TOOLS, TIPS & TECHNIQUES

The World of Mesotherapy

MESOTHERAPY WORLDWIDE 2009
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INTRODUCTION TO MESOTHERAPY

Pioneered by the French Physician Dr Michel Pistor in 1952, Mesotherapy is a non-surgical, relatively painless injection procedure that is used worldwide to treat with a broad range of conditions.

This medical specialty specifically targets areas with microinjections of vitamins, minerals, amino acids, conventional medications and homeopathic preparations. These micro injections are delivered directly into the mesoderm to promote the body’s circulatory, lymphatic and immune systems to create a biological response and reverse abnormal physiology.

Over 25,000+ physicians worldwide today use Mesotherapy in the care of their patients for:

- Localized Fat - Body & Face
  Stomach, Hips, Buttocks, Thighs, Love Handles, Upper Arms, Chin jowls, double chin, eye fat pads...
- Cellulite
- Skin Tightening
- Face & Neck Rejuvenation
- Wrinkles
- Acne
- Scars
- Stretch Marks
- Alopecia/Hair Loss

Dr. Jacque Le Coz, former president of the French Society of Mesotherapy and Mesotherapist for the French National Sports Teams, has written three books on Mesotherapy, including Mesotherapie et medecine esthetique (Solal Publishing, France), Mesotherapie et traumatologie sportive (Masson Publishing, France), and Mesotherapie en medecine generale. Dr. Le Coz outlines more than 120 conditions that Mesotherapy has shown to be effective for including the following:

<table>
<thead>
<tr>
<th>Cellulite</th>
<th>Acne</th>
<th>Bone Spurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpal Tunnel Syndrome</td>
<td>Flaccid Skin</td>
<td>Dissention</td>
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<tr>
<td>Alopecia</td>
<td>Migraines</td>
<td>Arthritis Pain</td>
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<td>Scars</td>
<td>Wrinkles</td>
<td>Hyper-pigmentation</td>
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<tr>
<td>Acne</td>
<td>Tendonitis</td>
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<tr>
<td>Muscle Relaxation</td>
<td>Sports Trauma</td>
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</tr>
</tbody>
</table>

For a complete listing visit www.mesotherapyworldwide.com

THE EVOLUTION OF MESOTHERAPY

Traditional Mesotherapy has evolved and positioned itself into a new category of aesthetic medicine.

There has been a major shift in the applications of conventional Mesotherapy and many new products and injection techniques have been adopted - New Indications, New Depths, New Products & New Protocols. However, the traditional principles of Mesotherapy must be observed.

According to Dr. Pistor, Mesotherapy is an allopathic, light, parenteral, polyvalent, and regionalized therapy.

1. **Allopathic:** Medications are included in the official pharmacopoeia.
2. **Light:** Lower doses are used as compared to the usual doses in traditional medicine.
3. **Parenteral:** Intradermal or subcutaneous injections are given with active drugs and procaine as vehicle.
4. **Polyvalent:** Due to its effectiveness on multiple diseases treated under varied specialties.
5. **Regionalized:** Treatment is delivered close to the site of disease.
THE TECHNIQUE OF MESOTHERAPY

To achieve outstanding results in Mesotherapy you need:

1. Professional Training
2. Proficient Protocols
3. Precise Techniques
4. Effective Equipment & Supplies
5. Superior Quality Ingredients

Mesotherapy can involve anywhere between 8 to 300 injections, depending on the condition, protocol and the size of area that is being treated. When more than 40 shots are given, it is typically because the person is getting multi-pricking for skin rejuvenation procedures, alopecia procedures or cellulite treatments.

The number of Mesotherapy treatments required depends upon many variables - the condition, the abnormal physiology causing the condition, as well as the severity of the problem.

TECHNIQUE OF MESOTHERAPY PROCEDURE

1. Preparation of the cutaneous surface prior to injection
2. Penetration of a small quantity of the active agent
3. Introduction of the needle to the skin from a depth of 2 – 6 mm
4. Manual or Device assisted application using the papule, nappage or point by point techniques.
5. Apply drugs with the patient lying down
6. Map the area to be treated in each session
7. Position the patient to present the best angle for application. Application must always be perpendicular to the skin
8. Introduction of the needle to the skin from a depth of 1mm - 12mm based on procedure
9. Injection of 0.1 – 0.8 ml. of the medication applied symmetrically with a separation distance of 0.50 - 5 cm

TIPS FOR PATIENT SATISFACTION

1. LOCAL ANESTHETIC
   Applied prior to treatment, not essential but may be helpful for sensitive patients.

2. ICE
   Applied prior to treatment, ice will achieve the numbness of anesthetic and also help reduce swelling from PPC.

3. LOOSE CLOTHING
   After treatment loose fitting clothing can increase patient comfort particularly after PPC.

4. MASSAGE
   Encouraged 72 hours after treatment and continued daily between treatments massage can be effective in reducing the instance of nodules.
MESOTHERAPY INJECTION TECHNIQUES

Whether you chose to administer Mesotherapy manually or with a Mesotherapy gun the choice of injection technique is important as it determines the quality of the results obtained. Depending on the injection site, the pathology treated, the structure of the dermis and the products injected the results will vary considerably according to the technique.

Generally, according to the depth, working from the epidermis to the hypodermis, a distinction is made between one of these 3 techniques:

PAPULE: 1 to 2mm, with bevel upwards
NAPAGE: 2 to 4mm, angle of 30° to 60°
POINT BY POINT: deep injections, 4 to 12mm

PAPULE
This is a superficial intradermal technique, which consists of injecting the product at the junction between epidermis and dermis, peeling epidermis from the basal lamina.

The tip of the needle is inserted into the most superficial layer of the skin and a depth of between 1 and 2 mm, with the bevel facing upwards. A pale, clearly delineated papule appears at the time of injection. Its absence is a sign of poor technique. The papule fades within the space of a few minutes and disappears entirely within the next 30 minutes. This technique is particularly suitable for wrinkles and immunostimulation.

NAPAGE
This technique was developed by Dalloz Bourguignon and is the most commonly used technique.

Nappage is a superficial intradermal technique which consists of performing a series of injections 2 to 4 mm apart while continuously maintaining a regular and constant pressure on the plunger. The needle is inserted at an angle of 30° to 60° and to a depth of between 2 and 4mm.

The product/medication is deposited on the surface is left in contact with the epidermis for 3 to 5 minutes to assist its penetration. There is a variation on this technique with an epidermal nappage which consists of applying the product to the epidermis, at a depth of less than 1 mm. This has the advantage of causing minimal bleeding, if any, bleeding.

POINT BY POINT
This is a deep intradermal or hypodermic injection technique, consisting of separate injections at depths from 4 to 12 or even 15 mm depending on the area and the indication for treatment.

P.B.P is generally indicated in rheumatology, in sports pathologies and in aesthetic medicine for the treatment of cellulite. In the latter case, it is particularly suited to targeting deep nodules or for fibro-sclerous cellulite.
REQUIREMENTS FOR MESOTHERAPY

ALL MATERIALS THAT TOUCH THE PATIENT’S SKIN SHOULD BE STERILE AND DISPOSABLE.

1. INGREDIENTS:
All approved, skin-compatible, systemic (intravenous, intramuscular, subcutaneous or intradermal) medications with known effectiveness can be used.

In Mesotherapy all ingredients must be: water soluble, isotonic, non-allergenic and do not cause nodules, abscess or necrosis at the injection site.

2. SYRINGES:
Syringes are used ranging from the classic 1cc. insulin syringe, to the 5, 10 or 20cc syringes. Most commonly used syringes in Mesotherapy are: 5cc to 20cc luer lock syringes & 5cc to 20cc slip tip syringes.

3. NEEDLES:
The so-called “Lebel needle” is the needle most commonly used in Mesotherapy.

Recommended needles for applications:
Face and Neck - 4mm 30G Mesotherapy Needles
Cellulite & Fat - 6mm 30G Mesotherapy Needles and ½ inch 30G Needles

4. MULTI INJECTORS & PLATES:
Circular Multi Injectors - 7 NEEDLES - suitable for all body parts
Linear Multi Injectors - 5 NEEDLES - suitable for all body parts
Mesotherapy Gun - suitable for all body parts and allows for different injection techniques

5. AUTOMATIC INJECTION DEVICES:
There are numerous models and types of automatic, electronic, mechanical guns available to facilitate the practice of Mesotherapy.

Practitioners who use injection devices find that these devices offer significant benefits in rendering treatments less painful for patients, more comfortable for the practitioner, as well as adding precision and consistency to injections.

Some advantages of Mesotherapy guns include:

1. Increased comfort level for patient and practitioner
2. Reduced pain due to skin stabilizer, speed of needle and consistency of injections
3. Elimination of operator wrist and hand fatigue
4. Accuracy - Programmable and consistent - no room for operator error
5. Versatility - accurately performs continuous, nappage, mesoperfusion & dosimetric modes
6. Speed - Procedures are faster.
SIDE EFFECTS OF MESOTHERAPY

There are few side-effects in Mesotherapy. In most cases, they are minor and reversible:

1. **Potential General Effects** - Tenderness - Burning or Itching - Pain - Swelling - Bruising
2. **Potential Side Effects** - Flushing - Vagal Response - Allergy - Dizziness - Nausea

Side effects usually occur because of:

1. **MEDICATION**
   - Localized redness of skin
   - Generalized redness of skin
   - Epigastralgia
   - Lipothymy
   - Cephalous

2. **MANNER AND/OR TYPE OF ADMINISTRATION**
   - Pain
   - Infection
   - Manifestations of cutaneous or sub-cutaneous conditions

3. **PERFORATION TECHNIQUE**
   - Tattoos
   - Achromic Scar
   - Hematoma
   - Necrosis
   - Mechanical lesions
   - Burn

**HOW TO MINIMIZE SIDE EFFECTS**

**ALLERGIES:**
Procaine is the agent most often involved in the appearance of any allergy. No clear cases of allergic shock have however been recorded in the course of treatment by Mesotherapy. The possible reactions described are mainly rashes which disappear in 2 to 3 days. Any allergic reaction noted in a patient should however result in the immediate stoppage of the treatment.

**PAIN:**
This depends on uncontrollable factors such as individual sensitivity, the sensitivity of the area to be treated and the depth of the injection. To assist in the reduction of pain the following factors must be taken into account:

1. Technique: The injection must be fast and precise
2. Equipment: The Mesotherapy gun and the needles must be of good quality and the needles must be regularly changed during the sessions covering large areas.

**INFECTIONS:**
Infections are always possible once the skin barrier has been broken. They can easily be avoided by observing a few simple rules:

1. Use of top quality products offering all the necessary guarantees of sterility
2. Use of sterile, disposable equipment
3. Careful disinfection of the areas to the treated
4. Advise patients on hygiene specific to the treatment they have received

**HEMATOMA:**
Hematoma is the most frequent side effect despite all the precautions taken. It can however easily be masked by suitable make-up and disappears within 2 or 3 days after treatment. Particular care in avoiding vessels and capillaries during the procedure will assist in reducing the instance of hematoma.
PATIENT - QUESTIONS & ANSWERS

WHAT AREAS OF THE BODY CAN BE TREATED WITH MESOTHERAPY?

WHO IS SUITABLE FOR MESOTHERAPY?
Most healthy adults 18 to 80 may have Mesotherapy for body sculpting, cellulite treatment, skin rejuvenation and alopecia. The exclusion criteria as a guide follows but each patient must be assessed individually to determine whether the exclusion criteria apply for the treatment they seek.

WHO IS UNSUITABLE FOR MESOTHERAPY?
Pregnancy, patients who are on blood thinners, insulin dependent diabetics, patients with cancer or in remission, patients with AIDS, patients, AIDS patients, patients with coronary artery heart disease or heart dysfunction, People with arrhythmias, with a history of blood clots or strokes, patients with autoimmune diseases or organ transplant recipients and patients with skin conditions including: herpes & psoriasis...

HOW FAST WILL THE PATIENT SEE RESULTS?
The speed of results depends on the area treated and the extent of the problem. Fat pads of the eye will usually show visible improvement after the first 1-2 treatments. Cellulite and fat should show visible improvement after 2-4 treatments. MesoLift procedures show visible results within 1-2 days after the first treatment.

WILL THE RESULTS LAST?
It must not be forgotten that the effect of most procedures, although long-lasting, does fade with time. Therefore wise to recommend maintenance treatment at the rate of approximately one session a month. For the results gained from localized fat removal to be permanent requires the patient maintains their weight. A regular exercise regime, including cardio and resistance training and the implementation of a healthy diet, that places emphasis on lean protein and low G.I carbohydrates, will assist patients in maintaining results.

HOW LONG IS THE “DOWN TIME” AND RECOVERY TIME?
There is no down time or recovery time for this procedure. The patient will be back to regular activities immediately.

ARE THE TREATMENTS PAINFUL?
The majority of patients experience minimal discomfort. For those who have discomfort, a topical anesthetic cream can be utilized 45 minutes prior to the procedure. Ice can also be applied prior to or after the procedure if necessary.

DOES MESOTHERAPY REPLACE LIPOSUCTION?
In many cases Mesotherapy offers an alternative to even the safest form of liposuction, tumescent liposuction, (see table below). Tumescent liposuction has been recognized world wide as the technique permitting the greatest safety, the most rapid recovery, the least pain and the best aesthetic results.

While tumescent liposuction offers superior safety and result its important to remember tumescent liposuction can only be handled by the hands of an expert surgeon.

Mesotherapy is a non-invasive alternative supported by a 1994-95 study on “topical fat reduction” by UCLA researchers. This study concluded women who had Mesotherapy injections lost weight even without diet or exercise. About 100 people a year die because of liposuction, Mesotherapy has no deaths, stokes or heart attacks. A patient’s major concern with Mesotherapy is simple bruising and liver toxicity.

<table>
<thead>
<tr>
<th>Liposuction</th>
<th>Mesotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Procedure</td>
<td>Non-Invasive Procedure</td>
</tr>
<tr>
<td>Removes Fat Cells</td>
<td>Removes Fat from the fat Cells</td>
</tr>
<tr>
<td>Cannot Be Used Where there is Cellulite</td>
<td>Used Wherever there is Cellulite</td>
</tr>
<tr>
<td>Down Time = 2 weeks+</td>
<td>No Down Time</td>
</tr>
<tr>
<td>Restrictive Garment Worn Post-Operation for Several Weeks</td>
<td>Wear Loose Clothing After Treatment</td>
</tr>
<tr>
<td>Weight Gain Back in Abnormal Places</td>
<td>Weight Gain Back Where it Lost</td>
</tr>
<tr>
<td>Appearance of Cellulite and Dimpling Common</td>
<td>Cellulite Eliminated and Maintained with Diet</td>
</tr>
<tr>
<td>Significant Bruising and Pain</td>
<td>Minimal Bruising and Pain</td>
</tr>
</tbody>
</table>
THE PHARMACOLOGY OF MESOTHERAPY

IMPORTANT POINTS TO CONSIDER REGARDING THE ADMINISTRATION OF MEDICATIONS

Diffusion and distribution of the medicine is slower through the meso tract than through the rest of the parenteral tracts.
1. Diffusion does not depend on the anatomical puncture location but on a perfect Meso execution technique
2. Drug bio-distribution in superficial skin layers is slower than in deep layers where diffusion is more rapid and drugs have both general and local effects.
3. Speed of diffusion is inversely proportional to the molecular weight of the medicine used.
4. Drugs are absorbed into blood and lymphatic vessels.

THE ADMINISTRATION OF ANESTHETICS IN THE TREATMENT AREA

Anesthetics in the treatment area retard the absorption of the injected drugs and allow them to diffuse deeper into the connective tissue, thus arriving at the desired site of treatment in higher concentration, without a dilution of the drug.

Without the application of anesthetics, the drugs may be absorbed. It is because of this that Mesotherapy injectables are generally always performed with Procaine, Lidocaine, Marcaine or Xylocaine.

WHAT MEDICATIONS CAN BE USED IN MESOTHERAPY

The compounds injected during Mesotherapy depend upon the pathophysiology of the disease process and may include: Local Anesthetics, Vasodilators, Muscle relaxants, Corticoids, Vasoactive drugs, Phlebotonic agents, Immunostimulants, Metabolic regulators, Trace elements, Hormones, Antibiotics, Analgesics, Neurotrophic agents, Sedatives, Antispasmodics, Biologicals, Antihomotoxic preparations, Homeopathic medicines, Phytotherapeutic agents, Anti-Inflammatories, Decontractants, Proteolytic enzymes, Vaccines...

<table>
<thead>
<tr>
<th>LOCAL ANESTHETICS</th>
<th>Lidocaine, Procaine, Marcaine, Xylocaine...</th>
</tr>
</thead>
<tbody>
<tr>
<td>DILUTENTS</td>
<td>NaCl, Saline</td>
</tr>
<tr>
<td>DISINFECTANTS</td>
<td>70% alcohol, Biseptine, Betadine</td>
</tr>
<tr>
<td>ANTI-INFLAMMATORY</td>
<td>Calcitonin, Piroxicam, Ketoprofen</td>
</tr>
<tr>
<td>LIPOLYTIC</td>
<td>Aminophylline, L-Carnitine, Triac, Artichoke Extract, Caffeine</td>
</tr>
<tr>
<td>NUTRITIONAL</td>
<td>Multivitamins, Pantothenic Acid, Biotin, Zinc, Copper, Vitamin C</td>
</tr>
<tr>
<td>COSMETIC</td>
<td>Hyaluronic Acid, Mellilotus, Conjonctyl</td>
</tr>
<tr>
<td>METABOLIC STIMULANTS</td>
<td>Glycolic Acid, Retinoic Acid</td>
</tr>
<tr>
<td>ENZYMES</td>
<td>Collagenase, Hyaluronodase</td>
</tr>
<tr>
<td>FAT DISSOLVE</td>
<td>Phosphatidylcholine and/or Deoxycholate</td>
</tr>
<tr>
<td>CIRCULATION</td>
<td>Trental, Beta Blockers, Propanolol, Pentoxifylline</td>
</tr>
<tr>
<td>HORMONES</td>
<td>Progesterone, Estrogen</td>
</tr>
<tr>
<td>HORMONE BLOCKERS</td>
<td>Dutasteride, Finasteride</td>
</tr>
<tr>
<td>NEUROLOGICAL</td>
<td>Valium, Bentyl, Amitryptyline</td>
</tr>
</tbody>
</table>
THE PHARMACOLOGY OF MESOTHERAPY

Following is a short summary of the medicines that are most commonly used in Mesotherapy. The information provided is an overview and should be used as a general guide.

