



RF Microneedling and PLASMA combination treatment for enhanced drug delivery and skin rejuvenation

Dr. Christian FAYARD
Aesthetic Doctor

 **Gentlo**

 **CHRISTIAN
FAYARD**

➤ WHY TO COMBINE?

The combination of RF Microneedling and Plasma can enhance drug delivery and skin rejuvenation by working synergistically to improve the penetration and absorption of topical medications and stimulate collagen production

➤ INDICATIONS

This combination treatment is particularly important in the field of dermatology due to its numerous benefits. Firstly, it allows for targeted delivery of medications to specific areas of concern, such as acne scars, atrophic and hypertrophic scars, stretch marks, Keloids, hyperpigmentation, Dilated pores, Skin tightening or wrinkles.

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING

- Dermatologic Fractional Therapy for skin aging treatment
- Combines traditional microneedling with radiofrequency energy
- Non-surgical treatment used for skin rejuvenation and tightening
- Needles are used to create micro-injuries on the skin's surface
 - These micro-injuries stimulate the body's natural healing response
 - promote the production of collagen and elastin
- Radiofrequency energy heats the deeper layers of the skin, stimulating collagen production
- Combination of microneedling and radiofrequency energy enhances the effectiveness of the treatment
 - Micro-injuries allow for better absorption of topical medications
 - Radiofrequency energy tightens and firms the skin.

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING **ADVANTAGES OF RFM**

- Nonionizing electromagnetic radiation which has been used in medicine for nearly 100 years
- RF is chromophore-independent with better penetration to the dermis and hypodermis
- Safe and effective for skin tightening, skin resurfacing and rejuvenation
- Less downtime comparing to fractional CO2 laser
- Microneedle RF applicators introduce into the skin extra sharp microneedles while heating the dermis up to a depth of 3.5mm
- There are multiple types of microneedle RF with significant differences (sharpness, coating, insulated or non insulated)

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING

HOW DOES IT WORK?

- Needles are inserted into the skin by a specially designed, electronically controlled, smooth motion motor
- When the needles reach the predefined insertion depth the RF is emitted
- With Noninsulated needles the RF energy is emitted over the whole needle length
- With Insulated needles the RF energy is emitted to the tip of the needle
- RF will always follow the path of least impedance: epidermis (high impedance) and dermis (low impedance)
- Electrothermal damage delivered to the skin

RF MICRONEEDLING INSULATED OR NON-INSULATED NEEDLES

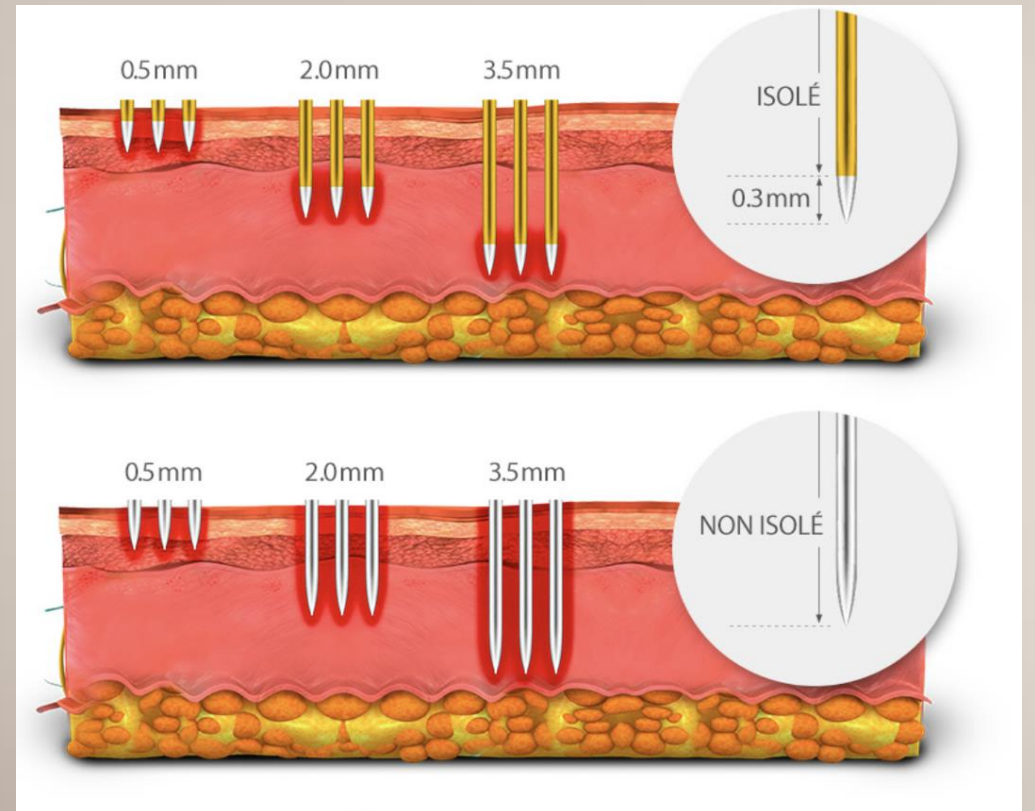
- NON INSULATED NEEDLE: RF energy is emitted over the whole needle length
 - No need for separate deep and superficial passes
 - they provide effective coagulation resulting in minimal or no in treatment bleeding
 - Coagulation of the skin, makes pre/post-antiviral treatments redundant
- INSULATED NEEDLE: RF energy delivery to the very tip of the needle
 - passes per session ranged from 1 to 3
 - post-treatment Bleeding
 - Less epidermal damage stimulating regeneration of a young epidermis over the restructured dermis
 - Less dangerous for phototype IV to VI

