MESOTHERAPY: Brief Overview
Mesotherapy is an injection and treatment technique used in general medicine for a multitude of medical conditions. Mesotherapy was developed by French physician Dr Michel Pistor in the early 1950s to treat conditions such as rheumatology, sports traumatology, and infectious and vascular diseases. Since then, more than 25,000 physicians from around the world have used Mesotherapy in various ways to produce dramatic results—in and out of the operating room.

Activity Mechanisms of Mesotherapy
A few theories have been proposed to explain Mesotherapy’s activity mechanisms:
- Dr Michel Pistor (France), in his Reflex Theory, shows that Mesotherapy interrupts the visceral medullar-cerebral path of the lateral-medullar level using stimuli originated at the dermic level. These stimuli are mechanical (needle), physical (micro drops), chemical (drug composition), and pharmacological (specific drug action).
- Dr Joseph Kaplan (Israel), who combined multiple concept studies in nuclear medicine with labeled substances given superficially between depths of 1.5 and 2.0 mm (ie, superficial intradermal administration), showed the following results:
  - Injected medications remain active for a longer period of time.
  - Local diffusion varies according to the injected substance’s characteristics.
  - Low-weight molecules diffuse through blood vessels and colloids disease through lymphatic vessels.

Receptors
Minimal drug amounts in contact with peripheral receptors directly increase therapeutic effects. Results depend on the activation of the largest amount of receptors for disease control. The administration of anesthetics in the treatment area retards the absorption of the injected drugs, allowing them to diffuse deeper into the connective tissue, thus arriving at the desired treatment site in a higher concentration without dilution.

Each year, new materials appear from the simple to the most sophisticated. Some are designed to facilitate the injections, and others propose pointless objectives. Whatever method of injection is used, however, intradermal (ID) therapy consists of two successive stages:
- preparation of the cutaneous surface prior to injection, and
- penetration of a small quantity of the active agent.

Intradermal treatment requires various injections, and more care should be taken to ensure correct skin antisepsis. The risk of cutaneous complication from atypical microbacteria, particularly the acid-alcohol-resistant "mycobacterium fortuitum," demands that the surfaces should be cleaned with iodized alcohol.

Introduction to mesotherapy injection techniques
Penetration of a small quantity of the active agent:
1. Introduce the needle perpendicular to the skin from a depth of 2–4 mm.
2. Inject 0.1–0.3 ml of medications symmetrically with a separation distance of 0.5 cm.
   - face punctures are between 0.5 cm
   - body punctures are between 2 cm
3. Perform the injections weekly.
4. The pharmacology and quantity of the medicines included in the injections are determined by the physician. Injection techniques should be adapted according to indication, pathology, medication used and age of the patient.

Different techniques of mesotherapy

- Intra-epidermic
  - Superficial intradermic - papule

- Intradermic - nappage

- Deep Intradermic – point-by-point

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Laboratoires Filorga
Paris
**INTRA-EPIDERMIC**
Multiple superficial injections into the epidermal level. <1mm depth “superficial nappage”
Retarded effect.
Minimal or no bleeding
Minimal or no pain
Needle: 30 – 32G  4 - 12mm  Bevel up. But only the bevel goes into the skin.

**SUPERFICIAL INTRA-DERMAL – Papule**
Intrabasal layer injection. Multiple papules. 1- 2mm depth.
<0.1 ml per point.
Needle: 30 G 4 - 12mm. Bevel up.
Blanching of the skin to form a papule.

**INTRA-DERMAL – Nappage**
Multi-pricking technique. 2 – 4 mm depth
Semi-retarded effect
Needle: 30G 4mm.
2-4 injections per second. 0.5 – 2mm depth

**DEEP INTRA-DERMAL – Point-by-point**
Deep intra-dermic or hypodermic injections. 4 - 10mm depth
Needle: 4-6mm
0.5 – 2 cm distance apart
Variable volume, might be>0.1 ml
Punctual and more painful.

Subcutaneous injections in mesotherapy is used for injection lipolysis
The Procedure
Patient evaluation, history and examination.
Diagnose areas for treatment.
Set goals and discuss treatment plan – amount of sessions and intervals.
Informed consent.
Patient education: Come with a clean skin, free of make-up and creams or lotions. Avoid blood thinning medication where possible for 48 hours prior to treatment.
Map the area to be treated in each session.
Clean area with anti-septic solution – Chlorhexidine.
Apply the treatment while the patient is lying down.
Position the patient to present the best angle for application, which must always be perpendicular to the skin.
Introduce the drugs smoothly with a regular interval between each dose.
Take care to respect the locations of the vascular and nervous systems to diminish the possibility of hematoma.