**ALPHA-HYDROXY ACIDS**

AHAs, the group of naturally occurring acids derived from certain plants and fruits, can be a very effective ingredient in Mesotherapy. Alpha-hydroxy Acids, such as Glycolic Acid, help with fine lines, irregular pigmentation, age spots and can help decrease the size of large pores. AHA’s are commonly used in MesoLift and MesoBoost skin rejuvenation procedures.

**ALPHA-LIPOIC ACID**

This is a potent antioxidant that helps fight skin damage and helps repair past damage. Its use reduces fine lines and gives the skin a glow. It is also believed to boost the levels of other antioxidants and if used in skin rejuvenation procedures such as MesoBoost and MesoLift.

**AMINOPHYLLINE**

A common asthma medicine, Aminophylline is a mixture of theophylline and ethylenediamine. It has been discovered that Aminophylline has a mode of action and efficacy in Mesotherapy is similar to caffeine, as it promotes fat breakdown and increases blood flow by dilating blood vessels. Aminophylline allows beta receptors to burn fat more efficiently by inhibiting phosphodiesterase and preventing it from interfering with the cyclic AMP and fat breakdown.

On the surface of fat cells are Alpha and Beta receptors. Receptors that burn fat are known as Beta receptors, and those that cause fat storage are known as Alpha receptors. Above the waist, the number of Alpha and Beta receptors occurs in an equal 1:1 ratio in both women and men. However, below the waist, women have approximately 6 to 8 Alpha receptors to every Beta. This is the reason why it is so incredibly difficult for women to lose weight in this area. Alpha receptors are stimulated by carbohydrates, fat ingestion, amino acids and alcohol.

**ARTICHOKE EXTRACT**

In Mesotherapy it is a complementary product in cocktails for the treatment of fat and cellulite as it acts like a diuretic and stimulates lymphatic drainage. It has a direct lipolytic effect and is very effective in fat and cellulite treatments where there is a presence of edema. It is suggested in the treatment of lipodystrophies where there is an excess of liquids in the tissues, especially for women who are taking some type of birth control.

**ASIAN CENTELLA**

The two main active ingredients of Asian Centella are madecasólico and asiaticosídico compounds. When these active ingredients are injected intravenously they have an entrófica action on the tissue, thus increasing the biosynthetic activity of the collagen. It helps increase the absorption of lisina and prolina in the proteins, improving the collagen molecule without increasing the protein content. Because the Asian Centella causes an increase in collagen synthesis, and because of its healing capacity, it’s indicated for the treatment of stretch marks and flabbiness whether or not it’s associated to lipodystrophy.

**BIOFLAVINOIDS**

Bioflavinoids such as Rutin are anti-inflammatory in nature and protect blood vessels. In Mesotherapy it is often used in skin rejuvenation procedures such as MesoLift and MesoGlow.

**BIOTIN**

Biotin is indicated in the treatment of alopecia, acne, seborrheic dermatitis and glossitis. It is converted to carboxybiotin, acting as a cofactor in carboxylation and carboxyl radicals in the biosynthesis of fatty acids.

**BUFLOMEDIL**

Buflomedil works directly as a vasodilator, and therefore is a phosphodiesterase enzyme inhibitor, which stimulates cyclical AMP and biological vasodilators. In Mesotherapy it is used for cellulite, circulation, stretch marks, alopecia and pain. It is also commonly used for treating impotency.

**CAFFEINE**

The use of caffeine in Mesotherapy is lipolytic. In regard to lipid deposits, it is well known that caffeine causes an increase in the intracellular concentration of the cyclic AMP (acid adenosin-5- monophosphoric cyclic) and has immediate consequences in the lipid metabolism of adipose tissue and thus an increase in the levels of the cyclic AMP.

**CO-ENZYME Q10**
CoQ10 is an anti-oxidant which protects against free radicals. It is also shown to assist in energy production, which in turn assists healing. In Mesotherapy it is often used in skin rejuvenation procedures such as MesoLift and MesoGlow.

**COLLAGENASE**
Collagenase is an enzyme said to break down fat. FDA-approved research on its effects on lipomas (benign fat tumors encapsulated by connective tissue) is producing promising results.

**CONJONCTYL (Methylsilanetriol Salicylate)**
Conjonctyl is a regenerator of elastin and collagen fibers. It induces fibroblastic proliferation and is a lipolytic inducer of the AMP c synthesis.
In Mesotherapy it is indicated in the treatment of cellulite, stretch marks and skin ageing.
It is contraindicated in patients allergic to AAS and must not be mixed with destructuring enzymes (e.g. thiomucases)

**COPPER**
Copper is shown to promote collagen and elastin production and also acts as an antioxidant. Copper is needed to increase the body's natural tissue building process. It helps firm, smooth and soften skin. Used in MesoLift procedure.

**DMAE (Dimethyllaminoethanol)**
DMAE is commonly used in topical formulas for anti-aging. In injectable form it produces efficacious, faster results as it does not need to permeate the cutaneous layer. It acts in the neuromuscular union, as a precursor of acetylcholine, the neurotransmitter responsible for muscular contraction, increasing the overall tone of the skin. DMAE acts quickly and lasts long. It works well in the tightening of the skin and is often used in Cellulite and MesoLift procedures.

**D-PANTHENOL**
It is converted in the organism to the acid form. Pantethine is the bioactive form. Used in Mesotherapy for the treatment of alopecia.

**FINASTERIDE**
Finasteride is a synthetic agent with androgenic activity. It is a specific steroidal competitive inhibitor of 5 alpha reductase, lowering the concentrations of dihydrotestosterone in plasma and tissue.

**GINKGO BILOBA**
Gingko Biloba is used in Mesotherapy for tissue regeneration. It antagonizes the production of free radicals, lipoperoxidation of the cell membrane and the oxidation of proteins and nucleic acids.

**GLYCOLIC ACID**
Glycolic acid, the most commonly used form of AHAs and comes from the sugar cane. It works by stimulating new growth of skin and collagen. Glycolic Acid is also documented to decrease the bond that holds dead skin cells on the skin surface, which makes it perfect in Mesotherapy skin rejuvenation protocols.

**HYALURONIDASE**
Hyaluronidase is a natural enzyme which increases tissue permeability and promotes the spread or dispersion of other drugs. Used in Mesotherapy it helps to break down the connective tissue bands that create the dimpled appearance of cellulite. Hyaluronidase also enhances the absorption and dispersion of PPC to enhance the breakdown of fat cells between the connective tissue bands. Cellulite occurs when connective tissue bands that hold down the skin trap bulging bundles of fat and create the "dimpling" effect. Connective tissue contains a large amount of hyaluronic acid and hyaluronidase is able to break down the hyuralonic acid.

**HYALURONIC ACID**
Hyaluronic Acid is indicated in the treatment of aged and dehydrated skin. When injected into the skin it holds more moisture thereby decreasing fine lines and wrinkles. In Mesotherapy it is always used in the MesoLift procedure.

**L-CARNITINE**
L-Carnitine is an essential component for transferring graxo acids through the mitochondrial membrane, a process that precedes the enzyme oxidation of lipideos. L-Carnitine connects to the Acil co-enzyme A which is a fragment out of beta-oxidation, penetrating the mitochondria as a surge of energy, therefore increasing the cells energy availability. L-Carnitine is the vehicle used to transform fat into energy within the cell.
A lack of L-Carnitine impedes fat transportation and therefore L-Carnitine is recommended in the treatment of lipodystrophies. It’s useful above all, in patients who are deficient lipidios beta-oxidation.
PENTOXIFYLLINE
Pentoxifylline is a synthetic dimethylxanthine derivative that is structurally related to theophylline and caffeine. Pentoxifylline improves the perfusion in the microcirculation and it enhances blood perfusion in tissues and improves lipolysis by inhibiting phosphodiesterase and restoring cAMP.

PHOSPHATIDYLCHOLINE
Phosphatidylcholine (PPC) is an antioxidant that is derived from natural soy lecithin. PPC alters the metabolism of fatty substances like cholesterol and triglycerides in the body. PPC has been used intravenously to break down fatty deposits (lipolysis) in patients with high cholesterol, fatty liver disease and heart vessels filled with fatty plaques. PPC is reported to penetrate the adipocyte through the double lipid layer where it acts as a detergent (emulsifying and tensioactive agent). This means that fat affected by PPC becomes water soluble. Fat soluble and water soluble substances are not compatible (a good example is oil and water). Therefore your fat cells that are altered by PPC must be eliminated. In a nutshell, PPC breaks down fat much like hot water and dish soap break down grease in a frying pan. The fat dissolves and is carried through the bloodstream and excreted by the kidneys and bowel. It is just common sense that if you are exercising and dieting properly, this process occurs much more rapidly and efficiently.

PROCAINE
It is deemed to be the most important “THERAPEUTIC VECTOR” (Le Coz). Procaine is used in all the facets of Mesotherapy. Its action in opening up the blood vessels makes the penetration of the medication used in Mesotherapy spread slowly besides producing a local and subtle anesthetic sensation. It’s also worth highlighting its regenerating effects on the tissues.

In the textbook “Manual of Neural Therapy”, procaine is called king of medicines because of its amazing properties and ability to restore normal functioning to damaged tissue.

SILICA
Silica is needed to maintain the cell matrix. Often used in MesoLift procedures.

TIRATRICOL
Tiratricol presents 2 great therapeutic advantages without being a thyroid hormone for which preserves only its peripheral “lipolitic” action. Tiratricol intervenes with the “oxidofosforilante” functions of the mitochondria, which is related to the "lipidico" metabolism and is recommended for localized obesity and on lipo-dystrophies.

TRISSILINOL
Trissilinol is recommended for the treatment of stretch marks. Four to five applications in the same area are required with intervals of seven to fifteen days to get the results.

VITAMIN A
Vitamin A helps restore collagen and elastin. In Mesotherapy it is often used in skin rejuvenation procedures such a as MesoLift.

VITAMIN B5
Pantothenic Acid is involved in the cellular production of energy and is needed for the synthesis of our bodies’ hormones. In Mesotherapy it is often used in skin rejuvenation procedures such a as MesoLift.

VITAMIN C
Vitamin C is the only antioxidant that is proven to stimulate the synthesis of collagen which will assist in improvement of skin tone and texture. It also it serves as a key immune system nutrient and a potent free-radical fighter. In Mesotherapy, Vitamin C is used for the effective treatment of stretch marks and skin tightening and skin rejuvenation.

XANTHINE
Xanthine promotes the lipolysis by inhibition of the enzyme phosphodiesterase. The xanthine combined with the effects created by the cAMP, they intervene in the metabolic step that transforms the triglycerides in glycerol and fat-free acids.

XYLOCAINE
This anesthetic is 4 times as powerful as Procaine and said to be less allergenic. In Mesotherapy it is used as an antiarrhythmic.

YOHIMBINE
Yohimbine is an alkaloid found in the inner bark of a tree that grows in southern Africa, Corynanthe yohimbe.
Although yohimbine has been used for centuries as an aphrodisiac, in Mesotherapy it is excellent for targeting localized fat as its mode of action is blockade of alpha2-adrenergic receptors thus increasing blood flow via vasodilatation.

**ZINC**
Zinc protects against free radicals and helps cells reproduce. It is needed in the body's repair process. It is often used in the MesoLift procedure.
Zinc is also a nonsteroidal inhibitor of 5 alpha reductase and is often used in the treatment of Alopecia.

Mesotherapy Worldwide can supply you with wide array Mesotherapy Injectable Ingredients to ensure you achieve excellent results in your practice of Mesotherapy. For a complete product listing Mesotherapy products please email us at info@mesotherapyworldwide.com and let us know which country you are enquiring from so we can best advise you on the products that are available to you or call us on +61 2 9439 7781.
1. Localized Fat Reduction - Body

Localized Fat Protocol #1
Formula 1
Formula 2
Formula 3
Formula 4

Localized Fat Protocol #2
Formula 1
Formula 2
Formula 3
Formula 4

Localized Fat Protocol #3
Formula 1
Formula 2

Localized Fat Protocol #4
Formula 1
Formula 2
Formula 3
Formula 4
Formula 5

2. Localized Fat Reduction - Eye Fat Pads

Eye Fat Pads Protocol #1
Formula 1

Eye Fat Pads Protocol #2
Formula 2

3. Localized Fat Reduction - Face & Neck

Face and Neck Protocol #1
Formula 1
Formula 2
Formula 3

4. Cellulite

Cellulite Protocol #1
Formula 1
Formula 2
Formula 3
Formula 4
Formula 5

Cellulite Protocol #2
Formula 1
Formula 2
Formula 3
Formula 4

Cellulite Protocol #3
Formula 1
Formula 2
Formula 3
Formula 4
5. Skin Rejuvenation - MesoLift & MeoGlow

Skin Rejuvenation Protocol #1
  Formula 1
  Formula 2
  Formula 3

Skin Rejuvenation Protocol #2
  Formula 1
  Formula 2
  Formula 3
  Formula 4
  Formula 5

Skin Rejuvenation Protocol #3
  Formula 1
  Formula 2
  Formula 3

Skin Rejuvenation Protocol #4
  Formula 1

Skin Rejuvenation Protocol #5
  Formula 1

6. Alopecia - Hair Loss

Alopecia Protocol #1
  Formula 1
  Formula 2
  Formula 3

Alopecia Protocol #2
  Formula 1

Alopecia Protocol #3
  Formula 1
  Formula 2
  Formula 3

7. MesoBotox

MesoBotox Protocol #1
  Formula 1

8. MesoBoost

MesoBoost Protocol #1
  Formula 1
  Formula 2

SHOULD YOU REQUIRE ADDITIONAL INFORMATION ON APPLICATION, PROTOCOLS OR PRICING PLEASE EMAIL US AT info@mesotherapyworldwide.com or call us on +61 2 9439 7781.
LOCALIZED FAT REDUCTION - BODY

Many names have emerged with the surge in the popularity of Mesotherapy and the use of Phosphatidylcholine for the removal of localized fat had been coined many terms: Lipodissolve, MesoSculpt, Thinject, Mesoplasty, FlabJab, Melt Away...

The procedure for localized fat consists in multiple injections within the fat of a mixture of primarily Phosphatidylcholine (PPC). Additions of medications including Hyaluronidase, Artichoke and Collagenase are also indicated.

OVERVIEW OF PROCEDURE:

Injection Depth: 6mm to 13mm

Injection Spacing: 2 - 10cm apart

Injection Amount: 0.2cc - 0.8cc

Injection Technique:
1. Perform the procedure with the patient lying down. Position the patient to present the best angle for application, which must always be perpendicular to the skin. Inject with the bevel of the needle upward.
2. Map the area to be treated in each session.
3. Introduce the drugs smoothly with a regular interval between each dose.
4. Take care to respect the locations of the vascular and nervous systems, in order to diminish the possibility of hematoma.

Primary Ingredients Used:
Phosphatidylcholine 100mg/ml
Procaine 20mg/ml
Aminophylline
L-Carnitine 500mg/ml

Dosage:
- The maximum dose of PPC in one session over multiple areas should be should be 2500mg. It is advisable to do an initial session using no more that 500mg to see side effects etc.
- Lidocaine or Procaine is suggested to be used in conjunction with PPC.
- When the ingredients are reconstituted they must be used within 24 hours or discarded.

Treatment Schedule: 1 4 weeks apart this is dictated by which protocol is used. The number of treatments required varies depending on the amount of and location of fat being treated, the goals of the individual patient and whether they are following a healthy diet and exercise regimen.

Pre Treatment:
Local anesthetic cream can be applied prior to treatment, not essential but may be helpful for sensitive patients.
Ice can be applied prior to treatment. Ice will achieve the numbness of anesthetic and also help reduce swelling.

Post Treatment:
Encouraged 72 hours after treatment and continued daily between treatments massage can be effective in reducing the instance of nodules.
Loose clothes are advised to be worn after treatment for 2-3 days.

Considerations:
PPC is not recommended for children, pregnant women, nursing mothers, diabetics with vascular concerns, and persons with autoimmune diseases, people who have liver disease, persons who are severely obese or anyone with an acute or chronic infection.
Beta Blockers and Hypothyroidism can diminish results.

Side Effects:
Swelling, redness and bruising may result.
Localized Fat Protocol #1

Indications: Suitable for localized fat on the body.

Injection Depth: 12mm

Injection Spacing: 4cm apart

Injection Amount: 0.4cc

Total Injected Volume: 5 - 20cc

Injection Method: Point by Point

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 5ml syringe with ½ inch 30G Mesotherapy needle
Mesotherapy Gun Application: 5cc - 20cc syringe with ½ inch 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated appropriate solution.
2. Map the area to be treated in each session.
3. Perform the procedure with the patient lying down.
4. Draw up the required quantity of ingredients
5. Start the injection of ingredients in the area to be treated. Introduce the drugs smoothly with a regular interval between each dose.
6. Take care to respect the locations of the vascular and nervous systems, in order to diminish the possibility of hematoma.

Treatment Schedule: Every 2 - 4weeks

Choose either one of the following formulas.

FORMULA 1
10cc syringe volume
4cc Phosphatidylcholine 100mg/ml
4cc L-Carnitine 500mg/ml
2cc Procaine 2%

FORMULA 2
5cc syringe volume
2cc Phosphatidylcholine 100mg/ml
2cc Caffeine
1cc Procaine 2%

FORMULA 3
10cc syringe volume
4cc Phosphatidylcholine 100mg/ml
4cc Caffeine
2cc Yohimbe
2cc Procaine 2%

FORMULA 4
10cc syringe volume
5cc Phosphatidylcholine 100mg/ml
5cc Procaine 20mg/ml
Localized Fat Protocol #2

Indications: Suitable for localized fat on the body.