 **Gentlo**

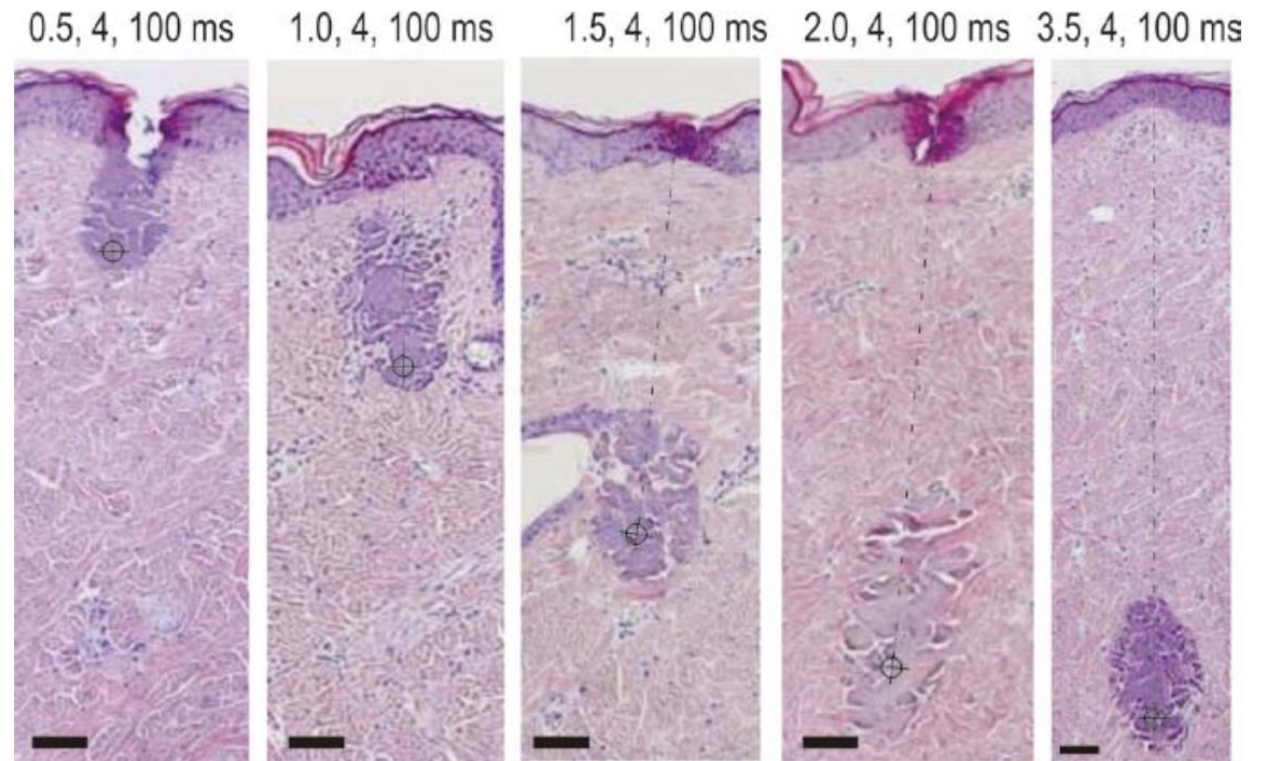
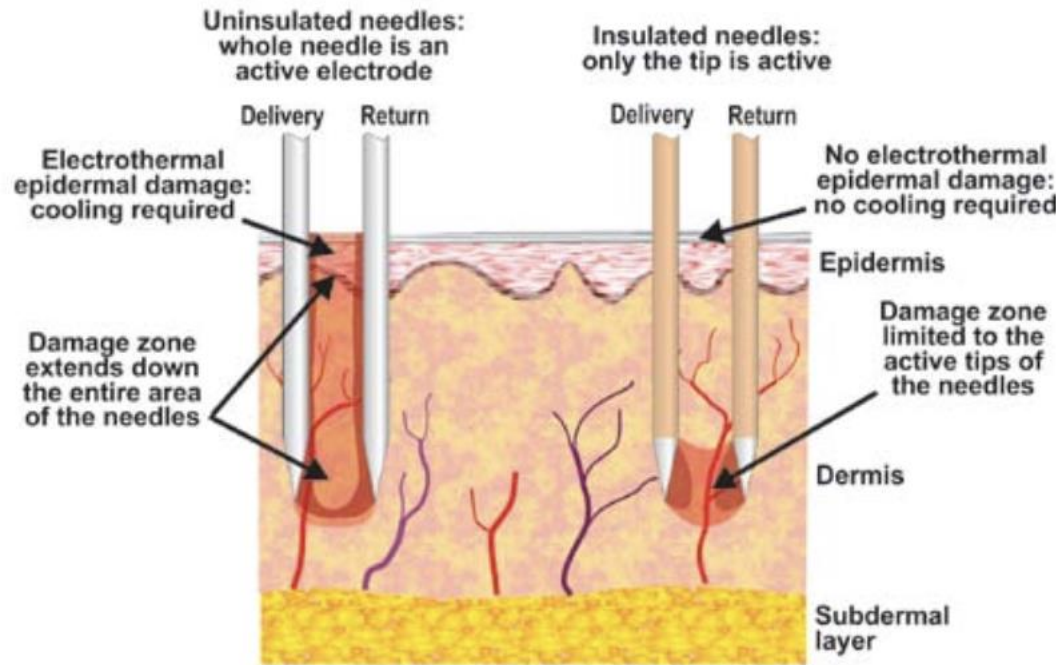
 **CHRISTIAN
FAYARD**

