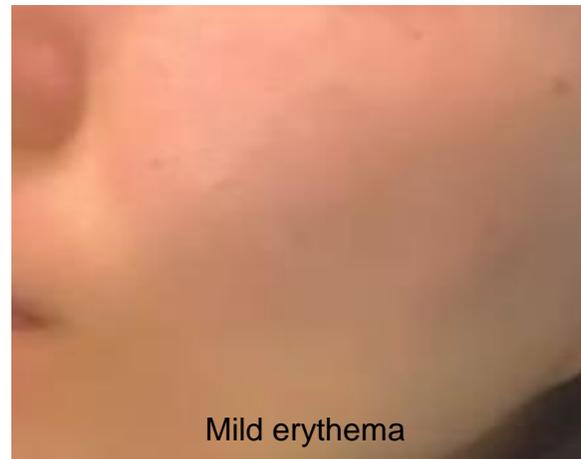
- This technique is to further maximize the therapeutic effect of skin rejuvenation, tightening and lifting procedures.
- With one hand, pull the saggy skin upwards or/and outwards and then anchor (fix) it.
- Hold the handpiece with the other hand and press the foot switch to irradiate the RF energy along the vector (space indicating magnitude and direction in which the skin is pulled).
- Carefully cover the treatment area while paying attention to the set interval and overlap.
- For eye safety, the lower eyelids are exceptionally treated by pulling the skin down.

Treatment Video: Pulling Technique



Test Shot

- Even if the same parameters are applied to patients with the same lesion and skin type, each patient may respond differently.
 - Before starting the procedure, test shots should be taken to confirm and set the appropriate parameters for each patient.
- A. Set conservative parameters.
 - B. Take a few test shots (NO double or multiple shots in one spot) in an inconspicuous area.
 - C. Observe the endpoints appearing a few minutes after RF irradiation. In most cases, the appropriate endpoint is mild to moderate erythema.
 - D. If the skin reaction is excessive, such as dark redness or/and excessive swelling, reduce the power by 1-2 levels or change the mode.
 - E. If skin reaction is insufficient, increase the power by 1-2 levels or change the mode.
 - F. If the patient complains of pain, and decrease the depth in 0.2mm increments.



- ❖ The following parameters are provided for reference only, and should not be considered as absolute standards for all patients, lesions or treatments.
- ❖ Before starting the procedure, test shots should be taken to confirm and set the appropriate parameters for each patient.

X tip



Applications

- All indications and treatment areas

Remarks

- 20-30% overlap, considering a dead space on the edge.

Indication	Mode	Depth (mm)	FST I-II	FST III-IV	FST V-VI	Pass	Endpoint	
			Power					
Melasma	Basic	PW2	0.3	4-6	4-5	3-5	2	Mild Erythema
	with Telangiectasia	PW2	1) 0.3	4-6	4-5	3-5	1 (pigment)	Mild Erythema
		PW2	2) 0.8-1.5	4-6	4-5	3-5	1 (vessel)	
PIH	-	PW2	Face : 0.8-1.5 Body : 1.0-2.0	4-6	4-5	3-5	1-2	Mild to moderate Erythema
Diffuse Redness	Basic	PW2	0.3	4-5	4-6	3-5	2	Moderate Erythema
	with Telangiectasia	PW2	1) 0.3	4-5	4-6	3-5	1 (redness)	Moderate Erythema
		PW2	2) 0.8-1.5	4-5	4-6	3-5	1 (vessel)	
Rosacea	Erythematous	PW2	0.3	4-5	4-6	3-5	1-2	Moderate Erythema
	Telangiectactic	PW3	0.8-1.5	4-6	4-6	3-5	1-2	Moderate Erythema
	Papulopustular	PW4	0.8-1.5	4-6	4-6	3-5	1-2	Moderate Erythema
Facial Scar	Old, white	CW3	Shallow : 0.8-1.5 Deep : 1.0-2.0	5-6	4-6	4-5	1-2	Moderate Erythema, Pinpoint bleeding
	Early, red, pigmented	PW2	Shallow : 0.8-1.5 Deep : 1.0-2.0	5-6	4-6	4-5	1-2	Moderate Erythema, Pinpoint bleeding
Body Scar, Stretch Mark	Old, white	CW3-4	1.5-4.0	5-6	4-6	4-5	2-3	Moderate Erythema, Pinpoint bleeding
	Early, red, pigmented	PW2-3	1.5-4.0	5-6	4-6	4-5	2-3	Moderate Erythema, Pinpoint bleeding
Acne Vulgaris	Inflammatory (papules, pustules)	PW4	1.2-1.8	4-6	4-6	4-5	1-2	Moderate Erythema
	Non-Inflammatory (comedones)	CW3	1.2-1.8	4-6	4-6	4-5	1-2	Moderate Erythema
Drug Delivery	-	CW1	0.5-1.0	0	0	0	1-2	Mild to Moderate Erythema
Hair Regrowth	-	CW1	0.7-1.0	3-5	3-5	3-4	1-2	Mild to Moderate Erythema

- The above parameters are widely used, but they should not be applied equally to all patients.
- Adjust the needle depth considering the thickness of the skin and the degree of lesion (except for melasma and diffuse redness treatment), and the power according to the skin reaction.
- Use the stamping technique.
- For melasma or diffuse redness, more than 3-5 treatments are required every 2-4 weeks. *Take longer time intervals if the skin condition is poor or skin recovery is slow.
- For other indications, 3-5 treatments are recommended every 4-6 weeks.

X tip



Applications

- All indications and treatment areas

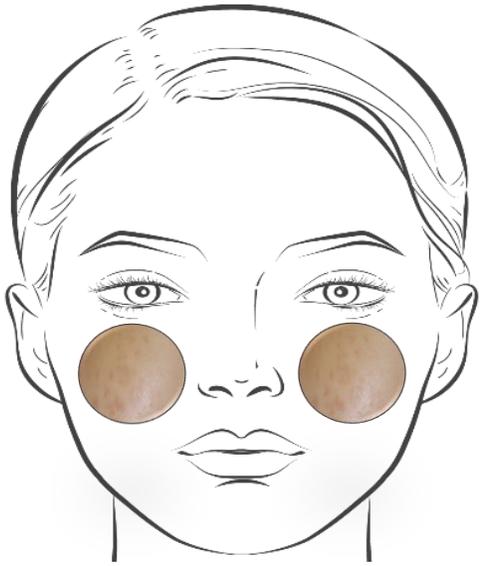
Remarks

- 20-30% overlap, considering a dead space on the edge.

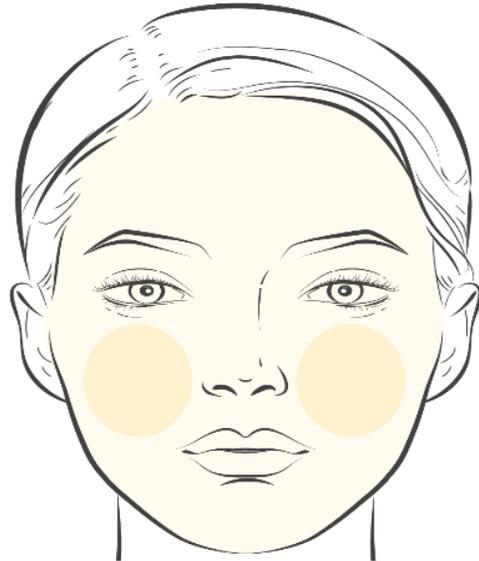
Indication	Mode	Depth (mm)	FST I-II	FST III-IV	FST V-VI	Pass	Endpoint	
			Power					
Wrinkle	Fine Wrinkles	CW3	0.5-1.0	4-6	4-5	3-5	1-2	Moderate Erythema, Mild Edema
	Deep Wrinkles	CW3	1.0-2.5	5-6	4-6	4-5	1-2	Moderate Erythema, Pinpoint Bleeding
Pore	Enlarged Pores	CW3	0.8-1.5	4-6	4-6	4-5	1-2	Moderate Erythema
	Blackheads	PW4	0.8-1.5	4-6	4-6	4-5	1-2	Moderate Erythema, Sebum Like Sweat
Skin Texture and Tone	Full Face	PW2	0.3-0.5	4-6	4-5	3-5	1-2	Moderate Erythema
Facial Tightening & Lifting	Lower Face	CW3	1.0-2.0	5-6	4-6	4-5	1-2	Moderate Erythema, Or/and Immediate Improvement
	Mid-Face	CW3	0.8-1.5	5-6	4-6	4-5	1-2	
	Upper Face	CW2-3	0.5-1.0	4-6	4-5	3-5	1-2	
Scalp Tightening & Lifting	Temporalis	CW1	0.7-1.2	7-8	7-8	6-8	1-2	Mild to Moderate Erythema, or/and Immediate Improvement
	Frontalis	CW1	0.7-1.2	7-8	7-8	6-8	1-2	
Neck Tightening Lifting	-	CW3	1.0-2.0	5-6	4-6	4-5	1-2	Moderate Erythema, or/and Immediate Improvement
Body Contouring	Eye Bags	CW4	1.2-2.0	5-6	4-6	4-5	1-2	Moderate Erythema, or/and Immediate Improvement
	Double Chin	CW4	2.0-3.0	5-6	4-6	4-5	2-3	
	Décolletage	CW3-4	1.0-1.5	4-6	4-6	3-5	1-2	
	Elbow, Knee	CW3-4	1.0-1.5	4-6	4-6	3-5	1-2	
	Abdomen, Buttocks	CW4	3.0-4.0	5-6	4-6	4-5	2-3	

- The above parameters are widely used, but they should not be applied equally to all patients.
- Adjust the needle depth considering the thickness of the skin and the degree of lesion, and the power according to the skin reaction.
- Use the pulling technique.
- 3-5 treatments are recommended every 4-6 weeks.