Materials Required for the Mesotherapy Treatment
• Disposable syringes (1 ml–10 ml) according to product amount used
• Disposable mesotherapy needles (27 G–32 G) – face 30-32G – 4mm – 12mm length.
• Disposable withdrawal needles
• Multiple syringes
• Manual or automatic “guns” (syringes)
Other sterile disposables: gloves, gauze, linen savers, sterile trays.

Manual Application
Manual application is the simplest, and it is recommended for the trained operator. Success is based on the combination of the operator’s hand, the selected syringe, and the chosen needle. Choose the smallest possible combination of syringe and needle to contain the required number of injections.

Mechanical Equipment
• Diffusion and distribution is slower through the meso tract than through the rest of the parenteral tracts.
• Diffusion does not depend on the anatomical puncture location but on a perfect Meso execution technique.
• The diffusion speed is inversely proportional to the molecular weight of the medicine used.
• Small amounts of medicine are injected at many points.

Medications used with mesotherapy techniques
• Should be water-soluble and never vehicle in an oil-based solution,
• isotonic with suitable pH,
• perfectly tolerated at the subepidermis tissue level,
• integrated to the receptor tissue medium,
• nonallergenic,
• recognized efficacy,
• physiologically synergic,
• free of any antagonistic action, and
• recommended for each particular case
Absence of pain, nodule formation or necrosis.

Mesotherapy is a medical technique. It is crucial that an accurate medical diagnosis is made to achieve the best possible results for the patient. Also imperative in the decision process are the use of the correct drugs.
**Protocol**

Mesotherapy is a biological and progressive treatment that requires a minimum of 6 sessions [3 months] for a skin visibly rejuvenated.

**TREATMENT PACE - 3 PHASES**

**PHASE 1 – INITIALIZE**
4 sessions with one week to 15 days intervals

**PHASE 2 – REPAIR**
2 sessions with one month interval

**PHASE 3 – MAINTAIN**
1 session every 2 to 6 months

*Determine suitable treatment intervals according to the indications of each patient.*

**IMPORTANT:** Revitalizing mature skins requires a more recurrent treatment pace than younger skins:

Our in vitro study of fibroblasts proliferation when in presence of NCTF 135® reveals that aged fibroblasts require more product than young fibroblasts.

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**THEORETICAL CURVE OF CELLULAR REVITALIZATION**
Progressive and cumulative effect of cellular poly revitalisation
Recommended NCTF® treatments or courses in medical practice or clinic

Sell per treatment session or in a course (Full face, neck and décolleté)

**NEW Filorga® NCTF® 135**

Treatment can be performed by assistant (under medical supervision) or nurse with SIT adaptor (fine short needle on an adaptor with minimum/no pain). Treatment for photo-aged skin with wrinkles, skin imperfections, pigmentation, dull skin with loss of tonicity. From the first session the skin is more radiant and plump, with following sessions you will notice wrinkle reduction and skin tightening as well.

Wrinkle treatment, Hydration, Radiance/ brightness, Ionic balance, cellular growth stimulation, cellular protection, redensification, regeneration, anti-free radical action.

Recommended protocol for skin repair.

- Phase 1 – INITIALIZE: 4 sessions with 1 – 2 week intervals
- Phase 2 – REPAIR: 2 sessions with 1 month interval
- Phase 3 – MAINTAIN: 1 session every 2 – 6 months (According to skin quality and age)

**NEW Filorga® NCTF –HA**

Doctor administered treatment for ultra hydrating, restructuring mature skin with numerous wrinkles, severe sagging, dry or dehydrated skin and thin skin. Deeper injections with more concentrated formula which contains a high concentration of hyaluronic acid for wrinkle filling, skin hydration and plumping. Treatment is performed over the full face, neck and décolleté. Injections are administered on 3 different levels treating superficial skin damage, medium layers of skin as well as the deep layers of the skin and in the wrinkles itself.

Can be scheduled in between plain NCTF® mesotherapy sessions. Or at 1 – 4 month intervals.

**Intensive Treatment course for mature or damaged skin:**

Ideal for mature, dehydrated, dry or wrinkled skin with lack of radiance and plumpness.

Reduction of fine and medium lines, plumping, tightening and hydrating.

1 x NCTF HA
3 x NCTF
1 x NCTF HA

Can be spaced 2 weekly to 1 monthly according to the severity of skin wrinkling and sun damage.

*If course is paid in advance: R __ instead of R __ for the course*

**Revitalizing Treatment course for all skin types:**

Ideal for treating the first signs of ageing and prevent further age related damage to the skin. Reduction of fine lines, ultra hydrating, skin tightening, anti-oxidant and radiance improvement.

5 x NCTF treatments

Can be spaced 2 weekly to 1 monthly according to the severity of skin wrinkling and sun damage.

*If paid in advance: R __ instead of R __ for the course*

**Intense Scientifically Proven Skin Make-over course:**

Skin make-over with reduction in most types of lines/ scars, hydrating and plumping intensively.