RF MICRONEEDLING INSULATED OR NON-INSULATED NEEDLES

- NON INSULATED NEEDLE: RF energy is emitted over the whole needle length
- INSULATED NEEDLE: RF energy delivery to the very tip of the needle



RF MICRONEEDLING INSULATED OR NON-INSULATED NEEDLES



RF MICRONEEDLING PARAMETERS AND TREATMENT SESSIONS

- A topical anesthetic cream with occlusion times from 20 to 45 min is recommended
- Needle depths ranged from 0.5 mm to 3,5mm, depending on the anatomical site and pass number
- Insulated or Noninsulated needles, depending on indication and phototype
- Power levels ranged from 1 to 9 depending mostly on needle depth but also site
- Exposure times ranged from 50 ms to 400 ms
- Number of passes per session ranged from 1 to 3, with extra passes being delivered over some areas
- Treatment sessions ranged from 1 to 4, with 4 weeks being the average interval between sessions

 **Gentlo**

 **CHRISTIAN
FAYARD**

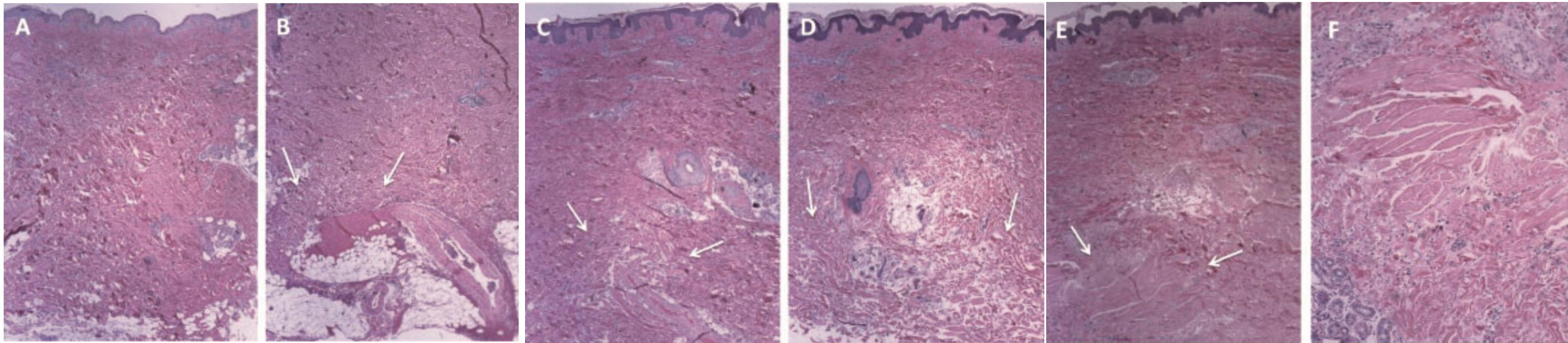
RF MICRONEEDLING ACTION MECHANISM

- MRF treatment generates a RF thermal zone (RFTZ) pattern in the reticular dermis that consists of zones of denatured collagen separated by zones of spared dermis.
- RFTZs are replaced by new dermal tissue by 10 weeks
- Reticular dermal volume, cellularity, hyaluronic acid, and elastin content increase
- Induction of tropoelastin, fibrillin, as well as procollagens 1 and 3 by 28 days post-treatment.
- vigorous wound healing response is initiated post-treatment, with progressive increase in inflammatory cell infiltration from day 2 through 10 weeks.
- An active dermal remodeling process driven by the collagen chaperone HSP47 led to complete replacement of RFTZs with new collagen by 10 weeks post-treatment
- MRF treatment led to neo-collagenesis and neo-elastogenesis