Examples of Parameter Applications: Melasma

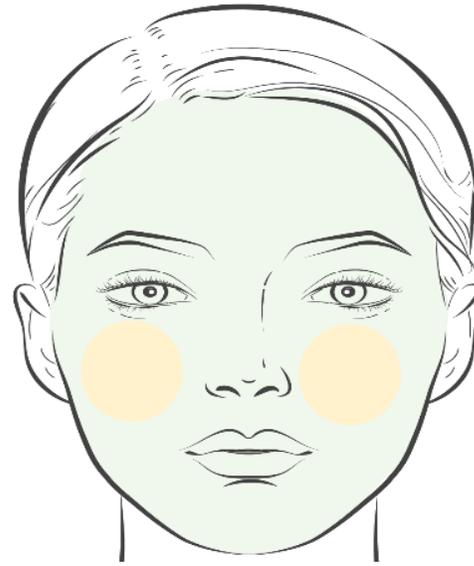


Melasma



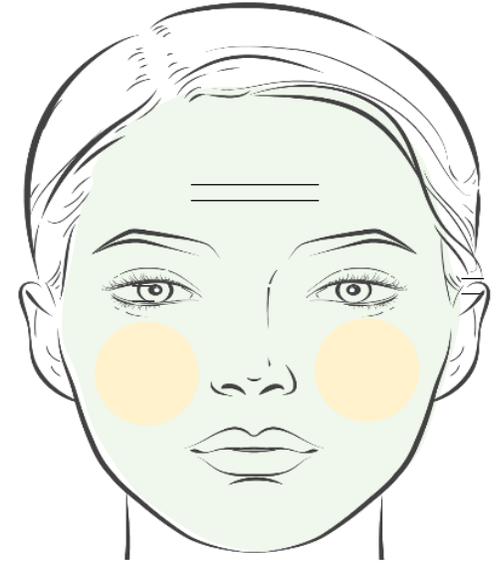
Melasma only

- a.  Full Face: PW2, 1 pass
- b.  Melasma : PW2, additional 1 pass



Melasma + Skin Tightening

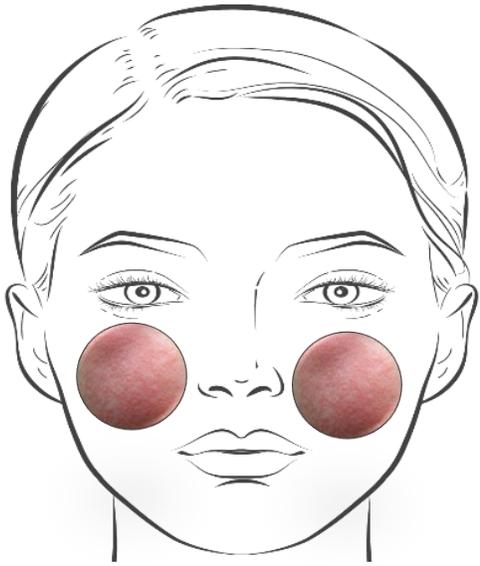
- a.  Melasma: PW2, 2 passes
- b.  Rest of the Face: CW2-3, 1-2 passes



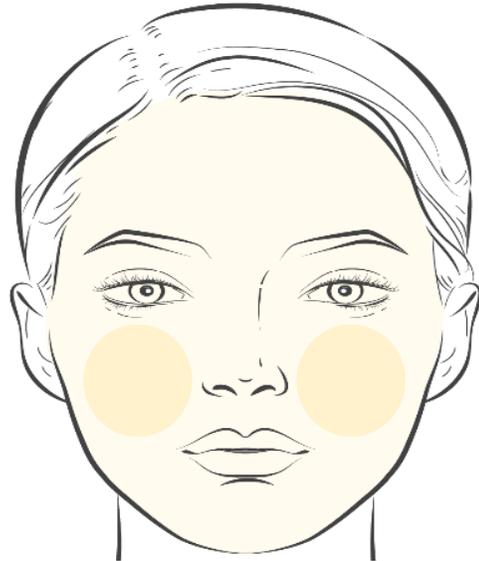
Melasma + Skin Tightening + Deep Wrinkle

- a.  Melasma: PW2, 2 passes
- b.  Rest of the Face: CW2-3, 1-2 passes
- c.  Deep Wrinkle: CW3-4, additional 1 pass

Examples of Parameter Applications: Redness

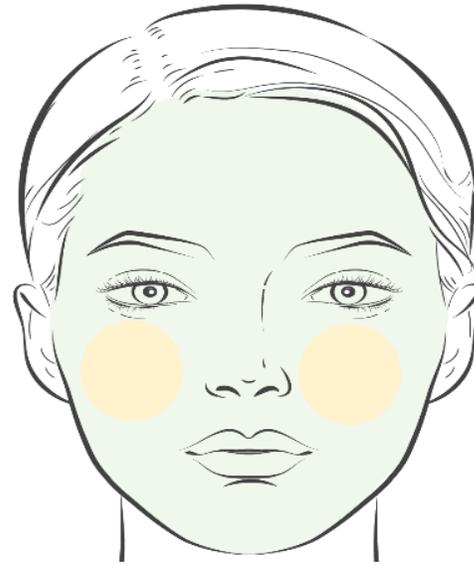


Diffuse Redness



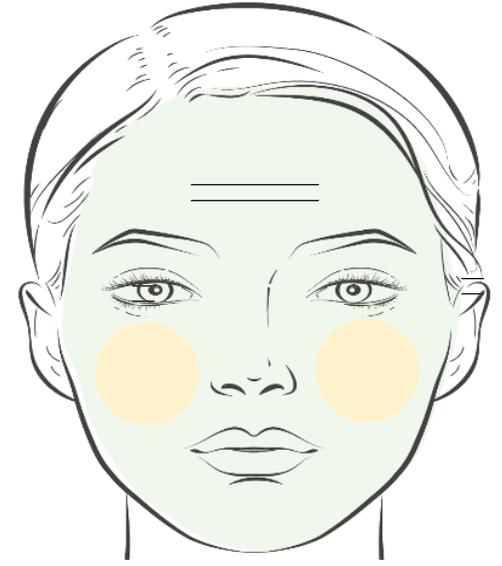
Redness Only

- a.  Full Face: PW2, 1 pass
- b.  Redness : PW2, additional 1 pass



Redness + Skin Tightening

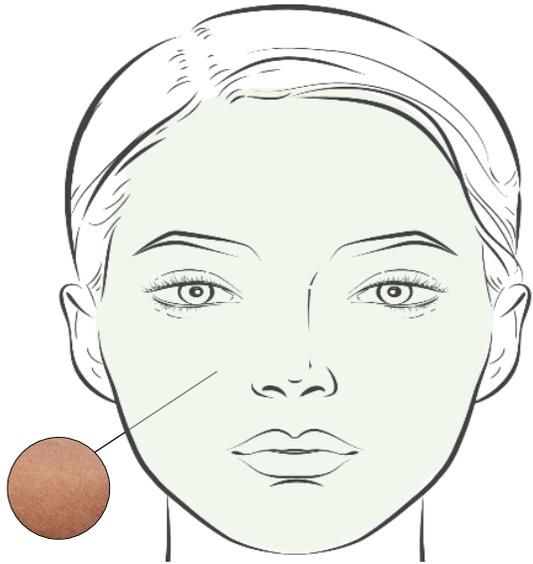
- a.  Redness: PW2, 2 passes
- b.  Rest of the Face: CW2-3, 1-2 passes