Injection Depth: 6mm - 12mm

Injection Spacing: 5cm apart

Injection Amount: 0.8cc

Total Injected Volume: 5cc - 12cc

Injection Method: Point by Point

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 5ml syringe with 6mm 30g Mesotherapy needle or ½ inch 30G Mesotherapy needle
Mesotherapy Gun Application: 5cc - 20cc syringe with ½ inch 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Map the area to be treated in each session.
3. Perform the procedure with the patient lying down.
4. Draw up the required quantity of ingredients
5. Start the injection of ingredients in the area to be treated. Introduce the drugs smoothly with a regular interval between each dose.
6. Take care to respect the locations of the vascular and nervous systems, in order to diminish the possibility of hematoma.

Treatment Schedule: Every 2 - 4weeks

Choose either one of the following formulas.

FORMULA 1
6cc syringe volume
5cc Phosphatidycholine 100mg/ml
1cc Lidocaine 1%

FORMULA 2
12cc. syringe volume
6cc Phosphatidylcholine 100mg/ml
2cc. Hyaluronidase 150 IU/ml
2cc. Aminophylline 25mg/ml
2cc Lidocaine 2%

FORMULA 3
12cc syringe volume
6cc Phosphatidylcholine 100mg/ml
3cc Aminophylline 25mg/ml
2cc L-Carnitine 500mg/ml
1cc Procaine 2%

FORMULA 4
12cc syringe volume
6cc Phosphatidylcholine 100mg/ml
3cc Aminophylline 25mg/ml
2cc Collagenase 1000IU/ml
1cc Procaine 2%
Localized Fat Protocol #3

Indications: Suitable for localized fat on the body.

Injection Depth: 6mm

Injection Spacing: 2-4cm apart

Injection Amount: 0.4cc

Total Injected Volume: 5 - 20cc

Injection Method: Point by Point

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 5ml syringe with 6mm 30G Mesotherapy needle or multi injector
Mesotherapy Gun Application: 5cc - 20cc syringe with ½ inch 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Map the area to be treated in each session.
3. Perform the procedure with the patient lying down.
4. Draw up the required quantity of ingredients
5. Start the injection of ingredients in the area to be treated. Introduce the drugs smoothly with a regular interval between each dose.
6. Take care to respect the locations of the vascular and nervous systems, in order to diminish the possibility of hematoma.

Treatment Schedule: Every 1 - 2 weeks

Choose either one of the following formulas.

FORMULA 1
10cc syringe volume
4cc Phosphatidylcholine 100 mg/ml
4cc Aminophylline 25 mg/ml
1cc Procaine 2%
1cc L-Carnitine 500mg/ml

FORMULA 2
10cc syringe volume
4cc Phosphatidylcholine 100 mg/ml
4cc Aminophylline 25 mg/ml
1cc Marcaine 2%
1cc Yohimbine
Localized Fat Protocol #4 - NO PPC

Indications: Suitable for localized fat on the body.

Injection Depth: 6mm

Injection Spacing: 2cm apart

Injection Amount: 0.2cc

Total Injected Volume: 5 - 20cc

Injection Method: Point by Point

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 5ml syringe with 6mm 30G Mesotherapy needle or multi injector
Mesotherapy Gun Application: 5cc - 20cc syringe with ½ inch 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Map the area to be treated in each session.
3. Perform the procedure with the patient lying down.
4. Draw up the required quantity of ingredients
5. Start the injection of ingredients in the area to be treated. Introduce the drugs smoothly with a regular interval between each dose.
6. Take care to respect the locations of the vascular and nervous systems, in order to diminish the possibility of hematoma.

Treatment Schedule: Every 1 - 2 weeks

Choose either one of the following formulas.

FORMULA 1
20cc syringe volume
5cc Cellulyse
15cc Isotonic solution

FORMULA 2
10cc syringe volume
1cc Procaine 2%
1cc Yohimbe
1cc Artichoke
1cc Trental
1cc Aminophylline 25 mg/ml
5cc Saline

FORMULA 3
10cc syringe volume
1cc Procaine 2%
1cc Conjuntyl 1%
3cc Aminophylline 50mg/ml
1cc L-Carnitine 500mg/ml
1cc Trental 20mg/ml
3cc Saline

Continued overleaf...
FORMULA 4
10cc syringe volume
1cc Aminophylline 25 mg/ml
1cc L-Carnitine 500mg/ml
1cc Chophytol 20mg
1cc Yohimbe
1cc Procaine 2 %
5cc Saline

FORMULA 5
10cc syringe volume
1cc Aminophylline 25 mg/ml
1cc L-Carnitine 500mg/ml
1cc Triac 350mg
1cc Yohimbe
1cc Procaine 2 %
5cc Saline
LOCALIZED FAT - EYE FAT PADS

Eye Fat Pad Protocol #1

Indications: Eye Fat Pads

Injection Depth: 2 - 4mm

Injection Spacing: Inject 0.1cc at either side of eye fat pad and 0.3cc in middle

Total Injected Volume: 0.5cc

Injection Method: Point By Point

Equipment:
- 18G 1 ½ inch drawing up needle
- Disinfectant
- Manual Application: 1 - 3cc syringe with 4mm 30G Mesotherapy needle

Procedure:
NOTE: Patient’s selection is very important - select real fat herniation. No oedema, no muscular hypertrophy, no excess of skin or skin laxity.
Injections should not be too superficially in order to avoid skin necrosis and injections cannot be too deep because of the oculomotor muscles...
Patients should be given a Corticosteroid (Medrol) 2 days prior to treatment due to excessive swelling.

1. Disinfect the area to be treated with the compresses and disinfectant.
2. Map the area to be treated in each session.
3. Perform the procedure with the patient in sitting position.
4. Draw up the required quantity of ingredients.
5. Start the injection of ingredients in the area to be treated. Introduce the drugs smoothly with a regular interval between each dose.

Treatment Schedule: Every 4 weeks

FORMULA 1
2 cc syringe volume
1 cc Phosphatidylcholine 100 mg/ml
1 cc Procaine 2%
**Eye Fat Pad Protocol #2**

**Indications:** Eye Fat Pads

**Injection Depth:** 2 - 4mm

**Total Injected Volume:** 2cc - 1cc under each eye depending on size.

**Injection Method:** Infiltration Method

**Equipment:**
- 18G 1 ½ inch drawing up needle
- Disinfectant
- Manual Application: 1 - 3cc syringe with 1 inch 30G Mesotherapy needle

**Procedure:**

**NOTE:** Patient’s selection is very important - select real fat herniation. No oedema, no muscular hypertrophy, no excess of skin or skin laxity.

Injections should not be too superficially in order to avoid skin necrosis and injections cannot be too deep because of the oculomotor muscles...

Patients should be given a Corticosteroid (Medrol) 2 days prior to treatment due to excessive swelling.

1. Disinfect the area to be treated with the compresses and disinfectant.
2. Map the area to be treated in each session.
3. Perform the procedure with the patient in sitting position.
4. Draw up the required quantity of ingredients.
5. Start the injection of ingredients in the area to be treated. Introduce the drugs smoothly using the infiltration method.

**Treatment Schedule:** Every 4 weeks

**FORMULA 1**

*3cc syringe volume*

- 2cc. Phosphatidylcholine 100mg/ml
- 0.6cc Licocaine 1%
- 0.25cc Collagenase 1000u/ml
- 0.15cc Kenalog (triamcinolone)
LOCALIZED FAT - FACE & NECK

Face & Neck Fat Protocol #1

Indications: Chin, Neck and Jowls

Injection Depth: 4 - 6mm

Total Injected Volume: 2 - 3cc on each side

Injection Method: Infiltration Method

Equipment:
- 18G 1 ½ inch drawing up needle
- Disinfectant
- Manual Application: 1 - 3cc syringe with 1 inch 30G Mesotherapy needle

Procedure:

NOTE: Injections should not be too superficially in order to avoid skin necrosis.
Patients should be given a Corticosteroid (Medrol) 2 days prior to treatment due to excessive swelling.

1. Disinfect the area to be treated with the compresses and disinfectant.
2. Map the area to be treated in each session.
3. Perform the procedure with the patient in sitting position.
4. Draw up the required quantity of ingredients.
5. Start the injection of ingredients in the area to be treated, introducing the drugs smoothly using the infiltration method.

Treatment Schedule: Every 4 weeks.

Choose either one of the following formulas.

FORMULA 1
3cc syringe volume
1cc Aminophylline 25 mg/ml
1cc Phosphatidylcholine 100 mg/ml
1cc Procaine 2%

FORMULA 2
3cc syringe volume
2cc Phosphatidylcholine 50mg/ml
0.5cc Lidocaine 2%
0.25cc Collagenase 1000 IU/ml

FORMULA 3
3cc syringe volume
2cc Phosphatidylcholine 50mg/ml
0.5cc Lidocaine 2%
0.25cc Collagenase 1000 IU/ml
0.25cc Triamcinolone 10mg/ml
OVERVIEW OF PROCEDURE:

Injection Depth: 2mm to 6mm
Injection Spacing: 2 - 4cm apart
Injection Amount: 0.1 - 0.2cc
Injection Method: Papule, Nappage or Point by Point Method.

Injection Technique:
1. Disinfect the area to be treated with appropriate solution.
2. Perform the procedure with the patient lying down. Position the patient to present the best angle for application, which must always be perpendicular to the skin.
3. Inject with the bevel of the needle upward.

Primary Ingredients Used:
- Hyaluronidase 150U/ml
- Phosphatidylcholine 50mg/ml
- Aminophylline 25mg/ml
- L-Carnitine 500mg/ml

Treatment Schedule: Every 1 - 2 weeks
Maintenance Schedule: Every 3 - 4 months

Pre Treatment:
Local anesthetic cream can be applied prior to treatment, not essential but may be helpful for sensitive patients.

Post Treatment:
Loose clothes are advised to be worn after treatment.
Patients should avoid exposure to the sun or solariums for 24 hours.

Considerations:
Do not perform an ionisation session with cellulite treatment in the same day as it increases the risk of a skin allergies occurring.

Side Effects:
Itching, redness and minor bruising may result.
**Cellulite Protocol #1**

**Indications:** Cellulite and Skin Tightening. Particularly suitable after localized fat removal procedures to tighten the skin and also following excessive weight changes.

**Injection Depth:** 4mm

**Injection Spacing:** 1cm apart

**Injection Amount:** 0.1cc to 0.2cc per injection

**Injection Method:** Papule, Nappage or Point by Point.

**Equipment:**
- 18G 1 ½ inch needle
- Disinfectant
- Manual Application: 5ml syringe with 4mm 30G Mesotherapy needle or multi injector.
- Mesotherapy Gun Application: 5cc syringe with 6mm 30G Mesotherapy needle

**Procedure:**
1. Disinfect the area to be treated with appropriate solution.
2. Perform the procedure with the patient lying down.
3. Draw up the required quantity of ingredients
4. Start the injection of ingredients in the area to be treated.

**Treatment Schedule:** Every 1 - 2 weeks (approx 5-10 sessions)

**Maintenance Schedule:** Every 1 - 2 months.

*Choose either one of the following formulas.*

**FORMULA 1**

*10cc syringe volume*
- 2cc Yohimbe
- 2cc Aminophylline 25mg/ml
- 2cc Procaine 2%
- 2cc DMAE
- 2cc Pentoxifylline

**FORMULA 2**

*10cc syringe volume*
- 2cc L-Carnitine 500mg/ml
- 2cc Aminophylline 25mg/ml
- 2cc Pentoxifylline
- 2cc Procaine 2%

**FORMULA 3**

*12cc syringe volume*
- 2cc Aminophylline 25mg
- 2cc Isoproterenol 0.2mg
- 4cc Hyaluronidase 150u
- 2cc Melilotus 2%
- 1cc Collagenase 1000u
- 1cc Lidocaine 1%

*Continued overleaf...*
FORMULA 4
10cc syringe volume
1cc Procaine 2%
2cc Buflomedil
3cc Vitamins & mineral formula
2cc Co enzyme Q10
1cc Caffeine
1cc Siliciun

FORMULA 5
5cc syringe volume
5cc Cellulift
Cellulite Protocol #2

Indications: Cellulite and reduction of accompanying localized fat. This protocol has formulas that contain PPC.

Injection Depth: 4 - 6mm

Injection Spacing: 1 - 2 cm apart

Injection Amount: 0.2cc per injection

Injection Method: Nappage or Point by Point.

Equipment:
- 18G 1 ½ inch needle
- Disinfectant

Manual Application: 5ml syringe with 6mm 30G Mesotherapy needle or multi injector.
Mesotherapy Gun Application: 5cc syringe with 6mm 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Perform the procedure with the patient lying down.
3. Draw up the required quantity of ingredients
4. Start the injection of ingredients in the area to be treated.

Treatment Schedule: Every 2 - 4 weeks (approx 5-10 sessions)
Maintenance Schedule: Every 2 - 3 months.

Choose either one of the following formulas.

**FORMULA 1**
10cc syringe volume
- 4cc Hyaluronidase 150U/ml
- 2cc Phosphatidylcholine 50mg/ml
- 2cc Aminophylline 25mg/ml
- 1cc Artichoke
- 1cc Procaine 2%

**FORMULA 2**
12cc syringe volume
- 3cc Hyaluronidase 150U/ml
- 2cc Collagenase 1000 IU/ml
- 3cc Phosphatidylcholine 50mg/ml
- 2cc Mellolitus
- 2cc Lidocaine 2%

**FORMULA 3**
12cc syringe volume
- 2cc Hyaluronidase 150U/ml
- 1cc Dexamethasone 10mg/ml
- 2cc Collagenase 1000 IU/ml
- 3cc Phosphatidylcholine 50mg/ml
- 2cc Mellolitus
- 2cc Lidocaine 2%

**FORMULA 4**
12cc syringe volume
- 3cc Hyaluronidase 150U/ml
- 2cc Mellolitus
- 2cc L-Carnitine 500mg/ml
- 2cc Aminophylline 25mg/ml
- 2cc Phosphatidylcholine 100mg/ml
- 1cc Lidocaine 2%
Cellulite Protocol #3

Indications: Particularly suitable for patients who require fat and cellulite treatments. Protocol is dictated by grade of cellulite to be treated.

Injection Depth: 4-6mm

Injection Spacing: 1 - 2 cm apart

Injection Amount: 0.1 - 0.2cc per injection

Injection Method: Nappage or Point by Point.

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 5ml syringe with 4mm or 6mm 30G Mesotherapy needle
Mesotherapy Gun Application: 5 – 10cc syringe with ½ inch 30G needle

Procedure:
1. Disinfect the area to be treated with the compresses and disinfectant.
2. Grade the patient’s cellulite in order to choose appropriate formulation.
   - Stage 0 - No noticeable signs of cellulite - No dimpling and smooth skin
   - Stage 1 - A few small, shallow, visible dimples
   - Stage 2 - Cellulite seen only when standing. Moderate number of visible dimples
   - Stage 3 - Cellulite seen when lying down. A large number of visible dimples over most of the area
   - Stage 4 - Severe cellulite. Cottage cheese appearance
3. Perform the procedure with the patient lying down.
4. Draw up the required quantity of ingredients
5. Start the injection of ingredients in the area to be treated

Treatment Schedule: Every 1 - 2 weeks until results are achieved (5-10 sessions)
Maintenance Schedule: Every 2-3 months.

FORMULA 1 - Stage I & 2
5cc NS
1cc Melilotus/Rutin - 100mg/5mg per ml
1cc Procaine 2%
4cc NaCl
1cc MVI
NOTE: Draw up NS first to dilute others in it.

FORMULA 2 - Stage 2 & 3
4cc NaCl
1cc Melilotus/Rutin - 100mg/5mg per ml
1cc Trental
1cc Procaine 2%
NOTE: Draw up NaCl first to dilute others in it.

FORMULA 3 - Stage 3 & 4
1cc Melilotus/Rutin - 100mg/5mg per ml
2cc Conjuntyl 1%
2cc Asian Centella 20mg/ml
1cc Pentoxifylline 20mg/ml
AND/OR
FORMULA 4 - Stage 3 & 4
2cc Phosphatidylcholine 100mg/ml
1cc Isoproterenol 32 - 64pico-mol
1cc Pentoxifylline
3cc L-Carnitine
1cc Aminophylline
1cc Hyaluronidase
1cc Melilotus 1ml
2cc NaCl
REJUVENATION - MESOLIFT & MESOGLOW

The MesoLift technique is the direct injection in the epidermis and dermis of agents which hydrate, tone, revitalize and firm the skin and is an effective treatment for the face, neck, hands and “décolleté”.

Mesolift allows the restructuring of the skin tissue since the formulation has been designed to favor the different biological reactions of the architecture of the skin by supplements that are applied in epidermic Mesotherapy.

MesoGlow is the use of Mesotherapy techniques to treat those parts of the body most exposed to outside aggression (the face, neck, neck line and hands). It is similar to the MesoLift formulations but generally not include Hyaluronic Acid.

OVERVIEW OF PROCEDURE

Injection Depth: 1mm to 4mm

Injection Spacing: 0.5 - 2cm apart

Injection Amount: 0.1cc - 0.2cc

Injection Method: Epidermic Mesotherapy, Nappage, Point by point, Microinjections into the dermal epidermal junction, Linear threading or cross-hatching technique

Injection Technique:
Position the patient to present the best angle for application, which must always be perpendicular to the skin. Work with small areas of the face in order to be able to stretch the skin with the other hand.
If injecting manually inject holding the syringe with four fingers while the fifth one shows the direction & ensures that the superficial injections are regular.
All cutaneous areas of face can be treated - the curves of the lips and eyes, the forehead and the neck.

Primary Ingredients Used:
Hyaluronic Acid 20mg/ml
Vitamin C 222mg/ml
Multivitamins

Action of Ingredints:
1. Hyaluronic Acid - helps to maintain hydration of skin. It forms a hydrating and shaping gel which temporarily increase the intercellular space and maintains the elasticity of the skin.
2. Vitamins - provide an anti-deficiency function
3. Amino acids allow better protein construction
4. Minerals - guarantee ionic balance of the medium
5. Coenzymes - activate the biochemical reactions and improve speed of metabolic reactions.