 **Gentlo**

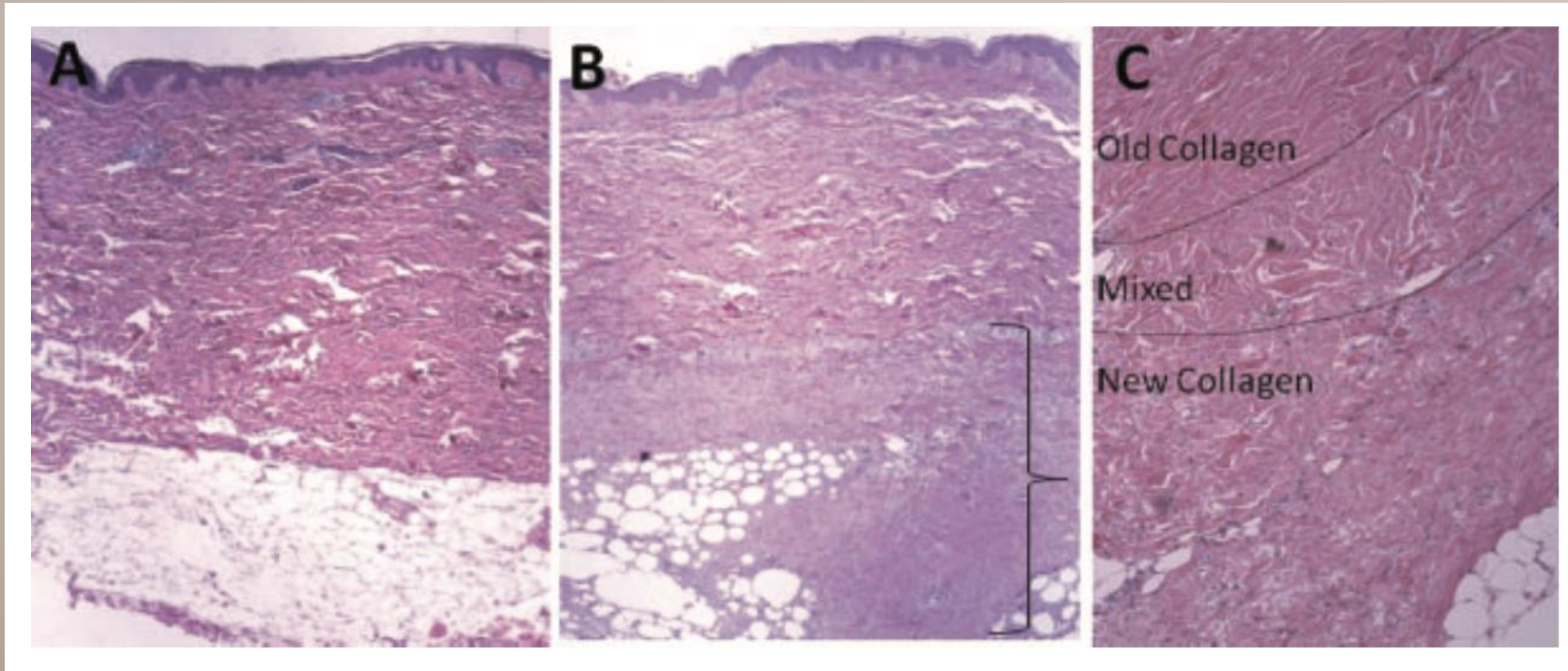
 **CHRISTIAN
FAYARD**

RF MICRONEEDLING ACTION MECHANISM



Lesions post-treatment with a MRF Device

RF MICRONEEDLING ACTION MECHANISM



Long-term dermal remodeling and neocollagenesis post-FRF treatment

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING INDICATIONS AND RESULTS

- Facial wrinkles
- Skin sagging face, neck, decollete and body
- Acne scars
- Postoperative scars
- Striae Distensae (Stretch marks)
- Dilated Pores
- Skin rejuvenation

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING INDICATIONS AND RESULTS

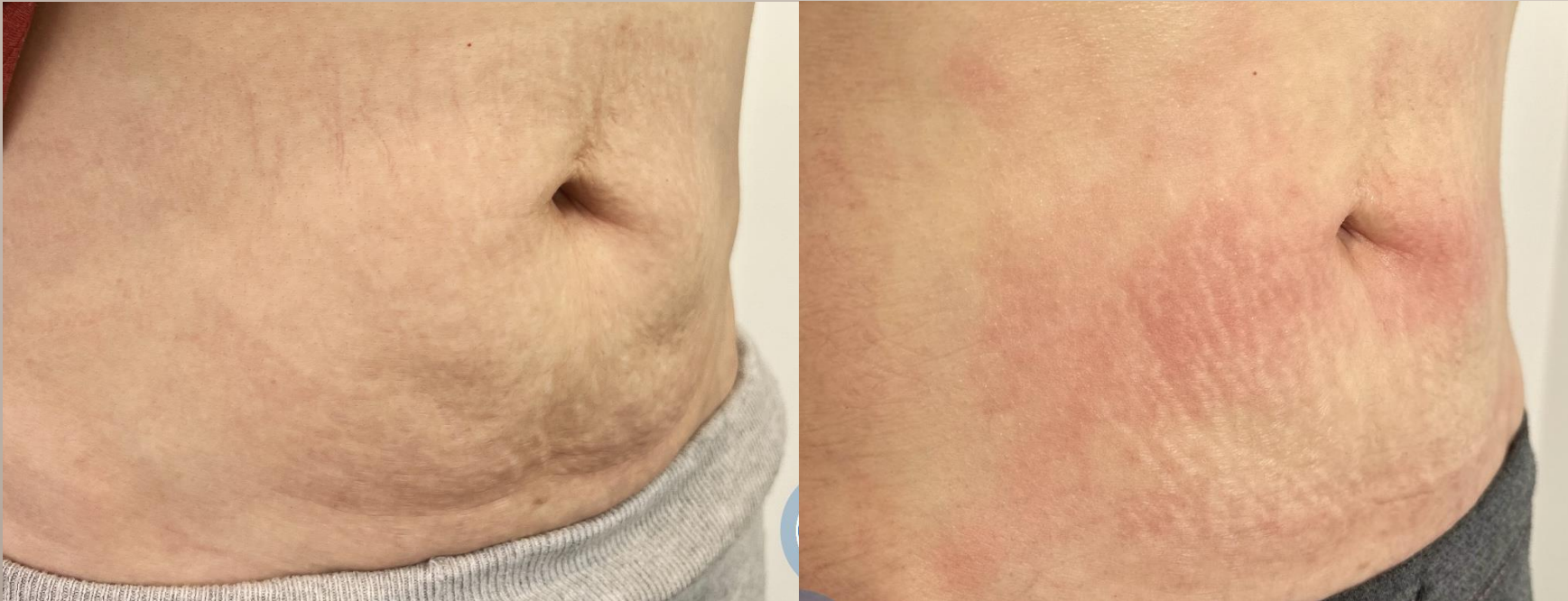


Females, 54 and 62 years old. One month after one microneedle treatment. Significant lifting effect and contour improvement in the mid and lower face. Courtesy of Dr. Christian FAYARD, Amiens, France.