Redness + Skin Tightening + Deep Wrinkle

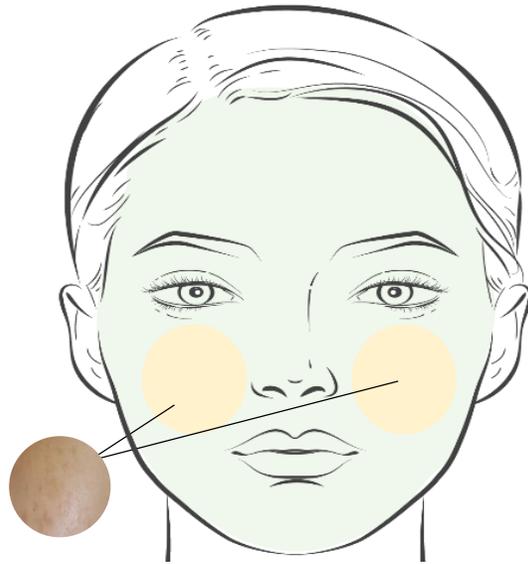
- a.  Redness: PW2, 2 passes
- b.  Rest of the Face: CW2-3, 1-2 passes
- c.  Deep Wrinkle: CW3-4, additional 1 pass

Examples of Parameter Applications: Facial Tightening and Lifting



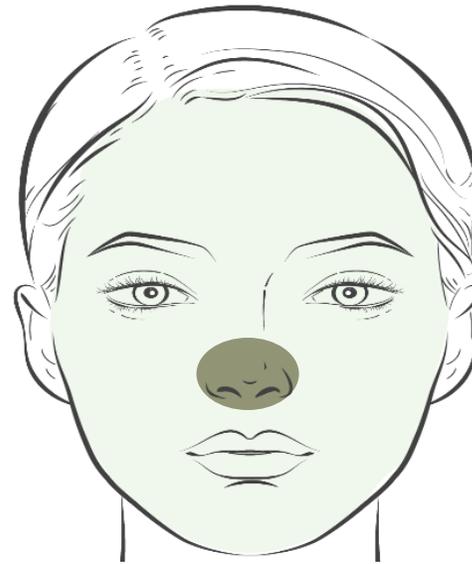
**Uneven Skin Texture
and Skin Tone**

- a. ● Full Face: CW2-3, 2 passes



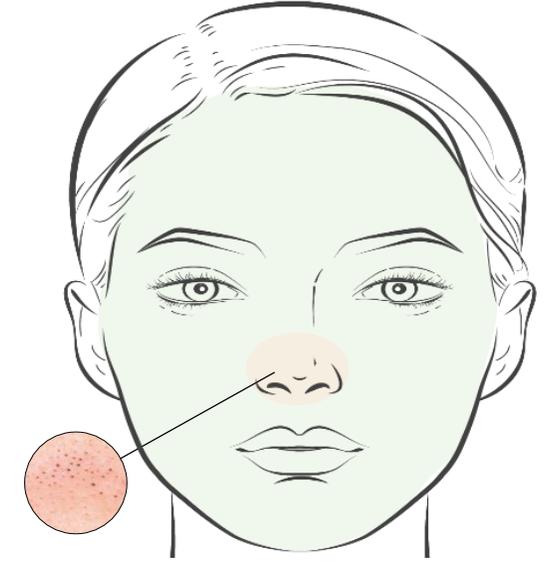
**Uneven Skin Texture and
Skin Tone on Pigmented
Skin**

- a. ● Pigmented Skin: PW2, 2 passes
- b. ● Rest of the Face: CW2-3, 1-2 passes



**Uneven Skin Texture
and Skin Tone with Large
Pore**

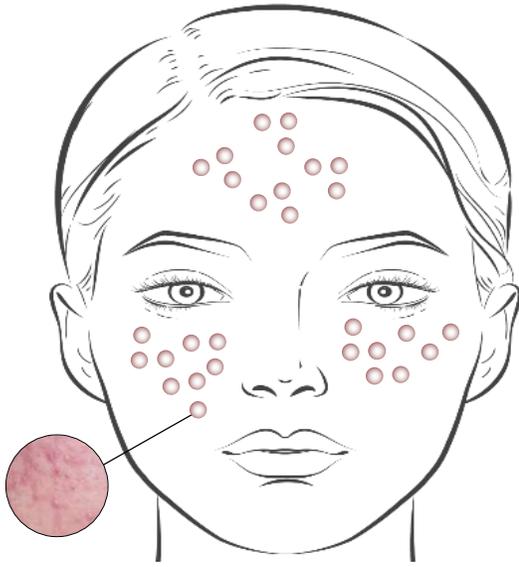
- a. ● Full Face: CW2-3, 1-2 passes
- b. ● Large Pore: CW3, additional 1 pass



**Uneven Skin Texture and
Skin Tone with Blackhead**

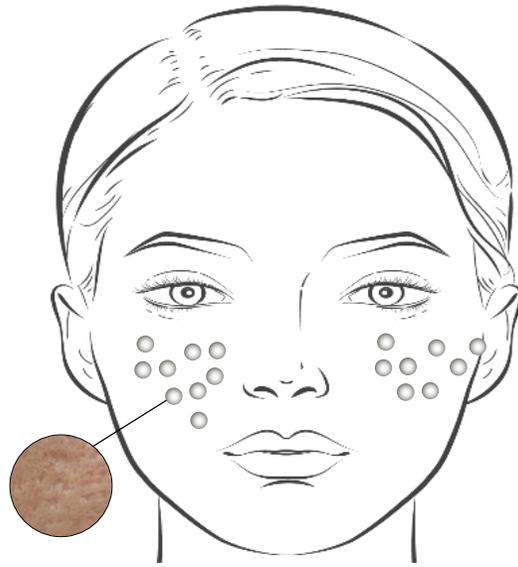
- a. ● Full Face: CW2-3, 1-2 passes
- b. ● Blackhead: PW4, additional 1 pass

Examples of Parameter Applications: Acne Vulgaris and Acne Scar



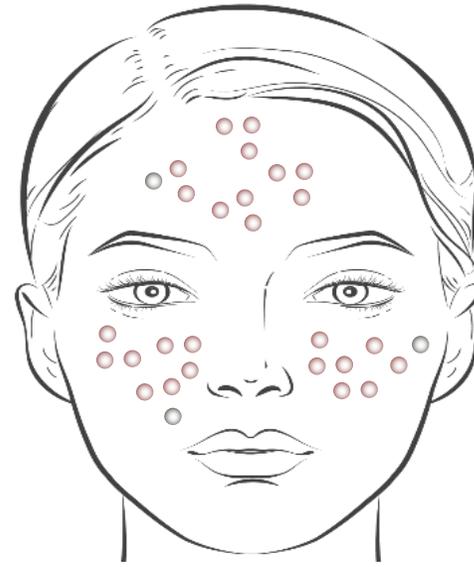
Acne Vulgaris Only

a. ● Acne Vulgaris: PW4, 1-2 passes



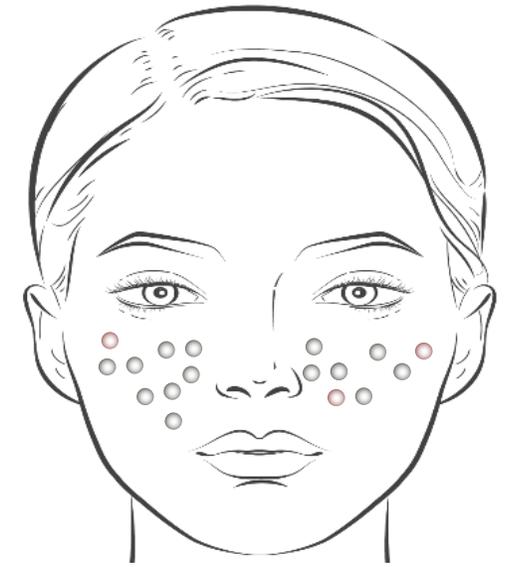
Acne Scars Only

a. ● Acne Scar: PW2 or CW3, 1-2 passes



Acne Vulgaris with few Acne Scar

a. ● Acne Vulgaris: PW4, 1-2 passes
b. ● Acne Scar: PW2 or CW3, 1-2 passes



Acne Scar with few Acne Vulgaris

a. ● Acne Scar: PW2 or CW3, 1-2 passes
b. ● Acne Vulgaris: PW4, 1-2 passes

XE tip



Features

- Energy transferred per area is same as X tip (original tip).
- But, eased overlapping and improved visibility of the treatment area during procedure, due to the removed dead space on the edge and the inclined side of the needle tip.

Applications

- Primary : eye treatment
- Secondary : melasma, diffuse redness, rosacea

Remarks

- No overlap.