5 x NCTF® 135 HA – doctor only administered treatment

Can be spaced 3 - 6 weekly depending on how soon you want improvement.

*If paid in advance: R __ instead of R __ for the course*

**This treatment course has shown with large scientific studies its remarkable results on wrinkle reduction, skin tightening, hydration/ radiance and improvement of skin quality.

World leading facial mesotherapy product, with over 1 million treatments done in 2008.
PATIENT RESULTS

NATURAL, PROGRESSIVE WITHOUT EXCESS
Noticeable from the first session: The skin is more hydrated and much brighter.
In the long term, skin tones are more uniform. The skin is restructured, re-densified and firmer.
The face looks visibly younger and smoother.

NCTF 135 & 135HA not only treat ageing consequences but above all treats the causes.
=> NOTICEABLE OVERALL IMPROVEMENT OF THE QUALITY AND APPEARANCE OF THE SKIN.

NEW IN-VITRO TESTS - PROVEN COMPLETE ANTI-AGEING EFFICIENCY
STUDY CONDUCTED BY AN INDEPENDANT RESEARCH CENTER SPECIALIZED IN CELLULAR AND MOLECULAR PHARMACOLOGY.

1- CELLULAR GROWTH STIMULATION
  + 147% of cells (human fibroblasts) in 72h
  method: 96 sample wells – 2000 young fibroblasts per well – 72h contact

2- ACTIVE DERMIS REDENSIFICATION
  + 256% extra-cellular collagen in 72h
  method: 96 sample wells – 8500 aged fibroblasts per well – 72h contact

3- CELLULAR PROTECTION
  + 90% protection after UVA-B radiation [in 24h]
  method: 96 sample wells – 10000 Jurkat cells per well 24h after radiation at 240 J/cm² - lipid peroxides level measure.

4- VISCO-ELASTIC REGENERATION
  + 366% of elastase inhibitor gene expression
  method: 3 sample wells – 2000 normal human fibroblasts – 96h contact

OVERALL ACTIONS - BIBLIOGRAPHICAL RESOURCES

5- COMPLETION OPTIMISATION
  + A.H.: regulation of cutaneous microcirculation
  method: the hyaluronic acid activates the angiogenesis

6- BACK TO A HEALTHY IONIC BALANCE
  + 4 ionic minerals
  method: exogenous supply of Calcium (Ca+), Potassium (K+), Magnesium (Mg+), and Sodium (Na+)

7- ACTIVE & EXOGENOUS HYDRATION
  + hyaluronic acid: strong hydroscopic potential
  method: 30x its volume in water

8- TREATMENT OF WRINKLES
  progressive biological repair of cutaneous depressions

CLINICAL NCTF®135HA
THE FIRST IN-VIVO CLINICAL STUDY ON THE EFFICACY OF ANTI-AGEING MESOTHERAPY

PROTOCOL

Study conducted by 17 French Practitioners: Dr Baspeyras, Dr Beilin, Dr Benchimol, Dr Boursier, Dr Braccini, Dr Briancon, Dr Catoni, Dr Franc, Dr Gomel toledano, Dr Lajeuni, Dr Larrouy, Dr Niforos, Dr Pellekier, Dr Pomarede, Dr Sion, Dr Tordjman, Dr Toulliec.
Over 40 patients aged 29-80
3 month protocol – 5 NCTF®135HA injection sessions spaced 15 days apart
Treated areas: Face, Neck, Décolleté, Back of hands.

A CLINICAL PROVEN EFFICACY IN THE TREATMENT OF SKIN AGING SIGNS

<table>
<thead>
<tr>
<th>Improvement of fine lines and wrinkles</th>
<th>Enhancement of skin radiance</th>
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<tbody>
<tr>
<td>Observed in 67% of the cases</td>
<td>Noticed in 88% of the cases</td>
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<tr>
<td>An average improvement of 72%</td>
<td>An average improvement of 144%</td>
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<tr>
<td>Decrease of wrinkles average depth</td>
<td>Average Radiance Improvement</td>
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Improvement of skin tightening

<table>
<thead>
<tr>
<th>Increase of skin hydration</th>
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<tbody>
<tr>
<td>Noticed in 73% of the cases</td>
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<tr>
<td>An average improvement of 103%</td>
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<tr>
<td>Skin Tightening Improvement</td>
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<tr>
<td>Noted in 83% of the cases</td>
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<tr>
<td>An average improvement of 132%</td>
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<tr>
<td>Average Hydration Improvement</td>
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A 5 SESSION PROTOCOL FOR A MAXIMAL AND DURABLE EFFICACY
3 PHASES CLEARLY IDENTIFIED

1. **A 15-day initialization phase** (1 injection session) – with few perceptible/visible results
   - Immediate radiance and hydration
   - Initialization of wrinkles and skin tightening improvement