 Gentlo

 CHRISTIAN
FAYARD

RF MICRONEEDLING INDICATIONS AND RESULTS

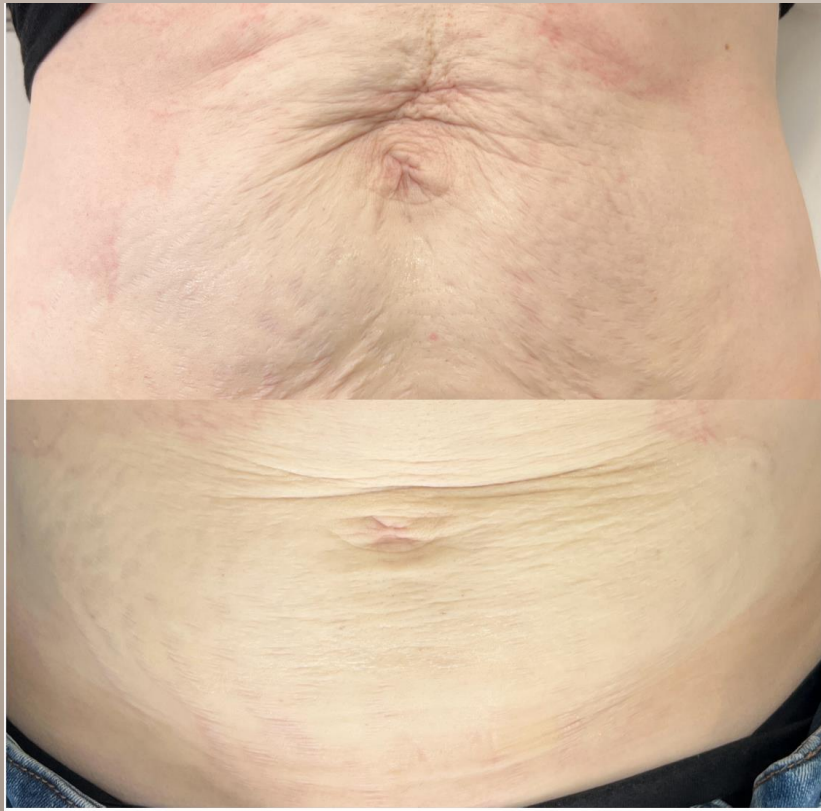


Females, 31 years old. One month after one microneedle treatment. Significant improvement effect on abdominal skin sagging. Courtesy of Dr. Christian FAYARD, Amiens, France.

 Gentlo

 CHRISTIAN
FAYARD

RF MICRONEEDLING INDICATIONS AND RESULTS

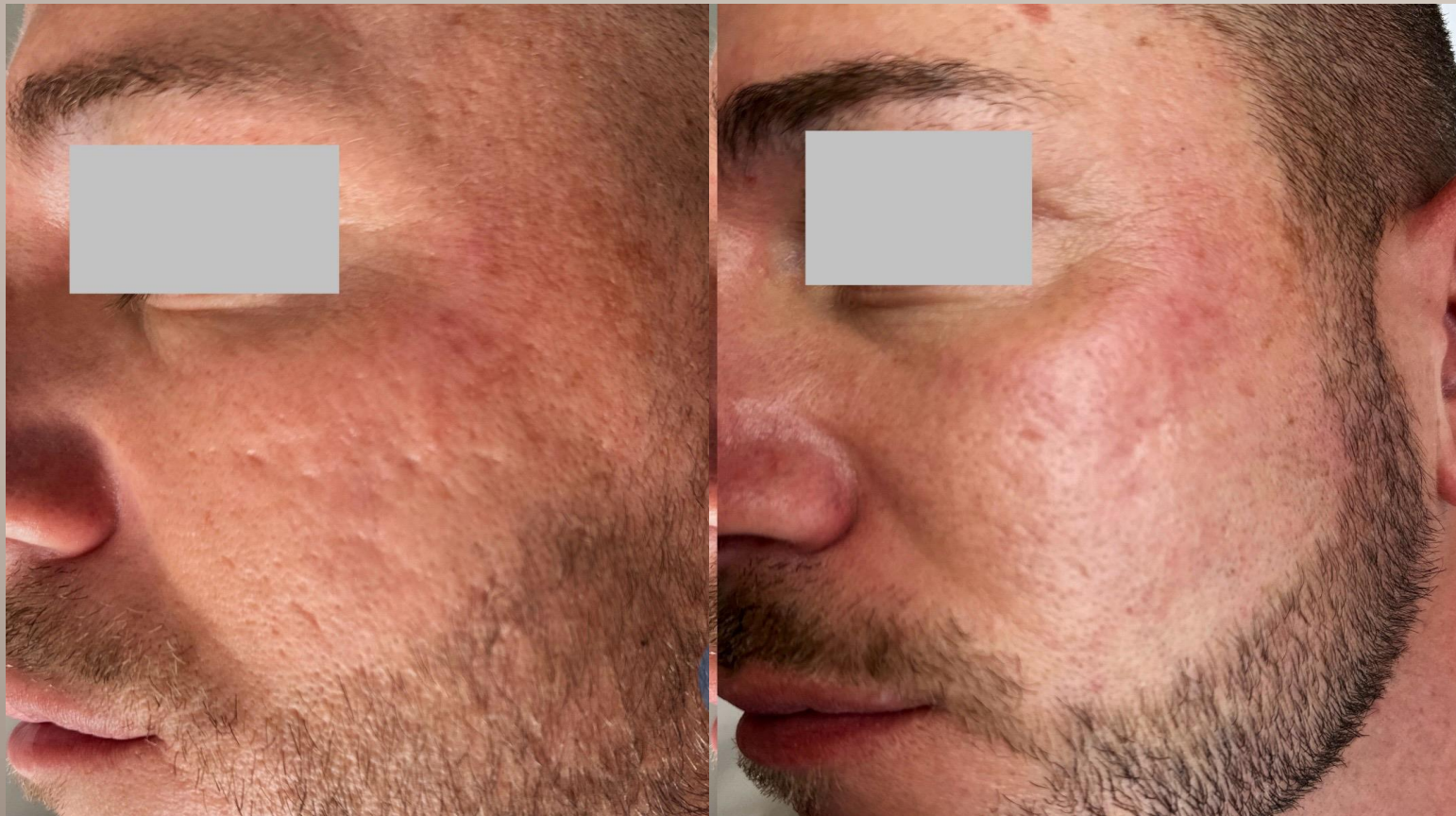


Females, 36 years old. One month after three microneedle treatments. Significant improvement effect on abdominal skin sagging.
Courtesy of Dr. Christian FAYARD, Amiens, France.