Indication	Mode	Depth (mm)	FST I-II	FST III-IV	FST V-VI	Pass	Endpoint	
			Power					
Wrinkle	Lower Eyelids	CW3	0.5-1.0	4-6	4-5	3-5	1-2	Moderate Erythema, Mild Edema
	Upper Eyelids	CW3	0.5-1.0	4-6	4-5	3-5	1-2	Moderate Erythema, Mild Edema
	Crow's Feet	CW3	0.8-1.2	4-6	4-5	3-5	1-2	Moderate Erythema, Mild Edema
Eyebrow Lifting	1) Lower Eyebrow	CW3	0.5-1.0	4-6	4-5	3-5	1-2	Moderate Erythema, Or/and Immediate Improvement
	2) Upper Eyebrow	CW3	0.5-1.0	4-6	4-5	3-5	1-2	
Eye Bags	-	CW4	1.2-2.0	5-6	4-6	4-5	1-2	Moderate Erythema, or/and Immediate Improvement
Dark Circles	-	PW2	0.8-1.5	4-6	4-5	3-5	1-2	Mild to moderate Erythema
Melasma	Basic	PW2	0.3	4-6	4-5	3-5	2	Mild Erythema
	with Telangiectasia	PW2	1) 0.3	4-6	4-5	3-5	1 (pigment)	Mild Erythema
		PW2	2) 0.8-1.5	4-6	4-5	3-5	1 (vessel)	
Diffuse Redness	Basic	PW2	0.3	4-5	4-6	3-5	2	Moderate Erythema
	with Telangiectasia	PW2	1) 0.3	4-5	4-6	3-5	1 (redness)	Moderate Erythema
		PW2	2) 0.8-1.5	4-5	4-6	3-5	1 (vessel)	
Rosacea	Erythematous	PW2	0.3	4-5	4-6	3-5	1-2	Moderate Erythema
	Telangiectactic	PW3	0.8-1.5	4-6	4-6	3-5	1-2	Moderate Erythema
	Papulopustular	PW4	0.8-1.5	4-6	4-6	3-5	1-2	Moderate Erythema

- The above parameters are widely used, but they should not be applied equally to all patients.
- Adjust the needle depth considering the thickness of the skin and the degree of lesion (except for melasma and diffuse redness treatment), and the power according to the skin reaction.
- Use the pulling technique for wrinkle / tightening & lifting procedures, and use the stamping technique for other indications.
- For melasma or diffuse redness, more than 3-5 treatments are required every 2-4 weeks. *Take longer time intervals if the skin condition is poor or skin recovery is slow.
- For other indications, 3-5 treatments are recommended every 4-6 weeks.
- In addition to the above parameters, all parameters of the X tip can be applied to the XE tip.

XE tip



Features

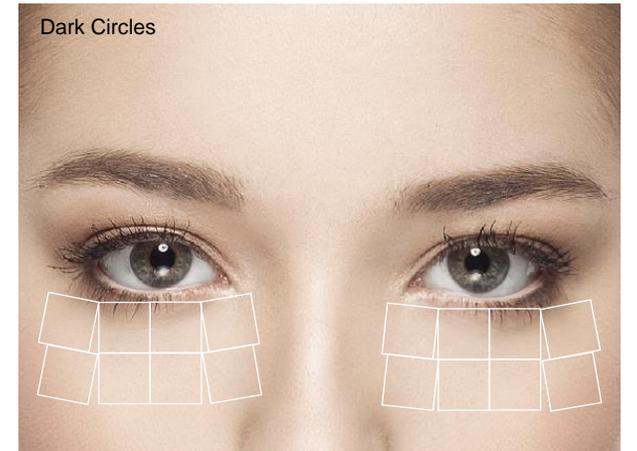
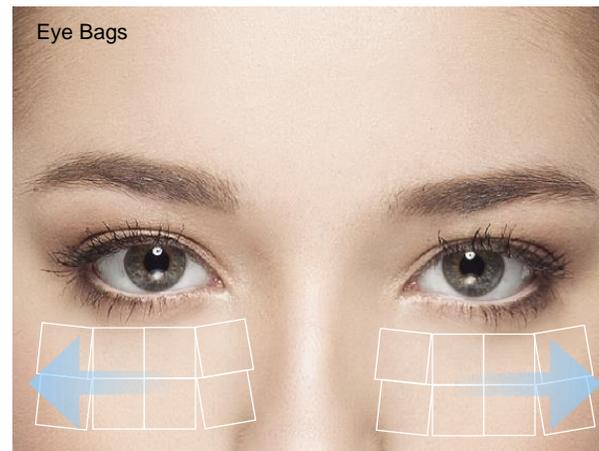
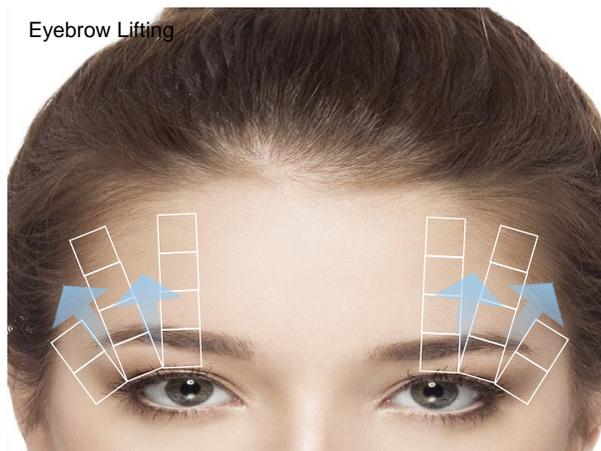
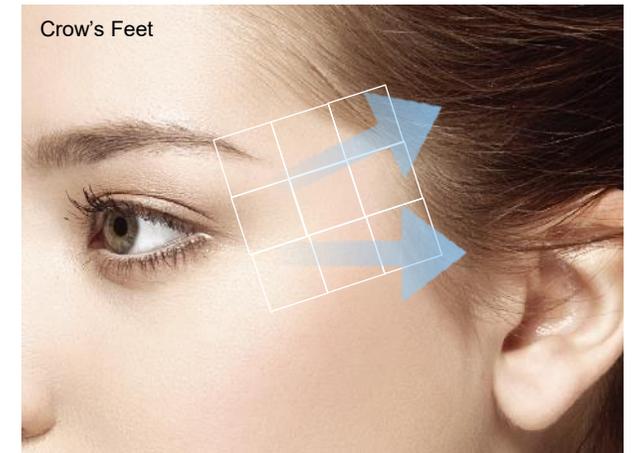
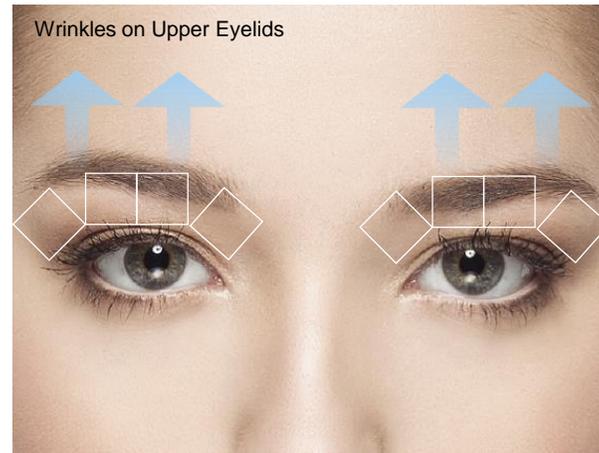
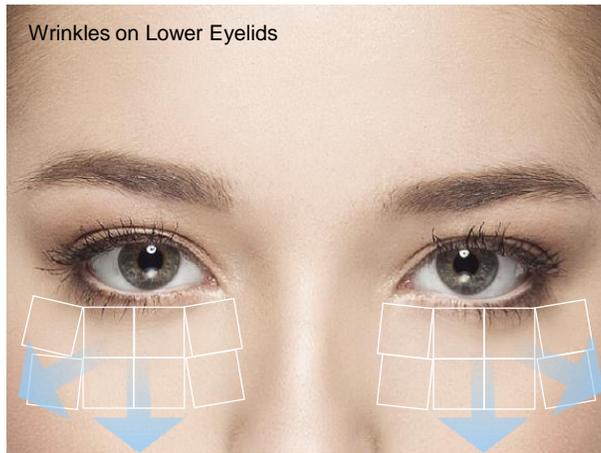
- Energy transferred per area is same as X tip (original tip).
- But, eased overlapping and improved visibility of the treatment area during procedure, due to the removed dead space on the edge and the inclined side of the needle tip.

Applications

- Primary : eye treatment
- Secondary : melasma, diffuse redness, rosacea

Remarks

- No overlap.