Treatment Schedule: Generally involves an initial series of 2 - 4 treatments spaced 1 - 2 weeks apart
Maintenance Schedule: Every 1 - 4 months.

Pre Treatment:
Local anesthetic cream can be applied prior to treatment, not essential but may be helpful for sensitive patients.

Post Treatment:
Patients should avoid exposure to the sun or solariums for 24 hours.
Result can be maintained and assisted by a daily usage of Vitamin C preparations and skin regime.
Superficial peels every second month will also assist in maintaining results.
Skin Rejuvenation Protocol #1

Indications: For hydrating, tightening and revitalizing damaged skin. This protocol is effective for Mesotherapy treatment of the face, neck, hands and “décolleté”.

Injection Depth: 2 -3mm
Injection Spacing: 0.5cm - 2 cm apart
Injection Amount: 0.15 - 0.2cc per injection
Total Injected volume: 5 - 6cc
Injection Method: Nappage or Point by Point.

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 2 - 5cc syringe with 4mm 30G Mesotherapy needle
Mesotherapy Gun Application: 3 - 10cc syringe with 6mm or ½ inch 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Perform the procedure with the patient lying down.
3. Draw up the required quantity of ingredients and start injecting.
4. Start the injection of ingredients in the area to be treated

Treatment Schedule: Schedule 4 treatments at 2-3 week intervals
Maintenance Schedule: Every 3-4 months.

Choose either one of the following formulas.

FORMULA 1
8cc syringe volume
2cc Hyaluronic acid 1%
2cc Silicium 10mg/ml
1cc Pentoxifylline 20mg/ml
1cc Multivitamins
1cc Vitamin C 222mg/ml
1cc Procaine 2%

FORMULA 2
6cc syringe volume
1cc Procaine 2%
3cc Vitamin C 222mg/ml
2cc Hyaluronic acid 20mg/ml

FORMULA 3
6cc syringe volume
1cc Multivitamins
1cc Hyaluronic acid 20mg/ml
1cc Retin-A 0,01%
1cc Glycolic Acid 1%
1cc Procaine 2%
1cc MTE-5
Skin Rejuvenation Protocol #2

Indications: Effective for Mesotherapy treatment of the face, neck, hands and “décolleté”. All cutaneous areas including the curves of the lips and eyes, the forehead and the neck.

Injection Depth: 1 - 4mm

Injection Spacing: 0.5cm - 2 cm apart

Injection Amount: 0.15 - 0.2cc per injection

Total Injected volume: 5 - 6cc

Injection Method: Linear threading or cross-hatching technique

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant

Manual Application: 2 - 5cc syringe with 4mm 30G Mesotherapy needle
Mesotherapy Gun Application: 3 - 10cc syringe with 6mm 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Position the patient lying down.
3. Work with small areas of the face in order to be able to stretch the skin with the other hand.
4. Inject using Epidermic Mesotherapy without losing the contact between the bevel of the needle and the skin. Linear threading or cross-hatching technique - Working in parallel lines, 0.5cm separated from each other and crossing the other way around.

Treatment Schedule: Schedule sessions once per month for first 3 months.
Maintenance Schedule: Every 3-4 months.

Choose either one of the following formulas.

FORMULA 1
5cc syringe volume
1cc Hyaluronic Acid 10mg/ml
1cc Multivitamins
2cc Pentoxifylline 20mg/ml
1cc Procaine 1%

FORMULA 2
6cc syringe volume
2cc Multivitamins
2cc Hyaluronic Acid
1cc Lidocaine 1%
0.5cc Silicium
0.5cc Zinc

FORMULA 3
6cc syringe volume
2cc DMAE
2cc Vitamin C 222mg/ml
1cc Multivitamins
1cc Hyaluronadase

Continued overleaf...
FORMULA 4
5 cc syringe volume
2 cc Vitamin C 222mg/ml
2 cc Retinoic Acid 0.01%/ml
1 cc Pentoxifylline 20mg/ml

FORMULA 5
5 cc syringe volume
5 cc Cellulift
Skin Rejuvenation Protocol #3

Indications: Suitable for Face (forehead, area under eyes (not orbital rim), and areas around the mouth), Neck (Cervical region), Bust line and Hands.

Injection Depth: 1 - 2 mm

Injection Spacing: 1.5 cm to 2 cm for normal skin and reduce to 0.7 or 0.5 for damaged areas.

Injection Amount: 0.15 - 0.2cc per injection

Total Injected volume: 1.5 - 4cc

Injection Method: Nappage

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 1cc - 3cc syringe with 4mm 30G Mesotherapy needle
Mesotherapy Gun Application: 3 - 10cc syringe with 6mm 30G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Perform the procedure with the patient lying down.
3. Draw up the required quantity of ingredients and start injecting.
4. Start the injection of ingredients in the area to be treated

Treatment Schedule: Day 1 —> Day 15 —> Day 45
Maintenance Schedule: Every 3 months.

Choose either one of the following formulas.

FORMULA 1 - OILY SKIN
1.5cc syringe volume
0.5cc  Hyaluronic acid 20mg/ml
1cc   Multivitamins

FORMULA 2 - NORMAL SKIN
3.5cc syringe volume
1cc  Hyaluronic acid 20mg/ml
2.5cc Multi Vitamins

FORMULA 3 - DEHYDRATED OR MATURE SKIN
4cc syringe volume
1.5cc  Hyaluronic acid 20mg/ml
2.5cc Multivitamins
Skin Rejuvenation Protocol #4

Indications: Suitable for Face and Neck.

Injection Depth: 2 - 4 mm depth aiming at forming papules

Injection Spacing: 1 cm apart

Injection Amount: 0.15 – 0.2 cc per injection

Total Injected volume: 5 - 6 cc

Injection Method: Papule

Equipment:
- 18G 1 ½ inch drawing up needle
- Disinfectant
- Manual Application: 1 cc - 3 cc syringe with 4 mm 30 G Mesotherapy needle
- Mesotherapy Gun Application: 3 - 10 cc syringe with 6 mm 30 G Mesotherapy needle

Procedure:
1. Disinfect the area to be treated with appropriate solution.
2. Perform the procedure with the patient lying down.
3. Draw up the required quantity of ingredients and start injecting.
4. Start the injection of ingredients in the area to be treated

Treatment Schedule: Every week for 4 weeks.
Maintenance Schedule: Every 4 – 6 weeks.

FORMULA 1
5-6 cc syringe volume

WEEK 1
- 2 cc Hyaluronic Acid 20 mg/ml
- 3 cc MCDB106

WEEK 2
- 5 cc Keratinocyte Complement
- 1 cc Hyaluronic acid 20 mg/ml

WEEK 3
- 5 cc Redox
- 1 cc Hyaluronic Acid 20 mg/ml

WEEK 4
- 5 cc Rich Medium
- 1 cc Hyaluronic Acid 20 mg/ml

Depending on the diagnosis, of skin type MCDB106 can be complemented or replaced by other products:

Dry skin: Add HYALURONIC ACID to MCDB106
Damaged skin: Add REDOX to treatments
Acneic skin: Replace MCDB106 alternately by KERATINOCPYTE COMPLEMENT and REDOX.
Sensitive skin: Add REDOX to treatment with MCDB106.
Deep wrinkles, Exaggerated nao-labial & mento-labial folds: Use FIBROBLAST COMPLEMTENT instead of KERATINOCPYTE COMPLEMENT.
Skin Rejuvenation Protocol #5

Indications: Suitable for Face and Neck.

Injection Depth: 2 - 4 mm

Injection Spacing: 1 - 2cm apart

Injection Amount: 0.2cc per injection

Total Injected volume: 3 - 7cc

Injection Method: Point by Point following the passage of the muscles. See figure below.

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 1cc - 3cc syringe with 4mm 30G Mesotherapy needle
Mesotherapy Gun Application: 3 – 10cc syringe with 6mm 30G Mesotherapy needle

Procedure:
5. Disinfect the area to be treated with appropriate solution.
6. Perform the procedure with the patient lying down.
7. Draw up the required quantity of ingredients and start injecting.
8. Start the injection of ingredients in the area to be treated The wrinkle beds should be perpendicularly injected with small, continuous injections applied all over the face, excluding the periorbital area, which should be left untreated.

Treatment Schedule: Every week for 10 weeks.
Maintenance Schedule: Every 4 - 6 weeks.

FORMULA 1
3-6.5cc syringe volume

WEEK 1
Syringe 1 (X)
1cc 17-B-Estradiol
2cc Procaine 2%

Syringe 2 (O)
3cc Vitamin C 222mg/ml
2cc Lidocaine 1%

WEEK 2
Syringe 1 (X)
1cc 17-B-Estradiol
2cc Procaine 2%

Syringe 2 (O)
0.5cc GAG
2cc Hyaluronic Acid
2cc Trissilinol 0.5%
2cc Lidocaine 1%
ALOPECIA - HAIR LOSS

Mesotherapy can be helpful regarding nutritional and androgenic hair and can treat alopecia by restoring microcirculation of the scalp, inhibiting 5 alpha reductase and stimulating the hair follicles.

OVERVIEW OF PROCEDURE:

Injection Depth: 1mm to 4mm

Injection Spacing: 1 - 2cm apart

Injection Amount:

Injection Method: Nappage or Point by Point Method.

Injection Technique:
1. Disinfect area to be treated with appropriate solution.
2. Place the patient in the sitting position.
3. Draw up the required quantity of ingredients into the syringe using an 18G x 11/2” needle.
4. As required, fit the syringe in the pistol and connect the 30G x 1/2” or 4mm 30G Mesotherapy needle to the syringe.
5. Start injecting the solution using Point by point or Nappage Technique.
6. Position the needle at a tangent to the skin depending on its thinness over the scalp.

Primary Ingredients Used:
Biotin
Zinc
Minoxidil
Finasteride
Dutasteride

Action of Ingredients:
1. Biotin - It is converted to carboxybiotin, acting as a cofactor in carboxylation and carboxyl radicals in the biosynthesis of fatty acids. Indications: Alopecia, as well as Acne, Glossitis & Seborrhoeic Dermatitis.

2. D-Panthenol - It is converted in the organism to the acid form. Pantethine is the bioactive form. There is energy production at the hair follicle. Indications: Loss of hair color.

3. Zinc - A non-steroidal inhibitor of 5 alpha reductase. Androgenetic alopecia is linked to a genetic excess of the enzyme at the hair follicle. It is also involved in the conversion from inactive androgens to dihydrotestosterone.

4. Finasteride - Synthetic agent with androgenic activity. It is a specific steroidal competitive inhibitor of 5-alpha-reductase and assists in lowering the concentrations of dihydrotestosterone in plasma and tissue.

Schedule of Procedure:
The schedule of sessions varies according to the protocol but generally 1 session per week for 1 month then monthly sessions followed by maintenance sessions every 1-3 months.

Pre Treatment:
Local anesthetic cream can be applied prior to treatment, not essential but may be helpful for sensitive patients.

Post Treatment:
Suggest a topical solution (e.g Minoxidil & Progesterone) or an oral preparation to be administered between treatments.

Considerations:
It is not always possible to thoroughly disinfect the area to be treated; however, the scalp is recognized as being particularly resistant to infection.
No pregnancy should be allowed when using Dutasteride.

Side Effects:
Itching, redness and minor bruising may result.
Alopecia Protocol #1

Injection Depth: 1 - 4mm

Injection Spacing: 1cm apart

Injection Amount: 0.15 - 0.2cc per injection

Total Injected Volume: 6 - 8cc

Injection Method: Nappage Method

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 1-3cc syringe and 4mm 30G Mesotherapy Needle
Mesotherapy Gun Application: 1 – 5cc syringe with 6mm 30G Mesotherapy Needle

Procedure:
1. Disinfect area to be treated with appropriate solution.
2. Place the patient in the sitting position.
3. Draw up the required quantity of ingredients into the syringe using an 18G x 1 1/2” needle.
4. As required, fit the syringe in the pistol and connect the needle to the syringe.
5. Start injecting the solution using Nappage Method.
6. Position the needle at a tangent to the skin depending on its thinness over the scalp.

Treatment Schedule: Schedule treatments once per week for 4 weeks
Maintenance Schedule: Every 4-6weeks.

Choose either one of the following formulas.

FORMULA 1
6cc syringe volume
3cc Biotin 10mg/ml
3cc D-Panthenol 500mg/ml

FORMULA 2
6cc syringe volume
4cc Biotin 10mg/ml
2cc Minoxidil 0.2%

FORMULA 3
6cc syringe volume
4cc Biotin 10mg/ml
2cc Dutasteride 0.1mg/ml

The formula 3 formula is indicated for Male Pattern Baldness and PCO’s in females.
No pregnancy should be allowed when using Dutasteride.
Alopecia Protocol #2

Injection Depth: 2 - 4mm

Injection Spacing: 1cm apart

Injection Amount: 0.15 - 0.2cc per injection

Total Injected Volume: 4cc

Injection Method: Nappage Method or Pont to Pont Method

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 1-3cc syringe and 4mm 30G Mesotherapy Needle
Mesotherapy Gun Application: 1 - 5cc syringe with 6mm 30G Mesotherapy Needle

Procedure:
1. Disinfect area to be treated with appropriate solution
2. Place the patient in the sitting position
3. Draw up the required quantity of ingredients into the syringe using an 18G x 1 1/2” needle
4. As required, fit the syringe in the pistol and connect the needle to the syringe.
5. Start injecting the solution using Nappage Method.
6. Position the needle at a tangent to the skin depending on its thinness over the scalp.

Treatment Schedule: 1 session every week for 5 sessions → 1 session every 2 weeks for 3 sessions → 1 session every month for 2 sessions
Maintenance Schedule: Every 3 months.

FORMULA 1
4cc syringe volume
1cc Lidocaine 1%
1cc Biotin 10mg/ml
1cc D-Panthenol 500mg/ml
1cc Zinc 1mg/ml
Alopecia Protocol #3

Indications: For treatment of non-androgenic alopecia all over scalp where loss is occurring.

Injection Depth: 2 - 4mm

Injection Spacing: 1cm apart

Injection Amount: 0.1 - 0.2cc per injection

Total Injected Volume: 2 - 8cc

Injection Method: Injected at level of intradermis at a depth of 2mm using the papule technique.

Equipment:
18G 1 ½ inch drawing up needle
Disinfectant
Manual Application: 1-3cc syringe and 4mm 30G Mesotherapy Needle
Mesotherapy Gun Application: 1 – 5cc syringe with ½ inch 30G needle

Procedure:
1. Disinfect area to be treated with appropriate solution
2. Place the patient in the sitting position
3. Draw up the required quantity of ingredients into the syringe using an 18G x 11/2" needle
4. As required, fit the syringe in the pistol and connect the needle to the syringe
5. Inject solution with 0.1 to 0.2 ml per injection in successive lines 1 cm apart with 1 cm between each point
6. Position the needle at a tangent to the skin depending on its thinness over the scalp.

Treatment Schedule: 1 session every week for 4 weeks.
Maintenance Schedule: Every 1 - 3 months

Choose either one of the following formulas.

FORMULA 1
2cc syringe volume
2cc - 5cc Keractive

FORMULA 2
8cc syringe volume
2cc D-Panthenol 500mg/ml
2cc Biotin 10mg/ml
2cc Blufomedil
2cc Lidocaine 1%

FORMULA 3
8cc syringe volume
2cc Lidocaine 1%
2cc Minoxidil 0.2%
2cc Trissilinol
2cc Biotin 10mg/ml
MESOBOOST

MesoBoost is a term used for the application of Mesotherapy in increasing the functional penis size in men.

Using the technique and similar protocol as for localized fat in the area of the pubic bone, it is possible to reduce the fat pad that sits in front of the symphysis pubis. With this fat reduced, more of the actual penis shaft is visible and often you can see gains of up to 1/2 an inch in penis size. This is not simply an aesthetic improvement but a functional increase in penis size. As intercourse involves penetration of the penis up to the pubic bone; therefore, you can actually have deeper penetration if there is less fat in the way.

**MesoBoost Protocol #1**

**Injection Depth:** 6mm

**Injection Spacing:** 2 - 4cm apart

**Injection Amount:** 0.4cc per injection

**Total Injected Volume:** 5 - 12cc

**Injection Method:** Point by point method. The infiltration method should be considered over the area of the suspensory ligament.

**Equipment:**
- 18G 1 ½ drawing up needle
- Disinfectant
- Manual Application: 5 - 10cc syringe with 6mm 30G Mesotherapy needle
- Mesotherapy Gun Application: 5 - 10cc syringe with ½ inch 30G Mesotherapy Needle

**Procedure:**
1. Disinfect the area to be treated with appropriate solution.
2. Perform the Procedure with the patient lying down.
3. Draw up the required quantity of ingredients into the syringe using an 18G x 1 ½” needle.
4. As required, fit the syringe in the pistol and connect the 30G x 1 ½” or 4mm 30G Mesotherapy needle to the syringe.
5. Start injecting the solution using Point by point or Infiltration Technique.

**Treatment Schedule:** Schedule treatments every 2 - 6 week intervals.

**Maintenance Schedule:** As required.

*Choose either one of the following formulas.*

**FORMULA 1**

12cc syringe volume

<table>
<thead>
<tr>
<th>5cc</th>
<th>Phosphatidylcholine 50mg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>2cc</td>
<td>Collagenase 1000U/ml</td>
</tr>
<tr>
<td>2cc</td>
<td>L-Carnitine 500mg/ml</td>
</tr>
<tr>
<td>2cc</td>
<td>Yohimbine 5mg/ml</td>
</tr>
<tr>
<td>1cc</td>
<td>Lidocaine 2%</td>
</tr>
</tbody>
</table>

**FORMULA 2**

5cc syringe volume

<table>
<thead>
<tr>
<th>2cc</th>
<th>Phosphatidylcholine 100mg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>1cc</td>
<td>Collagenase 1000U/ml</td>
</tr>
<tr>
<td>1cc</td>
<td>Hyaluronidase 150U/ml</td>
</tr>
<tr>
<td>1cc</td>
<td>Lidocaine 2%</td>
</tr>
</tbody>
</table>
**MESOBOTOX**

MesoBotox involves injecting multiple small doses of Botox into the skin of the face to reduce the action of sweat and sebaceous glands as well as the superficial layer of facial muscles.