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING INDICATIONS AND RESULTS



Male, 42 years old. One month after two microneedle treatments. Significant improvement effect on acne scars. Courtesy of Dr. Christian FAYARD, Amiens, France.

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING INDICATIONS AND RESULTS



Male, 39 years old. One month after three microneedle treatments. Significant improvement effect on postoperative scar. Courtesy of Dr. Christian FAYARD, Amiens, France.

 Gentlo

 CHRISTIAN
FAYARD

RF MICRONEEDLING INDICATIONS AND RESULTS



Female, 31 years old. One month after two microneedle treatments. Significant improvement effect on dilated pores.
Courtesy of Dr. Christian FAYARD,
Amiens, France.

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING INDICATIONS AND RESULTS



Female, 60 years old. One month after two microneedle treatments. Significant lifting effect and contour improvement in the mid and lower face. Courtesy of Dr. Michael Gold, Nashville, USA.

 Gentlo

 CHRISTIAN
FAYARD

RF MICRONEEDLING INDICATIONS AND RESULTS



Female, 60 years old. One month after one microneedle treatment. Significant lifting effect and contour improvement in the mid and lower face. Courtesy of Dr. Mark Taylor, Salt Lake City, USA.

 Gentlo

 CHRISTIAN
FAYARD

RF MICRONEEDLING INDICATIONS AND RESULTS



Female, 52 years old. One month after two microneedle treatments. Significant skin tightening of the cheeks and under the chin. Courtesy of Dr. Kenneth Rothaus, New York, USA.

 Gentlo

 CHRISTIAN
FAYARD

COLD PLASMA TREATMENT

DEFINTION

The science behind cold plasma technology relies on the unique properties of plasma, which is an ionized gas containing a high concentration of reactive species. When applied to the skin, cold plasma creates a chemical reaction that stimulates cell regeneration and promotes the production of collagen and elastin

 **Gentlo**

 **CHRISTIAN
FAYARD**

COLD PLASMA TREATMENT

HOW DOES IT WORK?

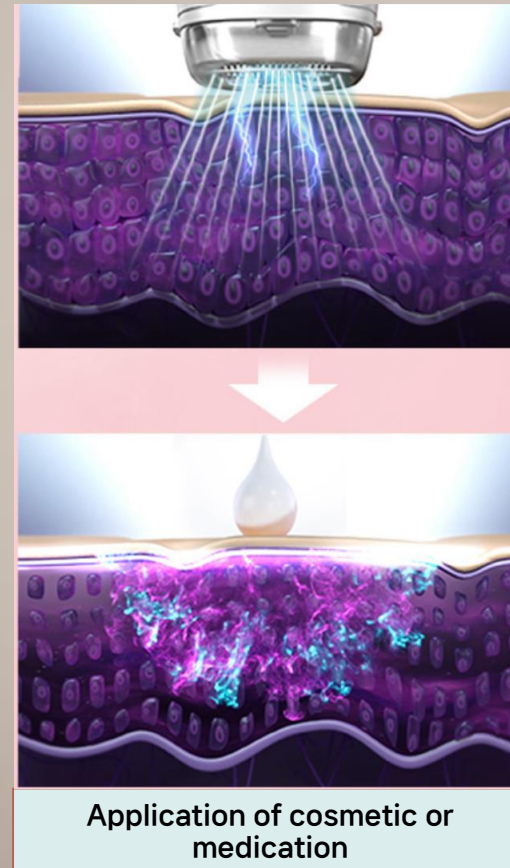
- Gas (helium, argon, or a mixture of gases)
- Electrode creates a uniform electric field and prevent electrical discharge to the surroundings
- High voltage is applied to the gas, it ionizes the gas molecules, creating a plasma discharge, highly reactive species
- Interaction with target: reactive species can penetrate the target and induce various biological effects
- Antimicrobial, antifungal, and antiviral properties
- Wound healing and tissue regeneration, cell migration, proliferation, angiogenesis, immune response, tissue regeneration and cancer treatment

COLD PLASMA TREATMENT

HOW DOES IT WORK?