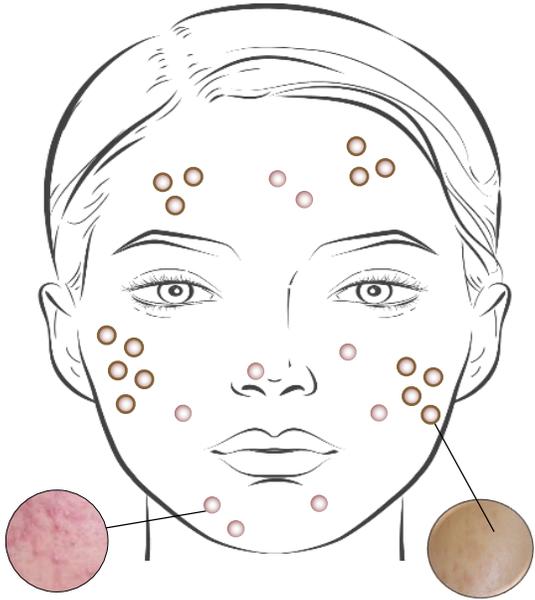
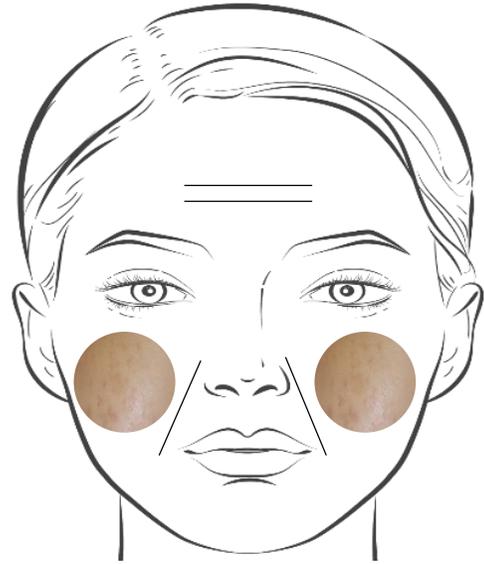
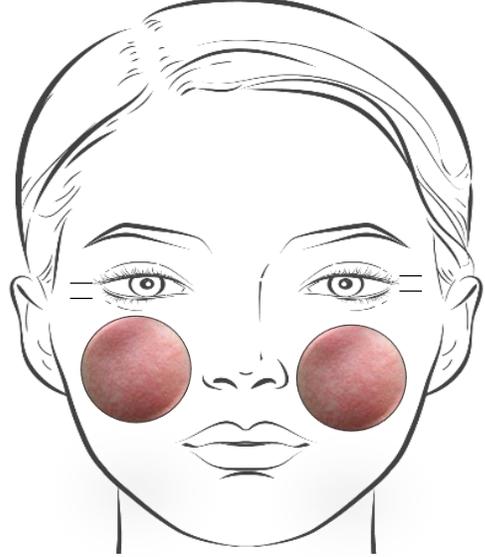
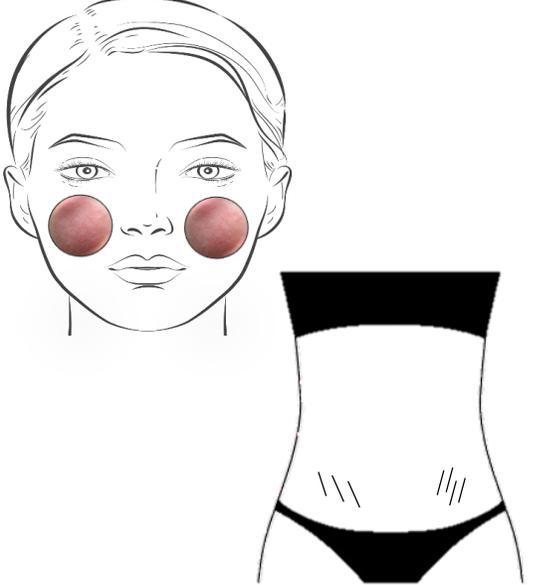
Examples of New Tip Applications



Melasma

XE tip

Examples of New Tip Applications

			
<p>Acne Vulgaris + PIH</p>	<p>Melasma + Deep Wrinkles</p>	<p>Rosacea + Fine Wrinkles</p>	<p>Rosacea on Face + Stretch Marks on Body</p>
<p>XE tip</p>	<p>XE tip</p>	<p>XE tip</p>	<p>XE tip</p>

04

Post-Treatment Care



Normal Skin Reactions After Treatment

First 4-6 hours

- Sunburn-like erythema, edema, waffle-like marks, tingling or burning sensation are normal immediately after treatment.
- These symptoms resolve within 4-6 hours in most cases, but in some cases they can last for 1-3 days.
- The severity and duration of symptoms vary from patient to patient or depending on the treatment intensity.
- If treated aggressively, the erythema will last longer, and the deep needle depth may cause bleeding or bruising.

2-3 days

- Patients with oily skin, acne, pimple, or breakouts tend to develop pimples within 2-3 days, which usually subside naturally over time.

1-2 weeks

- Skin texture and tone are improved.
- If pigmented lesions were treated, they may darken and lighten within 1-2 weeks.

3-4 weeks

- The lesion is improved.



Post-Treatment Care



Applying Cream

- Apply platelet-rich plasma (PRP), growth factor, hyaluronic acid, regenerative cream, or/and moisturizing cream which is good for skin recovery. *Products containing vitamin C may cause a burning sensation on the treated skin.



Soothing Care

- If treated aggressively, use a facial mask or icepack to soothe the treated skin.
- Skin care devices such as LED, ultrasound or electroporation may also be used.



Prescription (prn)

- Depending on the patient's lesion and skin condition, the physician may prescribe :
 - Melasma: tranexamic acid
 - Scar: topical antibiotics
- Anti-inflammatory medicines may be prescribed in advance in the following cases:
 - Aggressive treatment performed
 - Patients with potential for inflammation (e.g. oily skin, acne, pimple, or breakouts)

Post-Treatment Instructions to Patients



Soothing Care

If received intensive treatment, apply a facial mask or towel-wrapped ice pack on the day of the procedure to soothe the treated skin.

*Products including vitamin C may cause a burning sensation on the treated skin.



Make-Up and Skin Cleansing

Washing the skin or make-up can be done 4-6 hours after the procedure.

If received intensive treatment, it is recommended to do it after 1 day.

Use a mildly acidic or alkaline cleanser.

Be careful not to rub or scratch the treated skin.



Cosmetic Application

Apply a growth factor, regenerative and/or moisturizing cream frequently (2-3 times a day).

Avoid using alcohol-based or oil-containing cosmetics for 1 week.



Avoid Sun Exposure

Avoid sun exposure and wear a hat or long sleeves.

Apply a broad-spectrum sunscreen (SPF>30) frequently (2-3 times a day).



Avoid Skin Irritation

Do not use peeling or scrub products for 2-4 weeks.

Do not undergo any phototherapy for 2-4 weeks.



Avoid Certain Behaviors

Avoid vigorous activity, exercise, swimming, hot baths, and saunas for 1 week.

Avoid drinking alcohol or smoking for 1 week.

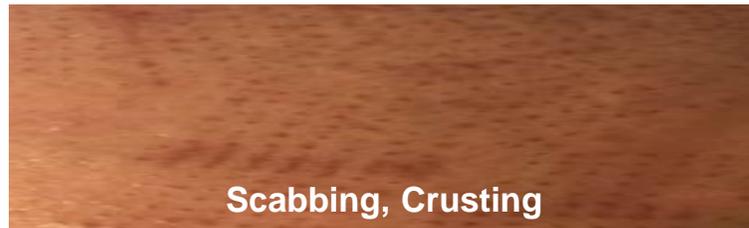
Potential Adverse Effects

Within 1-3 days



Burns or blisters may occur if treated with high power or excessive number of passes, or excessively transferred heat to the skin (Thermal reactions are more pronounced in acne or sebaceous skin). Use an ice pack and prescribe a topical steroids (i.e., hydrocortisone, dexamethasone). In severe cases, prescribe a steroid injection (i.e., dexamethasone).

Within 3-7 days

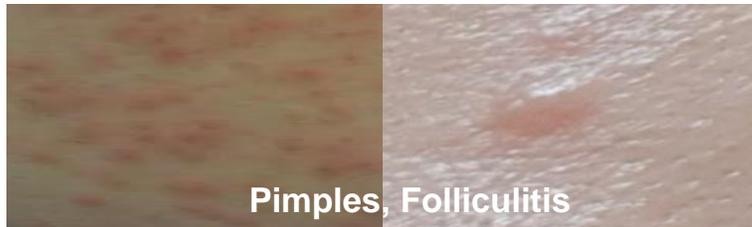


They may occur if treated with high power or excessive number of passes, or excessively transferred heat to the skin (Thermal reactions are more pronounced in acne or sebaceous skin). These may also occur when the needle tip is not kept in close contact with the skin or the needle tip is moved during RF irradiation. Prescribe a topical steroids (i.e., hydrocortisone, dexamethasone). In severe cases, prescribe a steroid injection (i.e., dexamethasone). Post-inflammatory hyperpigmentation (PIH) may later require management.