The main objective of MesoBotox is to relax the orbicular muscles to cause the reopening of orifices. The net effect of MesoBotox is improved sheen of the face with smooth skin, tighter pores and yet the ability to move all the deeper muscles of the face thus retaining a natural, non “plastic” appearance.

**AESTHETIC RATIONALE FOR MESOBOTOX**

1. **Movement:**
   Complete facial paralysis by Botulinum Toxin is not aesthetically desirable by patients. The preservation of a certain degree of facial mobility is of more aesthetic worth than total lack of movement. Expression and motion of the face is part of beauty and symbolizes life...On the contrary, paralysis is rather a characteristic of death, since a dead person’s face is almost completely smooth. The face lacks all the expressions (pain, suffering, sadness...) that show the individual’s personal experience.

2. **Overall Appearance of Face:**
   Determined by, e.g., the bone structure that usually acts as a tensing structure (like the pole of a tent) for muscles; or by depressed areas like the dark rings under the eyes where botulinum toxin should never be injected. Consequently, the facial bone morphology needs to be carefully assessed when performing “mesobotox”. One of the consequences of aging in humans is that natural body openings progressively close. At a facial level, it is very common to see this effect in the eye and mouth. The main objective of botox, and particularly of mesobotox, is to relax the good muscles (orbicular muscles) to cause the reopening of orifices. This results in a revitalized, glowing face.

3. **Increased Aestheticism:**
   "Beauty is what others see. Hence, “MesoBotox” seeks to preserve natural beauty. The MesoBotox technique “preserves what is natural”, according to the patient’s understanding of the term. MesoBotox is about achieving beauty, but with no traces of Botulinum Toxin ever being used!” B Hertogz

**INJECTION TECHNIQUE**

1. **Cleansing of facial skin** with an appropriate solution.

2. **Careful and detailed visual assessment of the patient’s face:**
   A detailed facial assessment is done by both visual assessment and palpation of muscles to determine the patient’s muscle mass in relation to the underlying bone structure. To assess muscle functioning, the patient should be asked to make many forced facial gestures and expressions that highlight muscle functioning and show the degree of muscle interrelation.

   Patients should be asked to make a minimum of 5 different movements:
   a) Closing of the eyes as tight as possible;
   b) Eye opening to the maximum while raising the eyebrows: this is a key movement that shows whether the eyebrows have a tendency to rise excessively, thus preventing the unwanted “mephisto” effect.
   c) Frowning;
   d) Puckering the lips forwards, as in a forced kiss;
   e) Curving the corners of the mouth upwards, as in an exaggerated smile.

3. **Accurate Assessment of Appropriate Application**
   A surgical marking pen should be used to mark all areas of interest. “Excess” areas should be identified with dots or small circles. “Depressed” areas, wrinkles and lines should be identified with dashes or “line shadowing”.

   The technique for Botulinum Toxin injection follows the Mesotherapy injection principles. Intradermal injections should be administered into the medial dermis so as to form a dermal papule that will allow diffusion. If injections are too superficial, papules will turn into vesicles and the injected drugs will remain at a superficial dermal level with virtually no underlying effect.
MesoBotox Protocol #1

There are several toxin dilutions that can be used depending on its intended use.

Choose either one of the following formulas.

FORMULA 1 - High Concentration
100U Botulinum Toxin
1ml Physiological Saline

FORMULA 2 - Standard Concentration:
100U Botulinum Toxin
5ml Physiological Saline
0.15ml Xylocaine 2% with adrenaline

FORMULA 3 - Diluted Botulinum Toxin
100U Botulinum Toxin
7ml Physiological Saline
0.2ml Xylocaine 2% with adrenaline

FORMULA 4 - Highly-Diluted Botulinum Toxin:
Used in microinjections into enlarged pores in nose and chin
100U Botulinum Toxin
1ml Physiological Saline

FORMULA 5 - “Mesolift and Botox” Combination:
10IU Botulinum Toxin - diluted in a 5ml syringe with procaine + vitamin C

Injection Points:
As Cl. LeLouarn stated in his article in the “Aesthetic Plastic Surgery” journal, in order to avoid an excessive diffusion, highly concentrated Botulinum Toxin should be used in short and thick muscles, whereas the diluted Botulinum Toxin should be used in flat and thin muscles. To some extent, this is the idea of “MesoBotox”, because the injection of the diluted toxin on a short muscle always implies a certain degree of inaccuracy and, consequently, uncertain results. On the contrary, a greater and inaccurate diffusion of the product is preferred in flat muscles.
Mesotherapy Needles
100 per box, single use, sterile...

The ultra thin diameter of 27G, 30G & 32G Mesotherapy Needles makes these needles excellent for Mesotherapy & Sclerotherapy treatments.

Sterile and disposable, the accurate sharpening of the needles minimizes the pain associated with treatments and ensures precision every time.

Other Mesotherapy Needles Available include:
32G X 4mm, 6mm, 12mm
30G X 4mm, 6mm, 12mm, 24mm
27G X 4mm, 6mm, 12mm

Circular Multi Injector - 30G, 6mm, 7 needles
Box of 36 - Sterile, single use, CE Marked...

The Circular Multi Injector is supplied with the needles already inserted for a prompt, effective and safe use.

The pre-mounted needles prevent any accidental punctures to the operator during the preparation preliminary procedures.

The accurate sharpening of the needles minimizes the pain associated with the treatment.

Multi Injectors are packaged in a special protective rigid cap, ensuring device sterility until use. It also ensures a safe disposal at the end of the procedure. A standard female luer connector allows an easy connection to the syringe containing the injectable drug.

The circular configuration with 7 needles is perfect for fat and cellulite procedures.

Other Circular Multi Injectors Available include:
Circular Multi Injector Plate - 7 connectors - no needles
Circular Multi Injector Plate - 5 connectors, no needles

Linear Multi Injectors - 30G, 6mm, 5 needles
Box of 36 - Sterile, single use, CE Marked...

The Linear Multi Injector is supplied with the needles already inserted for a prompt, effective and safe use.

The pre-mounted needles prevent any accidental punctures to the operator during the preparation preliminary procedures.

The accurate sharpening of the needles minimizes the pain associated with the treatment.

Multi Injectors are packaged in a special protective rigid cap, ensuring device sterility until use. It also ensures a safe disposal at the end of the procedure. A standard female luer connector allows an easy connection to the syringe containing the injectable drug.

The linear configuration with 7 needles is perfect for fat, cellulite and skin rejuvenation... Also great for large areas and where angling of the needle is important...
Other Linear Multi Injectors Available include:
Linear Multi Injector Plate - 5 connectors - no needles
Linear Multi Injector Plate - 3 connectors - no needles

Multi Injector Plates – 3, 5 & 7 connectors
Box of 50 - Sterile, single use, CE Marked...

The multi-injector plates come without needles and are available with linear or circular configuration, with 3, 5 or 7 needles connectors according to the different kinds of treatment.

The single needles are supplied separately and manually mounted before the treatment by the operator. The operator can then chose the size needle that is most appropriate for the procedure – 4mm, 6mm, ½ inch or 1 inch needles. A standard female luer connector allows an easy connection to the syringe containing the injectable drug.

Other Multi Injectors Available include:
Circular Multi Injectors - 7 connectors – 30G 6mm
Linear Multi Injectors – 5 connectors – 30G 6mm

Syringes - Slip Tip & Luer Lock – 1ml, 3ml, 5ml, 10ml & 20ml
Box of 100 - Sterile, single use...

All our syringes are available with slip tip or luer lock configuration.

All syringes are single use and packaged individually to ensure sterility. The syringes feature a clear barrel with bold scale markings, tapered plunger rod for ease of aspiration, and positive plunger rod stop. The added luer lock thread for increased secure connection. Packaging is clearly labeled latex free.

ALL MULTI INJECTORS, NEEDLES AND MESOTHERAPY GUN ARE SUITABLE FOR USE WITH THESE SYRINGES.

MesoMega Mesotherapy Gun
Box of 100 - Sterile, single use...

Selecting the right Mesotherapy gun is an important decision for you, your practice and most importantly your patients.

The MesoMega® is your most valuable tool and asset in Mesotherapy and will give you the greatest advantage in the application of various Mesotherapy procedures including: Lipodissolve, MesoBotox, Bio-Rejuvenation, MesoLift, MesoSculpting, Alopecia/Hair Loss & Prolotherapy...

- CE Medical European approval of safety.
- Internationally registered ergonomic Italian design for professional Mesotherapy.
- Exact dosage controlled to ensure precision.
- Fully programmable – Dosage from 1 microliter to 50 microliters.
- LCD Screen Display
- 4 Programmable Functions: Continuous, Dosimetric, Nappage & Mesoperfusion Modes.
- Rapid delivery of medications: 3 ml/minutes to 8, 4 ml/minutes.
- Suitable for any international syringes and needles. No added expense of “special” needles or “kits”
Can be used with any standard syringe from 1 cc to 20 cc.
- Integrated Luer Lock Syringe Carrier to prevent “jumping”.
- Movement Pressure Controlled for the “painless”: application of Mesotherapy.
- Variable sight gauge to facilitate injection depth of up to 10 mm.
- Anti-drop mechanism to prevent leakage.
- The MesoMega allows long-life cordless application. The Lithium Ion long life battery ensures only one battery is required.
- The Lithium Ion Battery can last up to 36 hours in use.
- The MesoMega is supplied in a portable hard light suitcase. This is ideal to store and carry your valuable MesoMega®.
- International distribution, training and professional references available.
- Medixsysteme has many years of experience in the research, manufacturing and supply of the MesoMega®.

Features
- **Continuous Mode** - The continuous mode allows you to inject at your own pace. The MesoMega will automatically adjust the inbuilt pain control system, ensuring maximum comfort for your patients.
- **Dosimetric Mode** - The dosimetric mode is perfect for applications including: MesoBotox and Hyuralonic Acid. The dosimetric mode is able to determine at microliter path your ideal dose.
- **Nappage Mode** - The Nappage mode enables perfect product delivery at each drop.
- **Mesoperfusion Mode** - The Mesoperfusion mode is specifically designed for Mesotherapy applications for Pain Management, Sports Medicine and Prolotherapy.

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**SKIN ROLLERS**

*Skin & Scalp Rollers – Treatments for: Acne, Alopecia, Stretch Marks, Pigmentation...*

The Skin Rollers are one of the newest breakthroughs in Skin Technology.

The rollers are available in 48 & 96 needle configuration with various needle lengths. The needles are arranged in rows of four needles spaced five millimeters apart.

These Medical Grade Rollers are a registered Class 1 Medical Device to assist in improving the appearance of scars and deep lines.

The Skin & Scalp Rollers help to stimulate the deeper layers of the skin. They can be used to improve the appearance of stretch marks, pigmentation & acne and have also demonstrated great success in treating alopecia and assisting in revitalizing the appearance of healthy hair.

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**BLT - Anesthetic Cream (EMLA)**

*(Benzocaine, Lidocaine, Tetracaine) - Suitable for Mesotherapy, Laser, Cosmetic Tattoos...*

BLT Cream - Benzocaine, Lidocaine & Tetracaine cream preparation is an individually compounded local anesthetic cream. This unique formulation is used to numb the skin to pain from injections and other aesthetic medical procedures including: Laser, IPL and Cosmetic Tattooing etc...

**Other Mesotherapy Products Available include:**

All Mesotherapy Injectables – please email: info@mesotherapyworldwide.com to get a complete listing of ingredients that are available in your own country.
MESOTHERAPY WORLDWIDE OFFERS A COMPLETE RANGE OF MESOTHERAPY INJECTABLES, MEDICATIONS AND PRE & POST CARE TREATMENTS...

PRODUCT RANGES FROM AROUND THE GLOBE INCLUDING:

- **MesoMedica** – PPC, Yohimbine, Hyaluronidase, Dutasteride...
- **SimilDiet** – Homeopathic Range – Metabolites, MuscleBig...
- **PPC** – Lipostabil, Dermastabilion, Essentiale, Fostfatidcholina...
- **Compounded Meds** – PPC, L-Carnitine, Aminophylline, Caffeine...
- **Lipodissolve Kits** – Complete Kits w/ Medication & Equipment
- **MesoDermal** – BLT Cream, Cellulite Formula, Post Treatment ...

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- Biotin
- Procaine
- Lidocaine
- Marcaine
- Retinoic Acid
- Phosphatidylcholine
- Collagenase
- Minoxidil
- Finestaride
- Multi-Vitamins
- Amino Acids
- Glycolic Acid
- Pentoxifylline
- Alpha Lipoic Acid
- Yohimbine
- L-Carnitine
- D-Panthenol

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If you would like to order Mesotherapy medications please be sure to check the legislation for your specific country.

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If you would like to place an order for any of these products or if you require additional information please contact us:

**PHONE:** +61 (0) 2 9439 7781  
**FAX:** +61 2 (0) 2 8569 0915  
**EMAIL:** info@mesotherapyworldwide.com
COMPANY POLICY AND GUIDELINES

Please take a few moments to read over and understand our Commitment to Service, Purchase Guarantee, Privacy Policy and Return Policy. Any queries please direct to: info@mesotherapyworldwide.com

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Mesotherapy Worldwide (MW) strives to ensure that you as our valued customer are satisfied with the product, price and quality of any products ordered with us.

MW ensures that all orders will be processed and shipped within 48 hours of receipt should stock be available. If MW cannot fulfill orders within this 48 hour time frame the customer will be notified in writing of the delay and advised of the expected delivery of goods ordered.

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1) MW does collect demographic data and personal data to provide you a better customer experience and accurately identify your needs.

2) Your personal details will remain private and confidential. We will never sell, rent, barter or share your personal details in any way with any other company. All data collected is for our internal use only.

3) We have security measures in place to attempt to protect against the loss, misuse & alteration of customer data under our control. We impose strict rules on all our staff that will ensure your privacy is maintained.

4) MW will never send you any unsolicited e-mail. If you choose to subscribe to our free newsletter, you will receive your newsletter monthly. Clear unsubscribe details are always shown on the newsletter.

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6) We may from time to time, send you pertinent information on special offers, giveaways or special discounts should you choose to subscribe to it. In any case, you will receive no more than one (1) of such e-mails every fortnight.

7) We may from time to time post up surveys to measure your response to certain new additions to the website. As a rule, you are never forced to fill in these surveys. Furthermore, should you choose to fill in the surveys, you can choose to remain anonymous.

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Mesotherapy Worldwide strongly believes in customer satisfaction and therefore extends a 14 day money back guarantee on all purchases.

Should you not be completely satisfied with the quality of your order once it is received or if the products are unsuitable for your needs we will happily arrange a refund for you once goods are returned to and received by MW. Unfortunately we are unable to offer refunds on shipping and handling.

RETURN POLICY
1. It is the responsibility of the customer for return shipping items to MW. This must be done by a traceable shipping service: Express Post, Courier Service, FedEx, UPS or DHL...

2. All returns must be accompanied by the original tax invoice and an accompanying note that indicates the reason for return.

3. The warranty card (if applicable) must be present and not filled out.

4. The packaging must be as it was when the parcel was delivered to you.

5. All returns must meet an inspection to be accepted.

6. All returns should be sent to: Mesotherapy Worldwide: C401 1-11 Hunter Street Waterloo NSW 2017

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MESOTHERAPY PRACTICE FORMS

1. Mesotherapy Patient History & Contact Information Sheet
2. Mesotherapy Treatment Consent Form
3. Mesotherapy Treatment Record Sheet - Localized Fat
4. Mesotherapy Treatment Record Sheet - Alopecia
5. Mesotherapy Treatment Record Sheet - Facial Rejuvenation
6. Mesotherapy Treatment Record Sheet - Cellulite

THESE FORMS ARE SAMPLE TEMPLATES OF RECORD TOOLS YOU MAY PRINT AND USE IN YOUR PRACTICE.
PATIENT HISTORY AND CONTACT INFORMATION

Sex: [ ] Male  [ ] Female  DOB: ____________________________ Age: ____________________________

Title: __________ First Name: ____________________________ Last Name: ____________________________

Address: ______________________________________________________________________________

City: ____________________________ State: ____________________________ Zip: ____________________________

Home #: ____________________________ Work #: ____________________________ Mobile #: ____________________________

Email: ______________________________________________________________________________

MEDICAL HISTORY

Are you pregnant? [ ] Yes  [ ] No
Are you breastfeeding? [ ] Yes  [ ] No
Do you have a history of blood clots? [ ] Yes  [ ] No
Have you ever suffered a stroke? [ ] Yes  [ ] No
Do you have herpes? [ ] Yes  [ ] No
Do you have cancer? [ ] Yes  [ ] No
Do you have any allergies? [ ] Yes  [ ] No

If so please list: ________________________________________________________________

Do you suffer from or have a history of:

<table>
<thead>
<tr>
<th>Condition</th>
<th>[ ] Yes</th>
<th>[ ] No</th>
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<td>Asthma</td>
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<td>Blood Pressure</td>
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<tr>
<td>Menopause</td>
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List your current medications:

_______________________________________________________________________________

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SURGICAL HISTORY

_______________________________________________________________________________

_______________________________________________________________________________

OFFICE USE - TO BE FILLED IN BY STAFF

Treatment Advised: ______________________________________________________________________________

Desired Treatment Goals: ____________________________________________________________________________

Height: __________  Current Weight __________  Goal Weight __________  Blood Pressure: __________

% of body fat __________  Total Fat __________  BMI __________

Hip Measurement __________  Waist Measurement __________  Left Thigh __________  Right Thigh __________

NOTES: ________________________________________________________________________________________

_______________________________________________________________________________

_______________________________________________________________________________
MESOTHERAPY CONSENT FORM

I, ______________________, voluntarily consent to undergo Mesotherapy treatments provided by ___________________ or other licensed doctors, nurses, or qualified staff members employed by the practice.

I understand that Mesotherapy can be used for many conditions and I want to have treatment for the following:

- Localized Fat Reduction - Area/s __________________________________________
- Cellulite Treatment - Area/s ____________________________________________
- MesoLift - Area/s ______________________________________________________
- MesoGlow - Area/s ______________________________________________________
- Mesotherapy for pain- Area/s ____________________________________________

I hereby consent to the Mesotherapy treatment of which I understand that more than one (1) treatment is required. I understand that the treatment requires many small injections around the area(s) to be treated. I understand that the administration of topical anesthesia may be used if deemed needed.