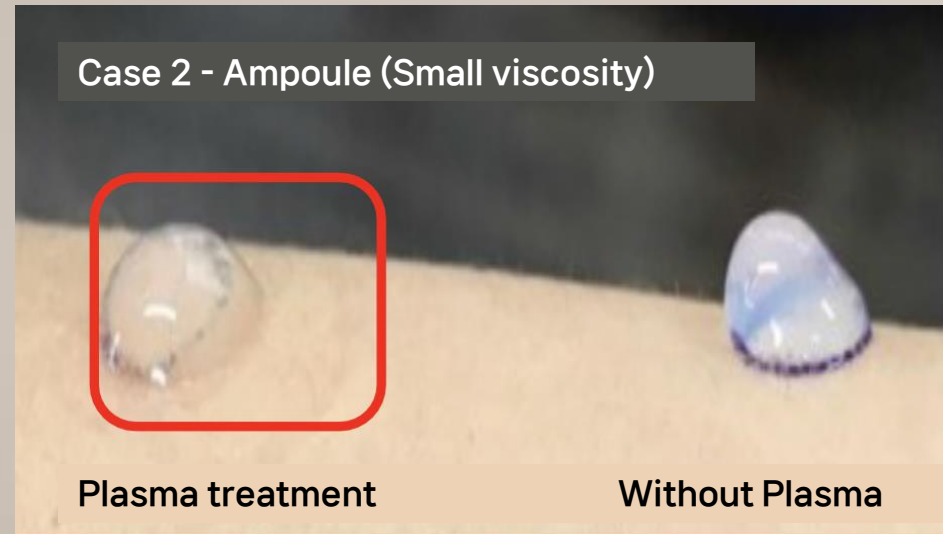
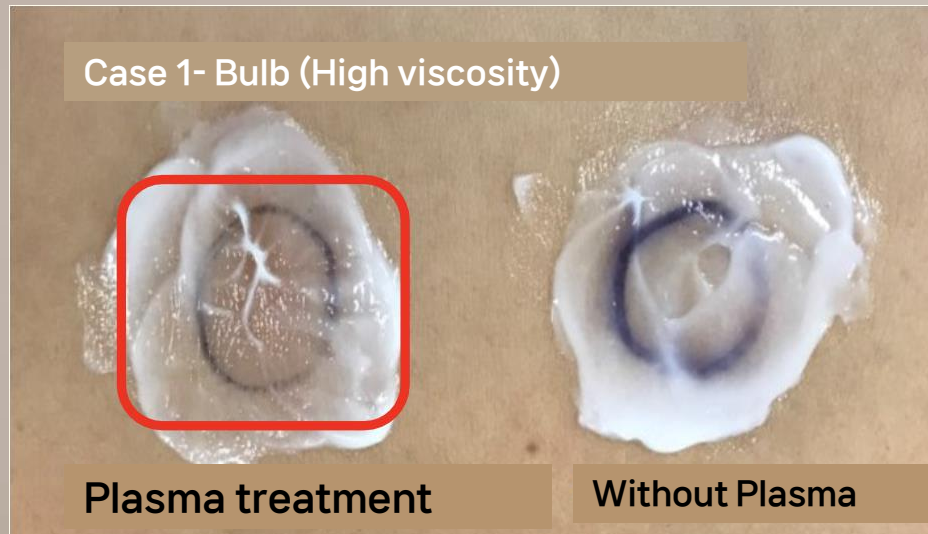
Plasma is used for the application of cosmetic or topical drugs. The plasma ion is emitted invisibly (20~50 μ m) and transfers energy to the skin.

With the plasma effect, nutrients are dissolved temporarily in the skin due to breakup molecules cell adhesion.



COLD PLASMA TREATMENT

HOW DOES IT WORK?



After plasma treatment, all types of ampoules, whether of low or high viscosity, can achieve a high absorption condition in less than 30 dry. Plasma sterilizes the skin and stimulates the process of skin treatment (reduction of bacteria, regeneration skin, DDSD, toning).

COLD PLASMA TREATMENT

INDICATIONS

- Antimicrobial, antifungal, and antiviral properties
- Wound healing and tissue regeneration, cell migration, proliferation, angiogenesis, immune response, tissue regeneration and cancer treatment
- Hair loss treatment
- **Treatment for warts, acne, and onychomycosis**
- Aesthetic indications: scars, acne, wrinkles, skin texture, skin spots, skin pores

COLD PLASMA TREATMENT ACTION MECHANISM

It is important to note that the exact mechanisms of action for cold plasma treatment are still being studied, and the specific effects can vary depending on the plasma source, treatment parameters, and target tissue.

 Gentlo

 CHRISTIAN
FAYARD

COLD PLASMA TREATMENT

CLINICAL TRIALS

- OATC Skin Clinical Trial Center leaded a study on mitigation of itchiness due to dryness, and improvement in the quintuple wrinkles (forehead, middle of forehead, around eyes, nasolabial, and around mouth), quadruple skin pores (volume, area, density, and number), skin texture, quadruple hydration (external hydration, deep skin hydration, moisture barrier, and transepidermal water loss)
- Plasma si deemed to be a product capable of providing assistance with mitigation of itchiness due to dryness, and improvement in the quintuple wrinkles (forehead, middle of forehead, around eyes, nasolabial, and around mouth), quadruple skin pores (volume, area, density, and number), skin texture, quadruple hydration (external hydration, deep skin hydration, moisture barrier, and transepidermal water loss) by the use of four weeks

 **Gentlo**

 **CHRISTIAN
FAYARD**

COLD PLASMA TREATMENT RESULTS

- Stimulation of cell regeneration
- Production of collagen and elastin
- Reduction of fine lines and wrinkles
- Improved skin texture
- Age Spot Reduction
- Skin Tightening
- Maximize topical drug delivery (high absorption)

 **Gentlo**

 **CHRISTIAN
FAYARD**

COLD PLASMA TREATMENT RESULTS



Acne treatment with plasmasonic device with the Genosis cosmetic range, results after 4 months

 Gentlo

 CHRISTIAN
FAYARD

COLD PLASMA TREATMENT RESULTS



Skin regeneration
(healthier and firmer skin)

(Reference) Evaluation of Low-Energy Plasma Skin Regeneration Technology in Complete Facial Rejuvenation. Melissa A. Bole, MD; Kenneth A. Arndt, MD; Jefferey S. Dover, MD, FRCPC.