After 1-2 weeks



This may occur if treated with high power or excessive number of passes, or excessively transferred heat to the skin (Thermal reactions are more pronounced in acne or sebaceous skin). They can also be caused by a lack of proper post-treatment care. Apply a growth factor or/and regenerative cream frequently (2-3 times a day) and apply a broad-spectrum sunscreen (SPF > 30) frequently. Prescribe a mild steroid cream (i.e., hydrocortisone) or hydroquinone 4%. Laser toning can be performed as well, albeit at a 20% lower energy.



These often appear in patients with sebaceous skin, acne, or a tendency for break outs and also in patients with damaged skin barrier due to frequent peeling. They can also occur if makeup or facial wash are not properly removed or needle tips are re-used. Prescribe a topical steroids (i.e., hydrocortisone, dexamethasone). In severe cases, prescribe a steroid injection (i.e., dexamethasone).



This often occurs in areas close to the bone (e.g., cheekbones), especially when using a needle depth greater than 1.0 mm. Prescribe a topical steroids (i.e., hydrocortisone, dexamethasone) and treat the area with a microneedling or ablative fractional laser.



These may occur if treated with high power or excessive number of passes, or excessively transferred heat to the skin (Thermal reactions are more pronounced in acne or sebaceous skin). Apply scarring ointment/cream and treat with a microneedling or ablative fractional laser.

Combination Therapy

Considerations

- SYLFIRM X and other energy-based devices (EBDs) or injectables can be used in combination to further maximize desired therapeutic effects.
- In general, SYLFIRM X and other methods are used alternately at intervals of 2-4 weeks (at a low energy or/and a shallow depth) or 4-6 weeks (at a higher energy or/and a deeper depth).
- Both SYLFIRM X and some EBDs can be used on the same day.
- Generally, non-invasive, deeper penetrating, or less painful treatment is performed first. *The order using devices may differ according to the discretion of the physician.
- 20% lower fluence or/and 50% fewer passes are used with EBD.
- However, combination therapy on the same day is not recommended for patients with poor skin condition or slow skin recovery.
- Also, it should be careful not to overdo the treatment so as not to damage the skin.

Combination Therapy: Pigmented Lesions

A. Methods

- Laser Toning (low fluence of a short pulsed Nd:YAG laser)
- Q-switched laser
- Picosecond laser

B. Case 1 : Recalcitrant melasma

- Alternately use laser toning and SYLFIRM X every 2-4 weeks about 5 times.
- Or treat with both laser toning and SYLFIRM X on the same day every 2-4 weeks about 3-5 times.
 - Laser toning (with a 20% lower fluence or 50% fewer passes) followed by SYLFIRM X.

C. Case 2 : Mixed melasma (with epidermal and dermal pigmentation)

- Treat with both laser and SYLFIRM X on the same day every 4 weeks about 3-5 times.
 - Treat epidermal pigmentation with a Q-switched laser or picosecond laser
 - And then treat the rest of the face with SYLFIRM X.
- Or alternately use laser toning and SYLFIRM X every 2-4 weeks about 5 times.
- Or treat with both laser toning and SYLFIRM X on the same day every 2-4 weeks about 3-5 times.
 - Laser toning (with a 20% lower fluence or 50% fewer passes) followed by SYLFIRM X.

Combination Therapy: Vascular Lesions

A. Methods

- Genesis (low fluence of a long-pulsed Nd:YAG laser)
- Pulsed-dye laser
- Long-pulsed laser

B. Case 1 : Diffuse redness or erythematotelangiectatic rosacea

- Alternately use Genesis and SYLFIRM X every 2-4 weeks about 5 times.
- Or treat with both Genesis and SYLFIRM X on the same day every 2-4 weeks about 3-5 times.
 - Genesis (with 50% fewer passes) followed by SYLFIRM X.

C. Case 2 : Telangiectasia

- Treat with both laser and SYLFIRM X on the same day every 4 weeks about 3-5 times.
 - Treat telangiectasia with a pulsed-dye laser or a long-pulsed laser
 - And then treat the rest of the face with SYLFIRM X.
- Or alternately use Genesis and SYLFIRM X every 2-4 weeks about 5 times.
- Or treat with both Genesis and SYLFIRM X on the same day every 2-4 weeks about 3-5 times.
 - Perform Genesis (with 50% fewer passes) followed by SYLFIRM X.

Combination Therapy: Scar Treatment

A. Methods

- Picosecond laser with a fractionated handpiece
- Ablative (CO₂, Er:YAG) fractional laser
- Non-ablative (Er:Glass) fractional laser

B. Case 1 : Atrophic scars, hypertrophic scars, stretch marks

- Alternately use SYLFIRM X and laser every 4-6 weeks about 5 times.
- Or treat with laser and SYLFIRM X on the same day every 4-6 weeks about 3-5 times.
 - SYLFIRM X followed by a picosecond laser with a fractionated handpiece (with 50% fewer passes)
 - SYLFIRM X followed by an ablative fractional laser (with a 20% lower fluence or/and 50% fewer passes)
 - A non-ablative fractional laser (with a 20% lower fluence or/and 50% fewer passes) followed by SYLFIRM X

Combination Therapy: Skin Rejuvenation, Tightening and Lifting

A. Methods

- EBDs : HIFU(High-Intensity Focused Ultrasound), picosecond laser with a fractionated handpiece, ablative/non-ablative fractional laser
- Injectables : Filler, Botox
- Threads

B. Case 1 : with EBDs

- Alternately use SYLFIRM X and other EBD every 4-6 weeks about 3 times.
- Or treat with SYLFIRM X and other EBD on the same day every 4-6 weeks about 1-3 times. The order of using device according to the type of EVD is usually as follows.
 - HIFU (50% fewer passes) followed by SYLFIRM X (with a depth less than 1.0mm)
 - SYLFIRM X by a picosecond laser with a fractionated handpiece (with 50% fewer passes)
 - SYLFIRM X followed by an ablative fractional laser (with a 20% lower fluence or/and 50% fewer passes)
 - A non-ablative fractional laser (with a 20% lower fluence or/and 50% fewer passes) followed by SYLFIRM X

C. Case 2 : with injectables (e.g. Botox, fillers)

- Treat with SYLFIRM X first and then administer injectables 4 weeks later.
- Or treat with SYLFIRM X (with a depth of 0.3 mm) followed by injectables in the same day.

D. Case 3 : with threads

- Treat with SYLFIRM X first and then administer threads 4 weeks later.
- Or treat with SYLFIRM X (with a depth of 0.3 mm) first followed by threads in the same day.

Appendix

Quick Reference Guide

Quick Guide According to Tip Types and Fitzpatrick Skin Types

Dr. Na's Secret Parameters

Quick Reference Guide SYLFIRM X - X tip

Indication	Mode	Depth (mm)	PST H-I	PST H-IV	PST W-I	Pass	Endpoint
Melasma	PW2	0.3	4-6	4.5	3.5	2	Mild Erythema
Melasma with Telangiectasia	PW2	1.0-1.5	4-6	4.5	3.5	1 (segment)	Mild Erythema
Melasma	PW2	0.3-0.5	4-6	4.5	3.5	1 (segment)	Mild to moderate

Quick Reference Guide SYLFIRM X - XE tip

Features:

- Energy transferred per area is up to 40% higher.
- Hot cooled overlapping and improved suitability of the treatment area during procedure, due to the removed dead space on the edge and the advanced oval of the nozzle.

Applications:

- Primary: **Redness**
- Secondary: **redness, diffuse redness, rosacea**

Remarks:

- No specific

Indication	Mode	Depth (mm)	PST H-I	PST H-IV	PST W-I	Pass	Endpoint		
Wrinkle	Upper Eyelids	CW2	0.5-1.0	4-6	4.5	3.5	1-2	Moderate Erythema, Mild Edema	
	Upper Eyelids	CW2	0.5-1.0	4-6	4.5	3.5	1-2	Moderate Erythema, Mild Edema	
	Crow's Feet	CW2	0.5-1.0	4-6	4.5	3.5	1-2	Moderate Erythema, Mild Edema	
	Lower Eyelids	CW2	0.5-1.0	4-6	4.5	3.5	1-2	Moderate Erythema, Mild Edema	
	Upper Eyelids	CW2	0.5-1.0	4-6	4.5	3.5	1-2	Moderate Erythema, Mild Edema	
	Lower Eyelids	CW2	0.5-1.0	4-6	4.5	3.5	1-2	Moderate Erythema, Mild Edema	
	Eye Area	CW2	1.2-2.0	5-6	4-6	4.5	1-2	Moderate Erythema, Mild to moderate edema	
	Dark Circles	PW2	0.3-1.0	4-6	4.5	3.5	1-2	Mild to moderate Erythema	
	Basic	PW2	0.3	4-6	4.5	3.5	2	Mild Erythema	
	Melasma	with Telangiectasia	PW2	1.0-1.5	4-6	4.5	3.5	1 (segment)	Mild Erythema
	Basic	PW2	0.3-0.5	4-6	4.5	3.5	2	Moderate Erythema	
	with Telangiectasia	PW2	1.0-1.5	4-6	4.5	3.5	1 (segment)	Moderate Erythema	
	Basic	PW2	0.3	4-6	4.5	3.5	1-2	Moderate Erythema	
	with Telangiectasia	PW2	0.3-1.0	4-6	4.5	3.5	1-2	Moderate Erythema	