I understand that the benefits with Mesotherapy will vary but may include: a decrease of cellulite, an increase of skin tone, a decrease of wrinkles and may eliminate or decrease pain.

I understand that there are alternative treatments available for the reduction of fat, wrinkles, cellulite and pain. The following are a list of alternative treatments available. However, this list is not in any way considered inclusive of all other available treatments.

- Face Lifts - Dermabrasion - Facial Peels - Liposuction - Endermologie - Prolotherapy - Pain Medications
- Nerve Blocks - Cortisone Injections

I understand that there are some risks with any procedure. Complications of Mesotherapy are rare and usually self-limited, but include the following:

1. **Discomfort**: Medication is injected with tiny needles just below the skin. There may be brief minimal discomfort from the injections.
2. **Bruising**: Occasionally the needle may puncture a small blood vessel resulting in a bruise.
3. **Swelling and Redness**: This may result following the procedure as the medication begins to work.
4. **Scarring**: Scarring may result from multiple injections, but this is very unlikely.
5. **Allergic Reaction**: Although exceedingly rare, the possibility exists of an allergic reaction to the injection of Mesotherapy medications
6. **Infection**: Since Mesotherapy treatment involves injections, there is a theoretical risk of developing an infection at the injection site. This is also exceedingly rare.
7. **Discoloration**: Transient or permanent skin pigmentation changes can sometimes occur at injection sites.

By my signature, I acknowledge that I have been informed about the above procedure and the medications and give consent to its use in my treatment.

1. I have met with the Doctor who is overseeing my treatment and have discussed all treatment options available to me.
2. The Doctor has informed me and I understand that the result of Mesotherapy are individual and vary depending on the area treated, skin type and the injection technique, and the use of different products. Therefore, no guarantee can be made as to the results of my treatment.
3. I understand that the effects of the treatment with these products can last on average, 3 or more month with complete treatment, but that in some cases duration of the effects can be shorter or longer. Touch up and follow up treatments may be needed to sustain the desired degree of my treatment.
4. I agree that this constitutes full disclosure, and that it supersedes any previous verbal or written disclosures.
5. I understand that this treatment is strictly for cosmetic purposes and will not be covered by insurance.
6. I understand that I am responsible for all costs payable at the time of service.

By my signature, I certify that I have thoroughly read and understand the contents of this form and the disclosures listed above were made to me.

Patient’s Signature ____________________________________________________ Date __________________________
Mesotherapy Treatment Record

Patient Name: ___________________________ Date: ___/___/____ Time: ________________

Physician: _______________________________ Nurse: ______________________________

Allergies: ______________________________

Procedure: _____________________________

Treatment Number: _____________________

Topical Anesthesia: _____________________

Skin Prep: ______________________________

Pre-Tx Measurements: ___________________

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Notes: ________________________________

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MEDICATION

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AREAS

Amount Used: c.c c.c c.c c.c c.c

Total c.c used: __________

Follow Up Procedure Due: ________________________________

Notes: ________________________________________________

________________________________________________________________________
Mesotherapy Treatment Record

Patient Name: ___________________________ Date: ___/___/____ Time: ________________

Physician: ______________________________ Nurse: ______________________________

Allergies: ______________________________

Procedure: ______________________________

Treatment Number: ______________________

Topical Anesthesia: _____________________

Skin Prep: ______________________________

Notes: __________________________________

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MEDICATION

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| Syringe 3 | c.c | c.c | c.c | c.c | c.c | c.c |
| Syringe 4 | c.c | c.c | c.c | c.c | c.c | c.c |
| Syringe 5 | c.c | c.c | c.c | c.c | c.c | c.c |

AREAS

| Amount Used | c.c | c.c | c.c | c.c | c.c | c.c |

Total ml Used: __________

Follow Up Procedure Due: _____________________________________________

Notes: _____________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
## Mesotherapy Treatment Record

**Patient Name:** ____________________________  **Date:** ___/___/____  **Time:** ________________

**Physician:** ____________________________  **Nurse:** ____________________________

**Allergies:** ____________________________

**Procedure:** ____________________________

**Treatment Number:** ____________________________

**Topical Anesthesia:** ____________________________

**Skin Prep:** ____________________________

**Notes:** ____________________________________________

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**Total ml Used:** __________

**Follow Up Procedure Due:** ____________________________

**Notes:** ____________________________________________

_________________________________________________________
Mesotherapy Treatment Record

Patient Name: ______________________________ Date: ___/___/____ Time: _____________

Physician: ________________________________ Nurse: _______________________________

Allergies: __________________________________________

Procedure: ________________________________

Treatment Number: __________________________

Topical Anesthesia: __________________________

Skin Prep: ______________________________________

Pre-Tx Measurements: ________________________

Notes: ________________________________________

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</tbody>
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Total c.c used: __________

Follow Up Procedure Due: _______________________________________________________

Notes: _______________________________________________________________________

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_____________________________________________________________________________
STUDIES AND RESEARCH INFORMATION

1. REGIONAL FAT LOSS FROM THE THIGH IN OBESE WOMEN AFTER ADRENERGIC MODULATION
   Frank L. Greenway, M.D & George A. Bray, M.D.

2. MESOTHERAPY IN LIPODYSTROPHIA IN 2004
   ABSTRACT - December 2004
   Dr Jules Marthan

3. LIPOLYSIS REPORT 2004
   NETWORK Lipolysis
   Dr. Franz Hasengschwandtner

4. PHOSPHATIDYLCHOLINE IN THE TREATMENT OF LOCALIZED FAT
   Journal of Drugs in Dermatology October 2003
   Doris Hexsel, Marcio Serra, Rosemari Mazzuco, Taciana Dal’Forno, Debora Zechmeister

5. DETERGENT EFFECTS OF SODIUM DEOXYCHOLATE ARE A MAJOR FEATURE OF AN INJECTABLE
   PHOSPHATIDYLCHOLINE FORMULATION USED FOR LOCALIZED FAT DISSOLUTION
   ABSTRACT - Dermatologic Surgery - July 2004
   Adam M. Rotunda, MD*, Hiroyuki Suzuki, BS, Ronald L. Moy, MD and Michael S. Kolodney, MD, PhD

6. THE USE OF PHOSPHATIDYLCHOLINE FOR CORRECTION OF LOWER LID BULDGING DUE TO PROMINENT
   FAT PADS
   Patricia Guedes Rittes, MD

   Mokhtar Asaadi, MD, FACS, A. Peter Salas, MD, and Bijan Motamedi, MD.

8. LIPOLYSIS REPORT 2003
   NETWORK Lipolysis
   Dr. Franz Hasengschwandtner
Regional Fat Loss from the Thigh in Obese Women after Adrenergic Modulation

Frank L. Greenway, M.D.
Department of Medicine, UCLA School of Medicine, Los Angeles, California
George A. Bray, M.D.
Department of Medicine, University of Southern California School of Medicine, Los Angeles, California

ABSTRACT

Beta-adrenergic stimulation and alpha 2-adrenergic inhibition increase lipolysis from fat cells. Twenty-eight obese women were placed on a calorie-restricted diet and one of five treatments was applied to one thigh three to five times per week for four weeks: (1) isoproterenol injections; (2) cream containing colforsin (forskolin), aminophylline, and yohimbine; (3) yohimbine cream; (4) colforsin cream; or (5) aminophylline cream. The opposite thigh was treated with a placebo (injection or cream). The treated thighs lost significantly more girth after treatment, both by injection and by cream. No adverse reactions were attributable to either the cream or the injections. It is concluded that local fat reduction from the thigh can be safely accomplished.

INTRODUCTION

Fat is lost more rapidly from the abdomen than from the thigh after intestinal bypass surgery. Studies of fat cells have shown that beta-adrenergic agonists can directly increase cyclic adenosine monophosphate levels and stimulate lipolysis. There is a regional difference in this responsiveness to beta-agonists. Fat cells from the abdomen are more sensitive to the lipolytic effects of beta-adrenergic stimulation than are those from the thigh. This appears to be because there are more alpha2-receptors on fat cells of the thigh than of the abdomen. Raising the norepinephrine concentration in the medium suspending the fat cells from the thigh increases in vitro lipolysis from these cells. The maximal lipolytic rate in fat cells from the two locations is equal, but higher concentrations of norepinephrine are needed to reach that maximum when fat cells from the thigh are used. Blocking the alpha2-receptors on fat cells from the thigh enhances lipolysis in the presence of norepinephrine.

We hypothesized that by increasing the local concentration of beta agonists or by inhibiting phosphodiesterase or Alpha2-adrenergic receptors to fat cells in the thigh, fatty acids could be released more readily. We report the results of a series of small trials to test this hypothesis.

MATERIALS AND METHODS

Study I

Five women who were more than 20% above their desirable body weight (mean weight, 209 lb) and wished to lose weight from their thighs were recruited and placed on a diet of 600 kcal daily and encouraged to engage in a walking program. They received injections of 0.2 ml of 10^-5 mol/L isoproterenol at intervals of 4 cm around the circumference of one thigh, two thirds of the way from the knee to the greater trochanter, three days per week for four weeks. The 4-cm interval was chosen because calculations from the area of vasodilation on the skin suggested that the spheres of diffusion would overlap when this distance was kept. The opposite thigh was treated similarly, but using normal saline in a double-blind design.

Study 2

Five women (mean weight, 182 lb) who were more than 20% above desirable body weight and wished to lose weight from their thighs were recruited and placed on a diet of 600 kcal daily and encouraged to engage in a walking program. They were seen five days a week for four weeks. At each visit, warm wraps of 600 to 900 mosm/L of magnesium sulfate solution were applied to each thigh for 30 minutes, followed by an application of cream and plastic wrap. The cream applied to one thigh contained 1.2 X 10^-5 mol/L colforsin (forskolin), 2.5 X 10^-5 mol/L yohimbine, and 1.3 X 10^-2 mol/L aminophylline in xipamide (aquaphor) base. The other thigh received xipamide base only in a double-blind design.

Study 3
Eighteen women (mean weight, 197 lb) who were more than 20% above desirable body weight and wished to lose weight from the thighs were recruited and placed on a liquid formula diet of 800 kcal daily and encouraged to engage in a walking program. They were seen five days per week for four weeks. At each visit, warm wraps of 600 to 900 mosm/L of magnesium sulfate solution were applied to each thigh for 30 minutes, followed by cream application. One thigh was treated in each patient with one of the three creams in xipamide: colforsin, $25 \times 10^{-5}$ mol/L (six patients); yohimbine, $5 \times 10^{-4}$ mol/L (six patients); or aminophylline, $1.3 \times 10^{-2}$ mol/L (six patients). The other thigh in each subject was treated with xipamide only, in a double-blind design.

In each study, treatment effectiveness was judged by measuring the thigh circumference two thirds of the way from the knee to the greater trochanter, using the saline- or xipamide-treated thigh as the control. Differences were compared with Student’s $t$ test for paired observations.

RESULTS

In Study 1, all five women completed the four weeks of treatment and all but one lost weight. The four subjects who lost weight lost more girth from the thigh treated with isoproterenol injections than from the control thigh. In the total group, the thighs treated with isoproterenol lost a mean of $1.8 \pm 0.89$ cm more than the control thighs ($P < 0.05$). No changes in pulse rate, blood pressure, or other clinical parameters were noted.

In Study 2, all five women completed the four weeks of treatment and all but one lost weight. The five subjects lost a mean of $2.03 \pm 1.36$ cm more from the thighs treated with cream containing colforsin, yohimbine, and aminophylline than from the control thighs ($P < 0.05$). The only adverse effect was a pruritic rash that occurred on both thighs in one subject, which was judged to be related to the occlusive plastic-wrap dressing.

In Study 3, 13 of the 18 women completed the trial. In the four subjects who received yohimbine, all lost weight and all but one lost more girth from the thigh treated with yohimbine cream than from the control thigh. The woman who lost more girth from the thigh treated with placebo was the first subject to enter the trial. After her first visit, it was found that having subjects support their body weight on the thigh being measured increased reproducibility. Unfortunately, this was not done in the first patient, and this may have been responsible for the aberrant results in her case. The group as a whole lost a mean of $0.75 \pm 0.35$ cm more from the yohimbinetreated thighs than from the control thighs, but the difference was not statistically significant.

All four subjects who completed the four weeks of treatment with colforsin lost weight. They lost a mean of $1.0 \pm 0.61$ cm more girth from the thighs treated with colforsin cream than from the control thighs ($P < 0.05$).

All five subjects who completed the four weeks of treatment with aminophylline lost weight. They lost a mean of $1.5 \pm 0.77$ cm more girth from the thighs treated with aminophylline cream than from the control thighs ($P < 0.02$).

No adverse reactions were noted in the three parts of Study 3. There were no changes in blood pressure or pulse, nor any evidence of skin rash. The five patients who dropped out did so after seven, eight, ten, six, and three days of treatment, respectively. Four of the five dropouts had lost more girth from the treated thigh than from the control thigh by the time of departure from the study. The fifth dropped out on the third day of treatment, at which time there was no change in thigh circumference. All five dropouts had lost weight at the time of their departure.

When girth loss from the treated thighs is compared with loss from the untreated thighs in all three studies combined, the treated thighs lost an average of $1.33 \pm 1.12$ cm more than did the control thighs ($P < 0.001$).

DISCUSSION

It has been generally believed for some time that thigh fat in women is hard to mobilize.5 Others, however, have been reluctant to accept this concept, believing that all fat cells are metabolically the same. In vitro work, however, has suggested that the adrenergic thresholds to lipolysis are indeed different in different sites, and that thigh fat is more difficult to mobilize than abdomen fat.4

Many attempts have been made to achieve local or spot fat reduction through nonsurgical means but none have succeeded.6 The use of injections in Study 1, although clinically impractical, did support the concept of local adrenergic
modulation of lipolysis in vivo and encouraged us to try the topical application of adrenergic modulators. The results of
the first study demonstrated that local fat reduction can be accomplished safely and effectively.

Studies 2 and 3 support the concept that topical application of adrenergic modulators can enhance lipolysis. It
might have been postulated that yohimbine, the alpha2-inhibitor, would have been the most effective agent, since the
higher threshold for lipolysis in thigh fat cells appears to be a result of a higher concentration of inhibitory alpha2-
receptors. No naturally occurring alpha2-inhibitors circulate in human systems, but there are always beta-stimulating
catechols present. In these two studies, data on the average loss of thigh circumference suggest that the cream containing
a beta stimulator with a phosphodiesterase inhibitor and an alpha 2- inhibitor is the most effective. Of these three
components, the phosphodiesterase inhibitor was most effective, followed by the betastimulator, and then the alpha 2-
inhibitor. The number of patients in each trial, however, was small, and thus conclusions about the relative potency of the
three components of the combined cream are tenuous. The only side effect seen in any of the trials was a skin rash on
both thighs in one woman during Study 2 when plastic wrap was used as an occlusive dressing. This complication was
not seen in Study 3 when no plastic wrap was used. Clearly, the plastic wrap was not essential to the effectiveness of the
treatment. The safety of this treatment was not unexpected since very small amounts of adrenergic modulators could be
absorbed into the bloodstream.

CONCLUSIONS

It is concluded that results of the three studies demonstrate that local fat can be reduced with a cream both safely and
effectively.

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MESOTHERAPY IN LIPODYSTROPHIA IN 2004

How to get an efficient treatment in Mesotherapy?

- You need to limitate the enrolment of women which have a BMI (body mass index) between 18 and 25 or fat mass between 20 and 27% of body weight impedancemetry;
- Motivate this objective to the patients before undertaking a serious and efficient treatment of lipodystrophia
- Require a surgical act on major veins insufficiency together with ostial incontinency with vein doppler before a mesotherapy treatment.

Necessary Additional steps

- Diet follow up of the patient: such as proteins diets seems, at least over the first weeks an excellent indication and need to be strictly followed like a food re-education.

Some additional recommendations in treatment

- Set a regular physical exercise: at least one hour three times a week of continuous physical exercise to mobilise major muscular structure (lipolysis begins only after the first twenty minutes)
- It is always bilateral, localised at buttocks level, hips and internal face of the knee, Sometimes on calves or on arms. It is mainly concerning women with Gynoid figures. It is painfull to pinch and roll, sometimes it creates « padding » like thick orange skin, at a later stage you can see it without doing any manipulation.
- Genetical, ethnical and geographical Factors
- Lipodystrophia affect exclusively women of gynoid constitution, Food habits and alimentation

Two different sorts of adipose types are observed separately or together.

- One genetic type: Gynoid fat, which is mainly localised supra and sub troncharian (hip) internal face of the knees and thighs (Alpha 2++)
- One metabolic type: directly related to the food habit, which is mainly localised on the belly, waist, hips and inferior members (Bêta)
- This lot can be added to the previous one and of course worsen the pathology
- The android and gynoid balance of the adipocyte is submitted to the LPL itself oestrogenous dependant.
In summary, cellulite is made of an altered adipose tissue (volume increase of adipocyte), infiltrated of water, and poorly vascularised, in which balance and quantity are multi-factorials. The whole of cellulite nodules, behaves like a foreign body autonomous, and finally like a "bag" with a valve which will let the water and lipids in but would not like to release them.

Doc.Marthan cocktail and Protocol

Doc.Marthan cocktail will give you a quantity of 12ml mixture that he will inject with a MESOGUN, MESOMEQA. Mesomega will give you possibility to set a 5 or a 10 ml syringe to programme at 5.00ml/ mn and to inject about 4 seconds each point in continuous mode, points are alined and 1cm apart (diffusion is always in circle of 1cm)

So that the quantity to use is according to the area of treatment.
The number of sessions is so, limitate because the efficiency of the product is complete and fast.
One session on the cellulite localised area gives an average reduction of 1,5cm of circunference after 2 weeks.

Formulation doctor Marthan cocktail
Procaïne
Buflomedil
Etamsylate
Vitamins + mineral salts + AA + co enzyme
Cafeine
Silicium (we have now in France and it is called CONJONCTYL)
All the lipodystrophia area from 6 to 10 mm according to the skin thickness and the importance of cellulite

IDS in manual nappage, more simple and faster after assimilating the technique.