 Gentlo

 CHRISTIAN
FAYARD

RF MICRONEEDLING + PLASMA COMBINATION

REASONS WHY TO COMBINE

- Skin Quality: A Holistic 360° View
- RF Microneedling: indication on deep layers
- Plasma Treatment: indication of improving skin quality
- Bio Stimulation: the Key to success
- Topical approaches may not be sufficient

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING + PLASMA COMBINATION

BENEFITS. SKIN QUALITY: A HOLISTIC 360° VIEW

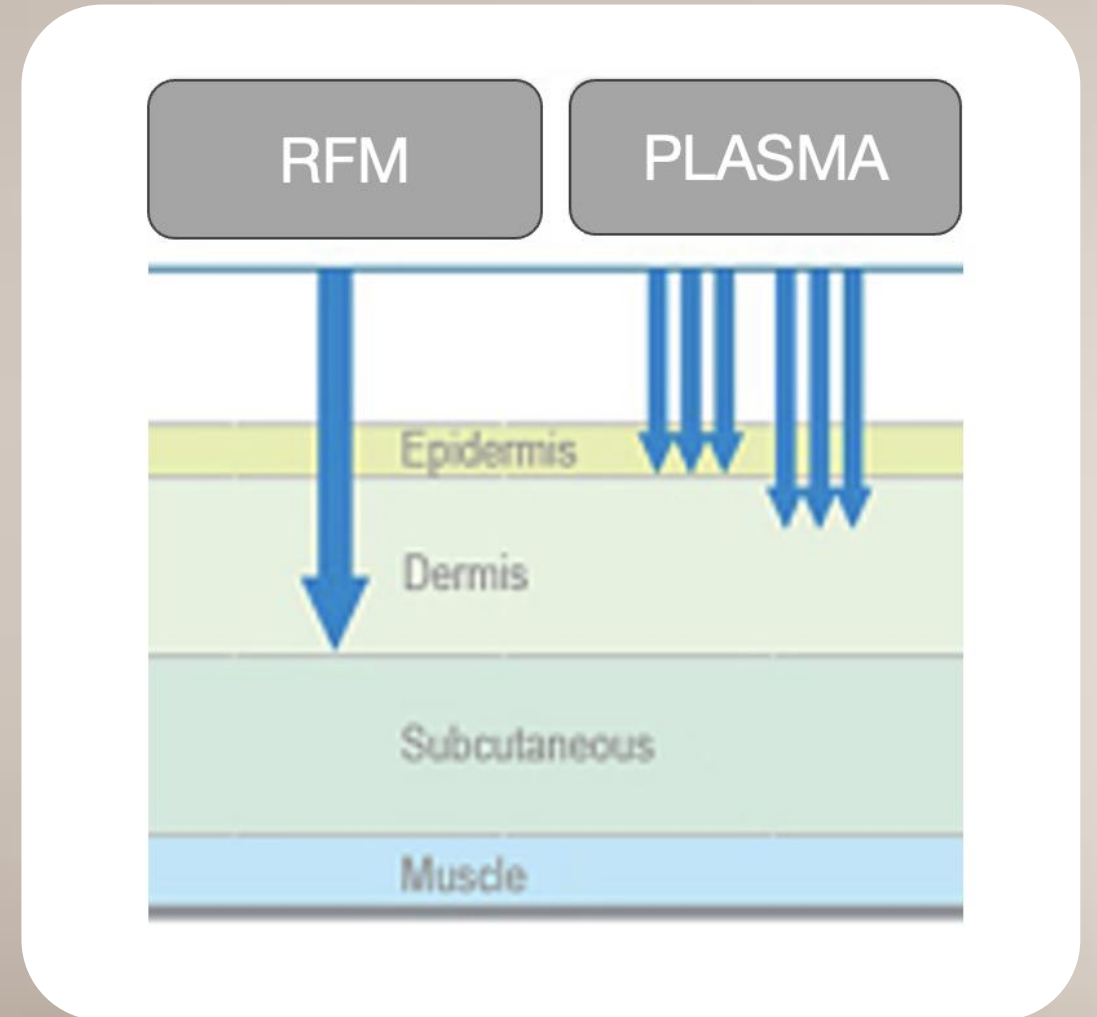
- Important component of human attractiveness
- Good skin quality: healthy and youthful in appearance
- Undamaged skin Categories: Tone Evenness, Surface Evenness, firmness and glow
- Skin Categories affected by multiple Tissue layers
- Skin surface quality can be stern from and be impacted by deep structures or tissues
- Improving skin quality require a multilayer treatment strategy

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING + PLASMA COMBINATION

BENEFITS



RF MICRONEEDLING + PLASMA COMBINATION RESULTS

- Study carried out in my clinic
- 2 female patients (a) 61 years old and (b) 56 years old
- 1 treatment: RF Microneedling for jawline both sides combined with plasma with NCTF 135 HA (polyrevitalizing mesotherapy solution) on right side of the face
- Comparative photo 1 month after treatment
- Better improvement of the right side (treated with RF microneedling and plasma)

 **Gentlo**

 **CHRISTIAN
FAYARD**

RF MICRONEEDLING + PLASMA COMBINATION RESULTS

Gentlo

CHRISTIAN
FAYARD

(a)

Before



After



(b)

Before



After



CONCLUSION

- The combination of cold Plasma and radiofrequency microneedling treatment works synergistically combining two effective technologies
- Cold Plasma prepares the skin by deeply cleansing it, maximize topical drug and cosmetics delivery
- Radiofrequency microneedling penetrates deeper and stimulate production of collagen and elastin
- This combination improves the results of skin rejuvenation. This leads to improved results in terms of skin firmness, reduction of wrinkles and scars, and overall improvement of skin texture
- Prolonged effect: The combination of these treatments can also prolong the beneficial effects on the skin



THANK YOU



Dr. Christian FAYARD

**Aesthetic Doctor
80000 Amiens, France**

**@dr.christian.fayard
www.docteur-fayard-esthetique.com/**