2. **A 1.5-month repairing phase** (3 injection sessions) – with very clear and evident results
   - Acceleration of treatment of ageing signs

3. **A maintenance and consolidation phase** (1 injection session) – with remaining and slightly improving results
   - For durable anti-ageing results

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<thead>
<tr>
<th>IMMEDIATE RESULTS</th>
<th>PROGRESSIVE REPAIR</th>
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<tbody>
<tr>
<td>HYDRATION</td>
<td>SKIN RADIANCE</td>
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<tr>
<td>WRINKLES</td>
<td>SKIN TIGHTENING</td>
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LABORATOIRES FILORGA PARIS
Before starting the treatment:
- Patient evaluation, history and examination.
- Diagnose areas for treatment.
- Set goals and discuss treatment plan – amount of sessions and intervals.
- Informed consent.
- Patient education: Come with a clean skin, free of make-up and creams or lotions. Avoid blood thinning medication where possible for 48 hours prior to treatment.

STEP 1
PRN LOCAL ANAESTHESIA
Apply local anaesthetic cream to the face, neck and décolleté of sensitive patients 30 – 60 minutes before procedure. Alternatively, the patient could apply the cream at home an hour before the procedure. This step will enhance the comfort of the patient, especially if the doctor is not experienced yet with the techniques of mesotherapy. With more experience, one might find this step not necessary anymore.

STEP 2
ANTI-SEPTIC PRECAUTIONS
Cleanse the skin from any creams or make-up. Re-clean the skin of the treated areas with Chlorhexidine in water. Apply headband or cap to patient to keep hair out of the treated area.
Prepare tray with gauze, products used, syringes, needles and sterile gloves. Evaluate the locations of the vascular and nervous systems to diminish the possibility of hematoma.
STEP 3
COVER THE WHOLE SURFACE WITH INTRA-EPIDERMIC TECHNIQUE
One 1ml syringe with 30G – 33G, needle 4 – 6 mm length should be used for this first technique. The bevel of needle should show up, but only the bevel goes into the skin. Multiple superficial injections into the epidermal level are carried out all over the treatment area. Injections are <1mm depth “superficial nappage”, retarded effect that is associated with minimal or no bleeding and minimal or no pain. With bevel showing upwards small pricks of the skin with a fast twitch of the hand, like a tremor, over the whole skin surface are performed. The faster the technique, the more correct and the less bleeding will occur. Slower movement will result in too deep penetration of the needle. Ensure to lift the needle from the surface of the skin in between each prick to prevent scratching of the skin.

STEP 4
SUPERFICIAL INTRADERMAL PAPULES
This technique can be carried out over the whole treatment area or focused on the problem areas. One 1ml syringe with a 30G needle of 4 – 12mm can be used for this technique. The bevel of the needle is upwards again in order to blanch the skin to form a papule. The injection technique is into the intra-basal layer; characterized by multiple papules. Injections are at a 1-2mm depth and less than 0.1 ml per point is injected. Small papules are visible over the whole skin surface, especially over the problem areas.

STEP 5
INTRA-DERMAL – NAPAGE
The last technique is used over problem areas, wrinkles, acne scars or areas with very dehydrated or loose skin. A one ml syringe with a 30G needle of 4 – 12mm can be used for this technique. The technique is characterized by a multi-pricking technique that is 0.5 – 4 mm depth into the skin. Semi-retarded effect with 2-4 injections per second at an average depth of 0.5 – 2mm. During this technique, one could also use the linear threading technique used for dermal fillers, to fill up individual
wrinkles. With this mesotherapy product overfilling of the wrinkle is needed and is not at all problematic. Focus this technique over wrinkles and loose skin, especially around the eye area. This technique is slower than the previous techniques to deeply cover the problem areas.

**STEP 6**

**CLEAN THE TREATED AREA**

The area is now cleansed with wet gauze to remove small blood spots from the area. To ensure that the patient does not have any redness when leaving the clinic, an application of the Filorga Mask Cream for 10 minutes will instantly soothe the skin. Remove the mask after 10 minutes. Alternatively, one can now start with one of the Filorga Facial treatments.

**STEP 7**

**APPLY POST INJECTION CREAM**

At the end of the procedure, apply Neocica® post-injection cream to soothe the skin, remove any irritations or redness. This application will ensure that the patient leaves the office without any signs of injections.

**STEP 8**

**SCHEDULE NEXT TREATMENT**

Schedule the follow up appointment and give the patient guidelines on the suggested course of treatments.
PROBLEMS:

1. INCORRECT TECHNIQUE

2. PRODUCT REACTION

**PLEASE COMPLETE INCIDENT REPORT ASAP TO ENSURE PROPER AFTER CARE AND DUE TO REGULATORY ASPECTS!!!

3. Herpes labialis – no prior antiviral prevention in a patient prone to fever blisters