Punctures area
Take the measurements (circonference of thighs, abdomen for instance on Day1 marking some natural anatomic references which are precises and easy to find again)
1 treatment of Doc.Marthan cocktail on D1
1 or 2 Session of endermology or Lymphatic Drainage from D8
Control measurement and 1 treatement Doc.Marthan cocktail D16
1 or 2 Session of endermology or Lymphatic Drainage from D24
Following sessions according to the results obtained and the request of patients
D1, after clinical examination, weighing on impedencemetry scale, taking mesurements with anatomical and references that you can fix again
Treatment with the cocktail between 6 and 10 mm of deepness fixing to a needle of 30G on a syringe of 5 to 20 cc according to the surface of treatment, a point every centimeters

D8
Session of endermology or lymphatic drainage

The loss of circumferences after 2 sessions is in average of 3 cm
Next session according to patient request

COCKTAILS RECEIPT

Doctor Jules Marthan’s cocktail
Procaïne 2 cc
Caffeine 1 cc
NCTF 2 cc or CRP 1000
Dicynone 2 cc or Rutine mellilot
Buflomedil 3 cc
Conjonctil 2 cc

HAIR LOSS In mesotherapy:

In France hair loss affects 40% of men before aged 45 and 80 % of men after 65 years.
In the general population of France approximately:
15 000 000 persons (primarily men)

Hair symbolizes:
Power in man (Samson)

Sexuality in the women

100 to 150000 in average young adult (variation of 30%)
100 to 150 per cm2 (up to 300)
The way hair grows follow a certain pattern that forms a spiral.

If the all of the hair is placed end to end it will be approximately for 3 km for short hair, and 30 km for long hair.
The average strand of hair can withstand 50 gr of traction, the entire head 500 kg

Composition
Invisible bulb
Visible shaft

The shaft is made up of three layers
In center the medulla
The cortex which surrounds (80% of the total)
The external cuticule

Like all organs the hair has stages of growth, actually it has three stages the
growing phase, the resting phase and then it falls out. From a same root (hair follicle) will grow 20 to 30 time in each individual. The cycle lasts approximately 3 to 5 years. Hair grows in different cycles

• Anagen : 2 to 5 years, active growth (from 1 to 1,5 cm per month) on a normal scalp approximately 85 % of hair is in the anagenic cycle.
• Catagen : resting phase which lasts about 3 weeks, with interruption for the activity of the cells of the matrix, the bulb retracts and is keratinized (Catagen represents 1%)
• Telogen : progressive death of the hair shaft which lasts 3 months, and is replaced by new growth (about 14%).

Growth of 0,3 to 0,5 mm per day
Faster growth in children, women, then men, faster on the top of the head, rather than in the back
In the Asian population the cycle of hair growth is the longest.
Sex of person can be determined by chromosomal analysis of the hair, of a 25th week embryon.

Hair is composed of KERATIN a fibrous protein connected with bridges of sulfur molecules
The growth of the hair is controlled by the regular supply of:
Sulfur Amino acids Acides (cystine, methionine) these acides form the keratin chains.
Poly-unsaturated acid are essential (omega 3 omega 6)
Regular supply of zinc, copper and iron are also very essential for the vitality of the hair (alopecia is seen in anemia and in poor nutrition).
I.e : Many women loose hair when their iron is low (e.g if the ferritin is less than 40 mcg, prescription of iron for 3 months (65 milligram tabs daily) will prevent hair loss and improve hair growth)

The supply of daily vitamins are essential for the health of the hair, for example:
Vitamin A (essential to keratinisation, in the lack of vitamin A, causes dry and brittle hair.
Vitamin B5 (bepanthen)
Vitamin H (biotin), prevents the over production of sebaceous glands, and stimulate growth of follicule
Vitamin B6 (pyridoxine), intervenes as a catalyst in the production of the sulfur amino acids.
Vitamin B12 : major role in the synthesis of methionine another sulfur amino acid.

Each person looses aproximately 50 hairs per day.
(long hair loss is more impressive than shorter hair loss!).
Hair loss is increased in the post-partum period, during periods of stress, and after severe infectious diseases.
If you loose more than a 100 per day you should consult a physician (to perform a trichogram of the hair shaft).

Most frequently seen:
Androgenic alopecia frequently seen in men more than 18 years of age.
Directly influence by male hormone especially testosterone (eunuques are never
bald, neither boys before puberty!).
Testosterone shortens and accelerates the cycles of hair growth, especially on the top of the hair (vertex).

Androgenic (commonly known as male alopecia), affects men only after puberty and only in the area genetically programmed, and rarely females.
All the cycles of the hair growth (25 in one life) are accelerated.
Sometimes it is accompanied with hyper secretion of the sebaceous glands of the head as well as the face leading to acne
Maximum of sexual appeal for teenagers!

The hair of the low crown (or hyppocratic crown) that never falls and is generally used for hair re-implantation.

Androgenic alopecia
Treatment should start early and is composed of topical application of minoxidil along with the use of Propecia.
It is a life-long treatment (if you stop for more than 3 months hair loss will re-occur)
Other treatments are mainly topical but mesotherapy directly supplies nutritional elements indispensible to maintain healthy hair.
Here again you will use a Mesogun, MESOMEGA in nappage mode in view of spreading and covering the whole area of treatment easily with minimun pain for your patient.

**Formulation**
- Lidocaine 1% : 1 ml or Procaine 2% : 1ml
- Zinc : 1 ml
- Biotin (vit H) : 1 cc or Bepanthen (Vit B5) 1 cc
- Bufomedil : 1 ml
- Given in nappage or in IDS papules at 2 mm depth
- Lidocaine 1% : 1 ml
- NCTF 135 : 2 ml
- Minoxidil

Area of treatment: only the areas in the balding process, and treatment in the area where the hair is not programmed genetically to fall is unnecessary, as well as the area that are completely bald, only re-implantation is helpful.

Frequency of the treatment is every two weeks for 3 months then once a month every six months, then once every three months.

**MESOLIFT A NEW CONCEPT**

**Long lasting biostimulation**
Use of Hyaluronic acid non reticulate in intra dermal strict to treat the face, the neck, the decollete and the back of the hand.
The principal of the treatment relies on the properties of tissue fillings and the maintain of the hydratation by presency of molecule of hyaluronic acid in
the epiderm and in superficial derm

   Natural bio Hyaluronic Acid interactif

Essential component of the connective tissue
It is a polysaccharid belonging to the family of Glycosaminoglycane (GAG), it contributes to the regularity of the hydration of the skin.
It is easy to dissolve by the action of the enzymes and free radicals
Formulated in water solution at 1% it forms a structuring hydrating gel that injected in strict ID increase the inter cellular space and maintain elasticity and hydrated and young aspect.

   Natural Hyaluronic Acid Action

Hydrating and restructuring : large capacity to capture and keep the water molecules (natural and intense hydrating) Sun damage active
Loose skin active (skin collapse, thinner derm and small wrinkles)

   Natural Hyaluronic Acid Action

Hyaluronic acid use singlely will so maintain a constant hydrating and skin tension for about one and half month.
So it is then necessary to renew the treatment so that you maintain the results that is always good and easily seen by the patient.

   Possibilities of use

Treatment of face
In prevention on young skin

Firming Action on older skin

Hand treatment with thinner, dehydrated epiderm and dermal atrophy of the back side.

   Treatment Protocole

You need a Mesogun, Mesomega, to do the injection precisely and with a minimum pain for the patient, set on Continuous mode at 3ml/mn.

One session per month during three month with Hyaluronic acid only or with mixture of HA and vitamins, after these sessions the treatment for maintenance will be done every two to three months according to the result obtained.

   Bio stimulation by Hyaluronic Acid

Products available at present :
Hyaluronic acid only non reticulated
IAL SYSTEM
JUVELIFT
ACHYAL
But also kits such as MACDERMOL
Cocktails to prepare before injection
ACHYAL + NCTF

Products available in ASIA :
Hyaluronic acid
NCTF 135 or CRP 1000
COLLAPRO
ROACTIN

   IAL System

HYALURONIC ACID non reticulated, available in ready to use syringe of 1 or 0.5ml
Non reticulated hyaluronic acid

Hyaluronic acid non reticulated available in ready to use syringe of 2.5 ml

Bio stimulation kit

MAC DERMOL KIT
1 flask of Hyaluronic acid lyophilised
1 flask of vitamins

ACHYAL + NCTF 135

Hyaluronic acid non reticulated + Vitamins, mineral salts, co enzymes, amine acids

Skin ageing

Photo induction and age related:
Ages spots
Wrinkles
Dermal atrophy
Loss of elasticity
Skin loosening and collapse

Proposing a treatment

Do not offer what is IMPOSSIBLE...

Proposing a treatment

Hydrating properties and fibroblasts stimulation as well the dermo epidermal “filling” of this product are well known. That leads to a very logical way to propose “epidermal flooding” of a non reticulated hyaluronic acid strictly in intra epidermal

Epidermal injection in an area non-vascularised will lead to a very slow resorbing and increase its action in the “water reservoir” into the extra cellular matrix.

The Hyaluronic Acid used alone, all over the face, neck, the décolleté, and back of the hands.

1ml, consents to treat the face or the neck, décolleté need additional quantity of product

The use of other elements of bio stimulation (like vitamins) will allow to better and prolonge in time the results obtain with the hyaluronic acid alone.

Proposing a treatment

The results are rapidly visible and lasting one week after the injection of hyaluronic acid +NCTF.

Protocol

Make up remover

Disinfect deeply with Bispetine

To be done within three minutes before treatment (it is the necessary time to remove cutaneous bacteria)

The Equipment

One syringe of 1ml of Hyaluronic Acid or of cocktail HA + vitamins, together with a 30 G, 13 mm syringe, bent at 30° to have a better hand holding and to remain parallel to the skin, that allows you to make intra dermal easily

The Technique

IMPORTANT: hold and tense firmly the skin in the opposite side of injection to
facilitate needle penetration (1mm more than the bevel that needs to be set up)

ID Strictly, papules of 1 to 3 mm of diameter in parallel lines distant of 0,5 to 1 cm.
Between each point:
0,5 to 1 cm
0,5 cm for the thin skin area with papules that are not deeper than 2mm

To perform the treatment you need to be in front of the region that you are treating.
So that you feel comfortable to do the injections.

Injection and pain
Nowadays we have a cream ANESTOP (distributed by Centrale des Peeling).
You can use it on the entire area of treatment, and need to put a layer approximatly fifteen minutes before the session.
This cream works without occlusion.

Injection and pain
In addition to the cream you have to change needle often during injection. In general every 30 to 40 punctures.
Tense the skin firmly of the area to receive injection that result in a less painfull injection and make easier strict ID (small resilience to injection)

Aspect of the area treated
Treatment of the neck and decollete 24 hours after, the visible papule will totally disapear at the 4th day (Hyaluronic acid)
Other products of the kit give also papules that disapear totally the next day of the injection

Treatment with bio stimulation kits
For Instance with Mac Dermol
The mixture with solution of vitamins and Hyaluronic Acid lyophilised must be prepared 24 hours before, you add to this mixture 2cc of saline solution at 9/1000, total quantity 8cc and can kept as such over two months in the fridge.
At each session the treatment is done with the quantity of the product necessary to cover the area you have to treat.
Generally one session per month during three months, then 3 sessions per year after the first treatments

Treatment with Achyal and NCTF
You need to inject in the Flask of NCTF (5ml) one syringe of 2,5ml Achyal, that makes 7,5ml of mixture that you will take in one ml syringes and inject the necessary quantity to cover the treatment area.

Same protocol of treatment as Hyaluronic acid alone, or Mac Dermol kit.

Complication and solution
The major complication of the treatment, if you consider also allergy that can happen, are small hematoma that you can reduce easily using a cream formulated with vitamin K

Evolution and results
Improve skin glow and skin toning after the first month, maintain and improve the skin aspect the more you go through the session programmed.
Patients “see” by themselves when a treatment is needed again

Additional treatments

After the first month, you can add some glycolic superficial peelings (50 to 70%) as well as TCA peeling according to the skin status.

A glycolic peel every fortnight, in between bio revitalisation, then every month up to obtain patient satisfaction.

Conclusion

Easy treatment, relatively low cost, not dangerous (exception to rare allergy to Hyaluronic acid)

Easy to perform, if the indication is well observed, and technique is correctly follow. Although, this requires to practice before getting confident.

Montpellier, 3rd October 2004
Lipolysis-Report 2004 ©

Lipolysis - new frontiers in aesthetic medicine
Data and facts on a new form of aesthetic treatment

Introduction:
The NETWORK-Lipolysis, which was founded in September 2003, is an association of physicians with a range of specialties who approach injection lipolysis with an open, but not uncritical mind. In light of the frequently polemical discussion in Germany and Austria, and now also in the UK, concerning the risks and the lack of effectiveness of the therapy, the “NETWORK-Lipolysis“ www.network-lipodissolve.com has requested its members to conduct standardised observation of the patients in the course of the therapy and to submit the data obtained to the Research Board of “NETWORK-Lipolysis“. The Research Board consists of physicians with extensive experience in lipolysis, who have established various internal research groups within the Network with the aim of further optimising the therapy.

After careful scientific study of phosphatidylcholin, the substance used in injection lipolysis, by the first NETWORK members, it can be confirmed that no risk to the patients is to be anticipated. The physicians in the NETWORK have hitherto adopted various routes for verifying this claim. First, the NETWORK-Lipolysis cooperates with a number of universities and supports scientific studies. This process is currently in the application phase before the competent Ethics Commission. And second, 350 physicians in 21 countries are currently collecting the data on 5000 patients whose therapy is completed and evaluating this data according to a uniform method.

Results:
Initial interim conclusions can now be drawn from the Lipolysis Report 2004. This encompasses the data from altogether 470 patients. The patients were treated in 1061 therapy sessions. (Table 1)
This initial statistical data does not yet allow any final and conclusive assessment, nor can it take the place of long-term observation, as the statistical basis is too small. It can, however, provide some important indications regarding 2 questions which are of concern to patients and the treating physicians alike:

Are there any side-effects which are so severe as to rule out use of the therapy?

How good are the results obtained with the therapy?

Of the patients, 88.7% were women and the remainder men. The patients will continue to be invited for control examinations for the next 2 years after therapy in order to allow assessment of any long-term effects of the therapy.

**Side effects:**

As far as the short-term side effects are concerned, it is possible to state as follows: All the documented side effects correspond to the symptoms stated in our patient information, such as redness, swelling, itching, haematoma and pain in the treated regions. There were no other previously unknown side effects.

(Table 2: Side effects in days)
The fears of some colleagues that the therapy could result in the formation of permanent nodosities and necrosis have not come true. Also the fear that the therapy could trigger cancer was assessed by the Research Board right from the start as scaremongering by journalists, and has no foundation in scientific fact.

Within the work of the Network, a single case of necrosis has been documented and was investigated by our Research Board. This one instance was found to be a clear case of medical malpractice, since the necrosis occurred because the substance was injected into tissue which was already cicatrised from previous liposuction treatment, and the patient concerned also suffered from multiple circulatory disturbances.

Our Research Board is also investigating the possible occurrence of allergic reaction. In thousands of treatments, no documented case of allergic shock has yet been established, despite the fact that through the addition of vitamins of the B complex this side effect is theoretically possible, as is indeed the case with any kind of therapy. Nevertheless, the Research Board has established a work group to deal with this eventuality and to prepare all members of the NETWORK for the action to be taken in the event of anaphylaxis. All doctors should be prepared for such emergencies - even if they only occur very rarely in practice.

**Conclusion 1:**
In aesthetic medicine - and especially in the surgical field - there are therapies which present a much greater risk for the patients. As examples of this, I would merely refer to the figures available on the number of serious incidents following liposuction and the frequently unsatisfactory aesthetic results of
that therapy.
The NETWORK-Lipolysis has several work groups devoted to achieving improvements in terms of the local side effects such as pain, swelling, redness etc.

Results of lipolysis:
Here, we were first of all interested to determine the satisfaction of the patients:
As Table 3 shows, the level of patient satisfaction is very high.

![Patient Satisfaction Chart](image.png)

*Table 3*

This is all the more surprising as lipolysis therapy, unlike surgical procedures, does not produce any immediate effect, but only after 2-3 treatments over a period of up to 6 months. Many patients have in fact confirmed that they find this slower rate of change as positive because they are not confronted with the psychological effects of an abrupt change in their physical appearance.

This subjective opinion can also be confirmed by objective data. Table 4 shows the reduction as measured by the physician, whereby it must be acknowledged that the extent of the reduction may differ from region to region. In addition, difficulties exist in measuring the reduction in the facial area as, except for photo documentation, no objective and easy-to-use measuring methods are available for this part of the body.
Table 4

Conclusion 2:
The therapy is viewed as highly positive by the vast majority of patients. A reduction is achieved in 93% of all cases, whereby with growing experience of the treating physicians, the non-responder rate decreases still further. A work group of the Network has been set up to investigate the reasons for non-response; this has already succeeded in producing further improvements in the results.

Summary:
Injection lipolysis can produce a sometimes huge improvement in body sculpture. According to our present state of knowledge, it is a safe and gentle method, for both patient and physician, for eliminating smaller accumulations of fat at problem zones. It is no substitute for surgical intervention in the case of more extensive body areas, and is also no therapy for weight reduction. Injection lipolysis should always only be performed by physicians who have undergone training in its proper application.

Dr. Franz Hasengschwandtner
Director Medical Advisory Board
Director of Research, NETWORK-Lipolysis
Phosphatidylcholine in the treatment of localized fat

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Abstract

Phosphatidylcholine was initially used in emergencies and in the treatment of atheroma plaques in cardiac diseases. Recently, it has also been used in the treatment of localized fat deposits. We report on the authors' clinical experience of the use of 250 mg/ml phosphatidylcholine injections in the treatment of subcutaneous fat deposits, showing the clinical response and side-effects. Volunteers received phosphatidylcholine injections in several areas of localized fat deposits, with a minimum interval of one week and mean interval of 15 days between applications. Laboratory tests were performed during the period of the drug use. Clinical results reflect that phosphatidylcholine was efficacious in reducing the fatty pads in the treated areas, with few side effects. From the authors' point of view, the off-label use of phosphatidylcholine in the treatment of fatty pads and small areas of localized fat is safe, low cost, and effective.