SYLFIRM X Dr. Na's Secret Parameters							
<ul style="list-style-type: none"> Use pulling techniques regardless of indication for achieve synergistic tightening/lifting effects. Adjust parameters or number of passes depending on the endpoints that gradually appear over a few minutes after RF irradiation. 							
Indication	Mode	Depth (mm)	Power Level	Pass	Endpoints		
Melasma	Baseline	1) 0.3 2) 0.8	3-4	1 (full face) 1 (lesion)	Very mild erythema		
	Sensitive	1) 0.3 2) 0.8	4	1 (full face) 1 (lesion)			
Diffuse Redness	Baseline	1) 0.3 2) 0.8	4	1 (full face) 1 (lesion)	Moderate erythema		
	Sensitive	1) 0.3 2) 0.8	4	1 (full face) 1 (lesion)			
Rosacea	Baseline	1) 0.3 2) 0.8	4	1 (full face) 1 (lesion)	Moderate erythema		
	Sensitive	1) 0.3 2) 0.8	4	1 (full face) 1 (lesion)			
Telangiectasia	Baseline	PW3	Face: 1.0-1.5 Body: 1.5-2.5	6-8	1-2	Vascular color/shape change, moderate erythema	
Acne Vulgaris Skin Breakouts	Baseline	PW4	1.0-1.5	4-6	2-3	Moderate erythema	
Acne Scars	Intensive	CW4	1.0-1.5	4-6	2-3	Very little sticky sensation *but no oozing	
Blackheads	Baseline	PW4	1.5-2.5	4-6	2-3	Sebum appearing like sweat, moderate erythema	
Large Pores on Nose	Baseline	PW4	1.5-2.5	4-6	2-3	Moderate erythema, occasionally pinpoint bleeding	
Wrinkles	Thin Skin Area: Upper Eyelids, Lower Eyelids, Upper Lips	Baseline	CW2	Thin skin Area: 0.5-0.8 Fine wrinkles: 1.0-1.5 Deep wrinkles: 1.5-2.5	7-8	2-3	Immediate improvement, moderate erythema, mild edema
	Fine Wrinkles: Eyebrow-Nose Angle, Crow's Feet, Periorbital Wrinkles, Nasolabial Folds	Intensive	CW4	3-4			
Neck	Baseline	CW2	1.5	7-8	1-2	Immediate improvement, moderate erythema	
	Intensive	CW4	1.5	4	1-2		
Double Chin	Baseline	CW4	3.5-4.0	4	2-3	Immediate improvement	



Treatment Guidelines

Clinical Treatment Guidelines

Clinical Training Material

Clinical Treatment Guidelines

EXCLUSIVE SKIN PRIVILEGE

SYLFIRM X

Emerging Dual Wave RF Microneedling System




SYLFIRM X Clinical Treatment Guidelines

Outlines

- I. Treatment Principles
 1. Radiofrequency (RF)
 2. RF Microneedling System
 3. RF Delivery with SYLFIRM X
 4. SYLFIRM X
 5. Na Effect
 6. Treatment Principles of RF Microneedling System
 7. Dual Wave and Mechanism of Action
 8. Main Indications of SYLFIRM X Treatment
 9. Melasma Treatment
 10. Papillary Dermis
- II. Device Preparation
 1. Installation
 2. Needle Tip Connection
 3. Maintenance
- III. Treatment Procedures
 1. Consultation
 2. Pre-Treatment Care
 3. SYLFIRM X Treatment
 4. Reference Parameters
 5. Post-treatment Care
 6. Maintenance of Device
- IV. Combination Therapy
 1. Considerations
 2. Treatment of Pigmented Lesions
 3. Treatment of Vascular Lesions
 4. Scar Treatment
 5. Skin Rejuvenation, Tightening and Lifting
- V. FAQ
 1. Patient Perspectives
 2. Physician Perspectives
- VI. Appendix
 1. Sample of Consent Form
 2. Sample of Medical Chart
 3. Sample of Scalp Laxity Grading Scale
 4. Sample of Progress Note / Treatment Record Sheet
 5. Sample of Patient Information Leaflet for Post-Treatment Instructions
- VII. Reference

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SYLFIRM X

Clinical Training

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Pre-Treatment Care



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GENERAL TECHNIQUES



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Handpiece Movement



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Treatment Technique: Stamping



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Treatment Technique: Pulling



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Test Shot



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Parameters: Pigmented Lesions

Parameter	Area	RF Energy	RF Time	RF Density	RF Interval	RF Depth	RF Frequency	RF Pulse Width	RF Pulse Rate	RF Pulse Type	RF Pulse Duration	RF Pulse Delay	RF Pulse Width	RF Pulse Rate	RF Pulse Type	RF Pulse Duration	RF Pulse Delay
RF Energy	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Time	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Density	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Interval	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Depth	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Frequency	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Width	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Rate	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Type	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Duration	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Delay	Face	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Treatment Video: Stamping Technique



Parameters: Vascular Lesions

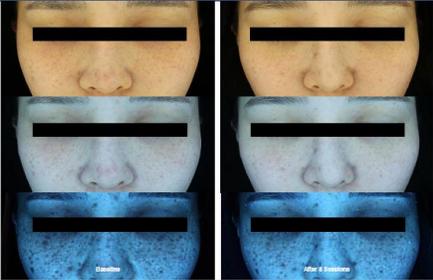
Parameter	Area	RF Energy	RF Time	RF Density	RF Interval	RF Depth	RF Frequency	RF Pulse Width	RF Pulse Rate	RF Pulse Type	RF Pulse Duration	RF Pulse Delay
RF Energy	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Time	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Density	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Interval	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Depth	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Frequency	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Width	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Rate	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Type	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Duration	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Delay	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100

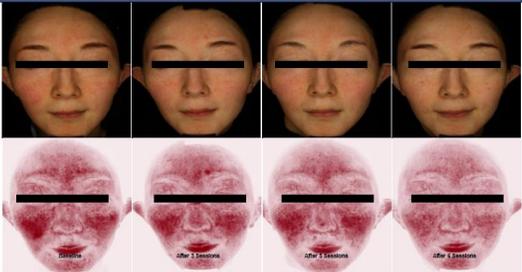
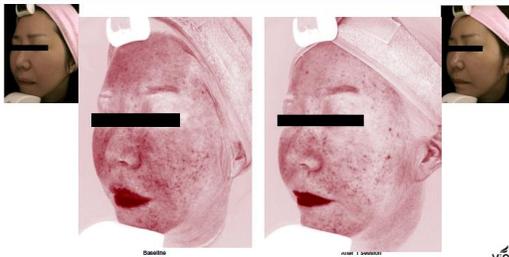
Parameters: Skin Texture and Tone

Parameter	Area	RF Energy	RF Time	RF Density	RF Interval	RF Depth	RF Frequency	RF Pulse Width	RF Pulse Rate	RF Pulse Type	RF Pulse Duration	RF Pulse Delay
RF Energy	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Time	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Density	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Interval	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Depth	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Frequency	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Width	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Rate	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Type	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Duration	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100
RF Pulse Delay	Face	100	100	100	100	100	100	100	100	100	100	100
	Body	100	100	100	100	100	100	100	100	100	100	100

Other Clinical Materials

Before and After Photos

SYLFIRM X	
Before and After Photos	
Melasma and Redness	Melasma
	

	Diffuse Redness
Vascular Lesions	
	
Diffuse Redness	Diffuse Redness
	

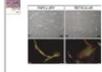
White Papers

White Paper

Targets of the continuous-wave and pulsed-wave modes in SYLFIRM X

Dr. Hyojin Roh, MD
Director of Department of Dermatology at Myrinse Dermatology Clinic, South Korea

cover the applicability of a system to achieve skin To do so, the structure of addressed first. The dermis layers: the papillary dermis the reticular dermis (deep Sorrell and Caplan(2004), and reticular dermis are lar pleus. In addition, as a dermal layer between hair blasts were present in the top of 0.3mm and reticular in the reticular dermis m. (Figure 1). Moreover, as ary fibroblasts and reticular et shapes and properties.



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White Paper

User Know-How of Using the VIOL's RF Microneedling Systems Discussed in the Panel Discussion of the VIOL Live Virtual Workshop on June 18th, 2021

SCARLET User : Dr. Salmia Yousef Albarqawi, MD
Assistant Professor at College of Medicine Department of Dermatology, Saudi Arabia

SYLFIRM User : Dr. Rungtina Waiiphakdeechea, MD
Associate Professor of Dermatology, Dermatotomy Unit, Department of Dermatology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

SYLFIRM X User : Dr. Klaus Fritz, MD
Dermatology and Laser Center, Landau und Kandel, Germany

Inventor of VIOL's RF Microneedling Systems : Dr. Jong Ju Na, MD, PhD
RF Microneedling Creator & Patent Holder, Founder of VIOL, South Korea

2x RF Microneedling Systems

before the procedure. Clindamycin prior to use to the treatment, oment.

the patient to going needling treatment.

experience. RF (either). Rather, it depends on the pigmentation

re-treatment care 2-3 time*Apply it after plative lasers.

ut, if a patient has a lication that is ready to follow, but ask them to

can sometimes burn a lar area (nose) as round the lips, inject

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White Paper

Melasma treatment combined with pulsed-wave of radiofrequency microneedling and other energy-based methods

Seiko KOU, MD
Director of KO Clinic, Japan
Department of Plastic and Reconstructive Surgery, Yokohama City University Medical Center, Japan

other energy based methods.

ents of Fitzpatrick skin ular, for which I apply or in combination for F microneedling device X, an upgraded version needling system, was ems, my clinic chooses F my clinical experience

ion presenting with an of age and in Asians. ors, including ultraviolet embrane, blood vessels, of melasma factors are ily worsen or recour. hods for melasma, and and the skin is of poor

d lasers or picosecond pigmentation lesions. absorption of melanin f melasma, is effective mesis and the dermal

of the patient and to f the surrounding skin condition is unhealthy re using topical agents ily good and spot-like re pulsed Nd:YAG laser RM together or not is ery status more closely. and skin condition are

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White Paper

Hair Loss Treatment using SYLFIRM X

So Jin Lee, MD
Director of Lee So Jin Clinic, South Korea

areas where hair loss the shape of the hair V, O, and U types at the

above, one or several are selected and r, when considering topographical factors in also be considered, that cytokines such as factor), IGF (Insulin-like Keratocyte Growth or Endothelial Growth rived Growth Factor), f) are present in the hair to hair growth.

from scalp care, use of medications, to emerge ment and hair transplant ling and the use of hair applied to prevent hair lations, and or topical but the products used on gender: For men, a is minoxidil, and oral is Finasteride and past, while for women, is minoxidil and 17a-zomemoly.

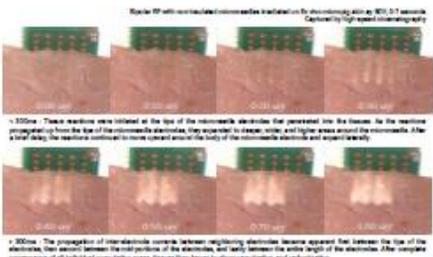
ave been used to treat w-level light therapy is biostimulation of hair ags which involves the y of drugs into the scalp, in drug delivery. y clinic regularly uses is the world's first and heeding device with CE primarily used to treat a y indications, including f scars, melasma, and applied to hair loss. is the thermal effect of yer by inserting needles of manner. Considering F, which causes tissue ion, and the physical here may be concerns

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Summary of Clinical Articles

SYLFIRM X Summary of ViOL Clinical Articles



Outline	Skin Reaction: No Effect	Continuous Wave: Skin Rejuvenation	Continuous Wave: Skin Rejuvenation
<p>Continuous Wave</p> <ul style="list-style-type: none"> Skin Reaction: No Effect_4 Skin Rejuvenation_5 Acne_10 <p>Pulsed Wave</p> <ul style="list-style-type: none"> Skin Reaction_14 Pigmented Lesion_16 Vascular Lesion_24 Skin Rejuvenation_26 Scar_29 <p>300µm</p> <ul style="list-style-type: none"> Pigmented Lesion_30 Skin Rejuvenation_32 <p>RF Microneedling</p> <ul style="list-style-type: none"> Etc_33 	<p>EMERGING REPORTS</p> <p>Electromagnetic Initiation and Propagation of Bipolar Radiofrequency Tissue Reactions via Insulated Microsaele Electrodes SCOPUS SCOPUS By Jonggi Na, Zhewang Zheng, Christopher Denmark, Sang Eun Lee, Jin-Doo Kang, and Sung Il Cho Scientific Reports, 2014, 5, 16735 http://dx.doi.org/10.1038/srep16735</p> <p>Methods</p> <ul style="list-style-type: none"> For an experimental study of RF tissue reactions, bipolar RF energy with non-insulated microsaele electrodes (SYLFIRM ViOL) were emitted to in vivo/wr vivo microsp skin and ex vivo bovine liver tissue at varying microsaele penetration depths, RF signal amplitudes, and RF conduction times. <p>Results</p> <ul style="list-style-type: none"> It was found in both microsp skin and bovine liver tissue that coagulation was initiated at the tip of each needle electrode when bipolar RF is transmitted to the tissue through non-insulated needles. As the conduction time increased, the coagulation expanded into a droplet or cocoon shape with relatively few thermal effects on the epidermis. "No Effect"  <p>100µm - Tissue reactions were initiated at the tip of the microsaele electrodes that penetrated into the tissue. As the reaction progressed from the tip of the microsaele electrode, the expansion to shape, volume, and length was around the microsaele. After a brief delay, the reaction continued to more central areas of the body of the microsaele electrode and expanded laterally.</p> <p>200µm - The propagation of the radiofrequency energy between neighboring electrodes became apparent. The distance from the tip of the electrode, the space between the distal portions of the electrodes, and the length of the electrode. After complete coagulation of all individual coagulation areas, tissue then began to show coagulation and carbonization.</p>	<p>Comparison of efficacy and safety of fractional radiofrequency and fractional Er:YAG laser in facial and neck wrinkles: 50-year experience with 333 patients SCOPUS SCOPUS By Zahra A Sardar, and Ali Taherpour Dermatologic Therapy, 2014, 32(5), e13054 http://dx.doi.org/10.1111/dth.12054</p> <p>Methods</p> <ul style="list-style-type: none"> 333 patients with facial wrinkles were treated with fractional RF (SCARLET, ViOL) and fractional Er:YAG laser for skin rejuvenation. Patients aged between 36 and 85 years, mean age of 49.8±7.3 years 133 patients for fractional RF and 200 patients for fractional Er:YAG Fractional RF: F(face) mode, power 8, intensity of 30-70mJ, 1.0-1.5mm on periorbital area, 2.0-2.5mm on nasolabial, jaw line and peroral area, 3.0-3.5mm on submental and neck area Fractional Er:YAG laser: P200 handpiece, short pulse mode, 40-50J/cm², 10Hz on periorbital area / F1rizer handpiece, smooth pulse mode, 2J/cm², 10Hz on nasolabial, jawline and peroral area / R11 handpiece, smooth mode, 2J/cm², 10Hz on submental and neck area 3 treatment sessions at one month intervals <p>Results</p> <ul style="list-style-type: none"> Fractional RF treatment was more effective for peroral, nasolabial, jawline, neck areas whereas fractional Er:YAG laser treatment was more effective for the periorbital areas. There are no statistically significant difference in side effects between two treatment groups.  <p>(A) Before (B) 2 months after 3 sessions of fractional RF treatment (C) Before (D) 2 months after 3 sessions of fractional Er:YAG treatment</p>	<p>Clinical Study of Facial Wrinkle Treatment with Fractional Microsaele Radio Frequency System By Hyun-Jin Park, Hyung-Moon Kim, and Myung-Jin Oh Medical Lasers, 2014, 3(2), 59-64 http://dx.doi.org/10.23270/M.2014.3.2.59</p> <p>Methods</p> <ul style="list-style-type: none"> 204 Korean patients with facial wrinkles at 3 study centers, were treated with fractional microsaele RF system (SCARLET, ViOL). Patients: 80 male, 124 female; mean age of 47.3 years, ranging from 26 to 68 years, Fitzpatrick skin type II-IV Treatment: 0.8-3.0mm, level 6-8, 100-200ms, 1-3 passes for 1-3 sessions at average 4-week intervals <p>Results</p> <ul style="list-style-type: none"> Of 204 patients, 54 had near total improvements (>75%), 86 had marked improvement (51-75%), 50 had moderate improvement (26-50%), and 14 had minimal improvement (0-25%). Mild post-inflammatory hyperpigmentation was found in only 2 patients, which spontaneously resolved within one month.  <p>(A) Baseline (B) 2 months after 3 sessions of fractional RF treatment (C) Baseline (D) 2 months after 3 sessions of fractional RF treatment</p> <p>(E) Baseline (F) 2 months after 3 sessions of fractional RF treatment</p>

Any Questions?



Thank You

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