Introduction

Phosphatidylcholine is a phospholipid extracted from soybean lecithin present in abundance in cell membranes, actively participating in the structure and transport between the cells (1).

This substance can alter cholesterol and other triglyceride metabolisms. It seems to be able to increase cholesterol solubility, alter the composition of fat deposits, and inhibit plaque aggregation (1). For these reasons, phosphatidylcholine is used in the intravenous treatment of lipid atheromas, hypercholesterolemia, fat embolism, fatty deposits or plaque adhering to arterial walls, mental disturbances, hepatic and cardiac conditions induced by medication, alcohol, pollution, virus, and toxins (2-10).

The cosmetic use of phosphatidylcholine originated in Italy. Its first use for such purposes was reported by an Italian physician named Sergio Maggiori, at the Fifth International Meeting of Mesotherapy in 1988, held in Paris, France. He presented his work with phosphatidylcholine in the treatment of xanthelasmas (11). In Brazil, the cosmetic use of phosphatidylcholine began at the end of the 1990s on an off-label basis.

Although the injectable form of phosphatidylcholine has not been approved for cosmetic purposes in Brazil, there is clinical evidence of its efficacy in treating localized fat. It has been widely used in Brazil in various clinical conditions where there are fat deposits in the subcutaneous tissue. These conditions are treated conventionally by liposuction or dermolipectomy. Phosphatidylcholine seems to be efficacious and effective in these cases, representing a new, less invasive, and potentially promising treatment for conditions which include "buffalo-hump" (an unaesthetic condition related with HIV fat redistribution syndrome, or FRS), lipomas, eye bulging (12), and xanthelasmas. Other possible therapeutic applications include localized fat on the thighs, hips, abdomen, flanks, neck, and lower third of the face.

Cautious about the use of phosphatidylcholine in the treatment of localized fat deposits, the Brazilian National Agency of Health Inspection (ANVISA), which regulates the use of medication in Brazil, published a resolution on January 9, 2003 prohibiting the use of this medication at the national level (13). Recently, this product has been used in Brazil not only by physicians, but also by laypersons, in non-medical locations such as gyms, beauty salons, etc.

The lack of research and publication on the subject and the apparent disinterest of the manufacturer (Aventis Pharma[R]) represent additional factors that have contributed to the non-regulation of cosmetic use of phosphatidylcholine in Brazil and, perhaps, the world. To date, there are no published articles or research studies reporting clinical, histopathological and laboratory data that prove the effectiveness of phosphatidylcholine in the treatment of localized fat areas. A study by Rittes shows photographs of pre and post phosphatidylcholine application in...
fat pad cases (12) but does not report either the doses used or side effects. Another study, presented by one of the present authors (Serra) in a poster at the Workshop on Lipodystrophy in Athens in 2001 (14), showed this treatment on two HIV/AIDS patients with buffalo-hump and fatty pads, with good results. Temporary edema and erythema were the only side effects presented.

**Action Mechanism**

The action mechanisms of phosphatidylcholine injections in the subcutaneous tissue have not yet been explained. It is supposed that the medication penetrates the adipocyte through the double lipid layer, acting as an emulsifying/tensoactive agent (15). The physical-chemical characteristics of the stored lipids would therefore be altered, making them water soluble. This would permit their elimination due to their non-compatibility with the material stored in the adipocyte which is liposoluble. However, there are no histological and/or pharmacodynamic studies that ratify such a supposition.

**Toxicity**

The authors' experience in the cosmetic use of phosphatidylcholine has been short. However, the long-term safety of a drug may be assessed by drawing a comparative parallel to the safety of the drug itself, in this case phosphatidylcholine, when used for other, non-cosmetic ends. The doses used by the present authors do not exceed those considered safe for those therapeutic ends described above.

Highly purified phosphatidylcholine extracts from lecithins contained in egg yolk and soybean are used to prepare the oily parenteral nutrition emulsion (16). It has been described that in an infusion containing 1.2% phosphatidylcholine extract from egg yolk and 55% glucose (1 ml/kg/min) given to cats, there was a low incidence of side effects. Therefore, phosphatidylcholine was considered non-toxic for parenteral use (16).

The first reports of cardiological use of phosphatidylcholine (Lipostabi[R] by Aventis Pharma) are from the 70s. The drug was administered orally and parenterally, mainly by Italian and Russian physicians (17,18). The capacity of phosphatidylcholine to reduce blood cholesterol as well as high and low lipoprotein levels was reported (7,17). Klimov et al. compared the efficacy of Lipostabil[R] with that of nicotinic acid for the treatment of patients with hyperlipoproteinemia. They found that while both medicines reduced the intensity and incidence of angina pectoris, only phosphatidylcholine offered an effective treatment with minimum side effects (19).

Laboratorio Magistral, a Brazilian company which manufactured and distributed phosphatidylcholine among Brazilian physicians, claimed there was no acute or subchronic toxicity with doses up to 25 times the maximum. However, no studies were presented to corroborate this claim.

**Commercial Presentations**

Phosphatidylcholine is presented in two forms: the commercial product (Lipostabil[R] or Essentiale[R] (Natterman International GMBH), approved for cardiological use in some countries in Europe), and the manipulated medication, prepared under medical prescription. The latter should meet the quality and safety criteria established by competent authorities, regarding formulation described in Law 344, RDC 33 (when manufactured in Brazil) or competent bodies in other countries (15,20-22).

**Materials and Methods**

In the patient selection, the presence of certain physical conditions that could contribute to the occurrence of side effects was investigated. The exclusion criteria included the following: allergic antecedents to one of the components of the formula, pregnancy and lactation, active kidney or hepatic disease, mellitus diabetes or thyroid disease, obesity (assessed by the body mass index, BMI), moderate to severe loose skin or flaccidity, previous surgeries, and the presence of fibrosis or adherence in the areas to be treated.

From July 2001 to December 2002, the total number of treated patients was 213, of which 8 patients were HIV/AIDS positive.
Two hundred and five patients with different patterns of localized fat deposits on the body (thighs, hips, abdomen, flanks) and/or face (chin region) were submitted to treatment with phosphatidylcholine.

The patients were submitted to 1 to 5 treatment sessions with an average interval of 15 days between each session. The medication administered (250 mg/ml phosphatidylcholine, manufactured by the Laboratorio Magistral) was injected pure or diluted in saline solution (0.9%), depending on the extension of the area to be treated. The injections were made in the subcutaneous tissue using 30 G needles and 3 ml syringes. The depth of the application was 1 to 2 cm below the cutaneous surface and 0.2 ml was applied at each point with a distance of 2 cm between the points. The total volume of phosphatidylcholine injected varied according to the quantity of localized fat deposits in each patient, but in all cases no more than two vials (10 ml) were applied per session.

At each treatment session, digital photographs were taken of the patient's front view, back view, and profile, according to the area to be treated. In some patients the thickness of the fatty pad was measured with a specific ruler.

Buffalo-hump and other areas of localized fat

Eight HIV/AIDS patients with areas of fat accumulation due to FRS were submitted to treatment with phosphatidylcholine injections. Two of these patients presented only buffalo-humps; three presented buffalo-humps with fat deposits on the thorax, abdomen, and back; one with a buffalo-hump and fat accumulation in the chin and under-jaw region; one with a large lipoma on the back; and one with fat accumulation on the masseteric region.

The patients were submitted to 2 to 5 sessions with an interval of 30 days between each session. Phosphatidylcholine (250 mg/ml) was infiltrated at the subcutaneous level at a depth of 1 to 2 centimeters from the skin surface in the fat deposit areas. The area to be treated was marked out with equidistant points of approximately 1.5 cm, and 0.2 ml of the product was applied at each point. The total volume injected varied with the quantity of lesions to be treated per session, but did not exceed the recommended safety doses. Depending on the location and size of the lesions to be treated, anthropometric measurements and/or measuring by skin pinching and folding of the lesions were used to assess the results of the treatment.

Post-application care

Some recommendations were suggested to patients to reduce the symptoms caused by the injections and to speed fat absorption:

1) Compression of the treated area: the use of modeling belts or compressive clothing after application produces a draining effect, reducing edema.

2) The use of analgesics: acetaminophen was recommended for the first 24 to 48 hours.

3) Lymphatic drainage: can be used to help edema and fat absorption. It should be performed by an experienced professional under medical supervision, within two days following the injections.

In the case of the HIV/AIDS patients, the use of bandages, massage, and analgesics was not recommended. They were considered unnecessary, as the size and location of the lesions varied greatly and the lesions regressed slowly.

Laboratory tests

Thirteen of the 205 cosmetic (non HIV/AIDS) patients treated for localized fat deposits underwent laboratory tests during the treatment with phosphatidylcholine. The lipid, hepatic, renal profiles, and hemograms of these patients were assessed.

Graph I shows the result profiles at three different times during the treatment. The eight HIV/AIDS patients also underwent laboratory examination.

[GRAPHIC OMITTED]
Results

The mean results of the each test performed (pretreatment, 48 hours after, and 14 days later), relative to the cosmetic patients, are shown in graph 1.

The clinical response to the phosphatidylcholine injections was assessed on the thighs, hips, abdomen, flanks, chin region, and other areas of the face by photographic analysis and by measuring the weight, BMI, and fatty deposit thickness.

In the first 24 to 48 hours after application, the region presented moderate to severe edema, erythema, and localized heat. The reported discomfort was slight and abated with administration of common analgesics (acetaminophen or dipyprone in usual doses). Anti-inflammatory agents were prescribed for some patients for the first 48 hours. Some points showed bruises that regressed spontaneously in 7 to 10 days.

Slight to moderate itching at the application points was also reported by some patients.

Following the regression of the edema, softening was evident in all the treated areas. In the vast majority of patients, there was a reduction in subcutaneous thickness and the dimensions changed within up to 5 applications, at an average interval of 15 days. Few patients failed to notice reduction in the subcutaneous thickness.

In the case of the buffalo-humps of the HIV/AIDS patients, the lesions began to regress after the first session, and became less hard. All the patients with buffalo-humps reported significantly reduced discomfort and greatly improved neck movement. After the third session a considerable improvement in the lesion was noted, and after the fifth session an improvement of approximately 80% or the complete remission of some lesions was observed.

Discussion

Localized fat deposits, especially in women, are a cause of discomfort and anguish, leading patients to undergo surgical procedures such as liposuction and dermolipectomy to improve the cosmetic aspect. In countries with a tropical climate, such as Brazil, the anguish is compounded by the incentive to expose a perfect body. Fearful of extensive surgery and its complications, patients and physicians seek less invasive methods that may offer some results. Phosphatidylcholine has emerged as a safe and efficacious alternative method to achieve the reduction of small localized fat deposits on the face and body.

The adverse reactions observed after phosphatidylcholine injection in the adipose tissue were transitory, and no serious, systemic, or permanent complications were observed. The side effects usually appeared 2 to 5 days after applications, but the time varied depending on the metabolism of each individual. Several factors may determine lack of success or greater risk of side effects, such as incorrect antisepsis, use of medication of dubious origin, total doses above those considered safe, excessive injection volume at each point, inappropriately small distance between the points, superficial injections less than 1 cm below the epidermal surface, lack of pre- and post-application care, and perhaps most importantly, administration of the medication by unqualified persons. Among the possible complications that may also occur are infections, allergic reactions, tissue necrosis, and irregularities on the body surface (nodules and depressions).

The authors' clinical experience, reported in this article, followed the known use criteria for the drug, even though empirical for cosmetic purposes. No more than 2 vials were used (total of 10 ml) per session, in a total of 5 sessions of treatment, with an interval of more than 10 days between the applications. These measures were taken to avoid adverse systemic effects of the medication that may result from excessive doses or short intervals between injections.

All tests performed before and after treatments showed no significant alterations in either the hepatic function or the lipid profile. Wider studies are needed to ensure drug safety when injected subcutaneously. In the authors' experience, phosphatidylcholine has not been shown to be hepatotoxic and did not cause alterations in the lipid metabolism when used in the reduction of the subcutaneous thickness and in the used doses. Some patients may present alterations in the laboratory examinations, such as those suffering from diabetes, dyslipidosis, morbid obesity, and endocrine diseases, and those who already have some degree of hepatic overload. For these patients, caution and extensive laboratory control are necessary in choosing to treat with phosphatidylcholine injections.
The alterations in the lipids found in some HIV/AIDS patients, such as increases or decreases in total triglycerides and both HDL and LDL cholesterol, may not be related to the treatment with phosphatidylcholine but rather to dyslipidosis, common to the FRS caused by some anti-retrovirals; for the same reason the CD4 and CD8 cell counting were compatible with the moment of treatment in the HIV/AIDS patients.

The greatest obstacle to phosphatidylcholine use is the limited knowledge of its pharmacology in the subcutaneous tissue. Another is the potential for overuse, which may alter the medical status of the substance, encouraging widespread skepticism in the medical community and leading to the prohibition of its use, making research and clinical experiment impossible.

While not drawing a direct comparison, the authors would like to point out that similar cases have occurred with other drugs, such as botulinum toxin, which has been used for cosmetic purposes since 1990. However, the permitted off-label use allowed physicians to study the drug and its benefits in wrinkle treatment for over 10 years before the FDA finally approved its cosmetic use in 2002.

Conclusions

Phosphatidylcholine was shown to be efficacious and safe in the indications described, and can substitute for liposuction in some specific indications. Its use by medical and experienced professionals is crucial for safety and good results.

As with any other medication, it needs wide investigation protocols for new indications and long-term studies, so that the recommended dose and safe application technique can be standardized.

Liposuction and excision surgery have been the standard alternatives for treating humps and lipomas in HIV/AIDS patients. It should be considered that these lesions recur frequently and consequently the procedures need to be repeated. Thus, phosphatidylcholine injections may represent a safer alternative treatment for lesions caused by fat accumulation in these individuals. It is a low cost, efficacious, and easy application method as compared to surgical alternatives.

References


(20.) Administrative Order n[degrees] 344, of May 12, 1998. DOU 01.02.99.


Detergent Effects of Sodium Deoxycholate Are a Major Feature of an Injectable Phosphatidylcholine Formulation Used for Localized Fat Dissolution

Adam M. Rotunda, MD, Hiroyuki Suzuki, BS, Ronald L. Moy, MD and Michael S. Kolodney, MD, PhD

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**Background.** Phosphatidylcholine injections are becoming an increasingly popular technique to treat localized fat accumulation. This formula is composed primarily of phosphatidylcholine and sodium deoxycholate, a bile salt used to solubilize the natural phospholipid in water. The mechanism through which this injectable phosphatidylcholine formulation causes localized fat reduction is unknown.

**Objective.** To investigate the active component and mechanism of action of an injectable phosphatidylcholine formulation in clinical use.

**Methods.** Cell viability and cell membrane lysis assays were performed on cell cultures and porcine skin after treatment with the phosphatidylcholine formula, isolated sodium deoxycholate, or common laboratory detergents Triton-X 100 and Empigen BB. In addition, we described the histologic changes after injection of these substances into porcine tissue.

**Results.** A significant and comparable loss of cell viability, cell membrane lysis, and disruption of fat and muscle architecture was seen in cell cultures and tissue specimens treated with the phosphatidylcholine formula and isolated sodium deoxycholate. These findings were similar to the effects produced after treatment with laboratory detergents.

**Conclusions.** The phosphatidylcholine formula popularly used in subcutaneous injections for fat dissolution works primarily as a detergent causing nonspecific lysis of cell membranes. Our findings suggest that sodium deoxycholate is the major active component responsible for cell lysis. Detergent substances may have a role in eliminating unwanted adipose tissue. It is advised that physicians use caution until adequate safety data are available.

ADAM M. ROTUNDA, MD, HIROYUKI SUZUKI, BS, RONALD L. MOY, MD, AND MICHAEL S. KOLODNEY, MD, PHD HAVE INDICATED NO SIGNIFICANT INTEREST WITH COMMERCIAL SUPPORTERS.
The Use of Phosphatidylcholine for Correction of Lower Lid Bulging Due to Prominent Fat Pads

PATRÍCIA GUEDES RITTES, MD
Clinica Patrícia Rittes, Sao Paulo, Brazil

BACKGROUND. Patients with prominent periorbital fat pads often complain of having a persistent “tired” look and seek treatment from their dermatologist.

OBJECTIVE. A non-surgical treatment of fat pads.

METHODS. Thirty patients were treated for prominent lower eyelid fat pads with phosphatidylcholine injection. Pre- and posttreatment photographs were taken for long-term analysis.

RESULTS. A marked reduction of the lower eyelid fat pads was noted over the 2-year follow-up period. There were no recurrences.

CONCLUSION. The injection of phosphatidylcholine (250 mg/5 ml) into the fat pads is a simple office procedure that may postpone or even substitute for lower eyelid blepharoplasty.

INFRAORBITAL FAT PAD herniation results in a prominence of the lower eyelids, causing patients to have a tired and aged appearance. These deformities consist of skin, subcutaneous fat, orbicular muscle, and suborbicular fat. Orbital fat exerts pressure both on the orbital septum and the orbicular muscle, causing a bulge. What appears to be excess skin is often merely the convexity caused by the fat pads appearing under the skin. The precise mechanism of this herniation is controversial. This deformity may be managed by surgical resection or reinsertion of the herniated fat into the orbital cavity.1-4 Continuous suture of the capsular palpebral fascia maintains it in its original anatomic site. Herniation of the infraorbital fat pad entity must be distinguished from periorbital edema due to medical problems (such as angioneurotic edema or fluid imbalance).

Phosphatidylcholine has been shown to reduce the systemic levels of cholesterol and triglycerides.5,6 Bobkova et al.7 showed that upon increasing phosphatidylcholine, the cell membranes improved their receptor properties, augmented their sensitivity to insulin, and accelerated lipolysis. Phosphatidylcholine has also been employed intravenously in patients with cardiac ischemia.8 A marked reduction of atheromatous plaques without a reduction in plasma cholesterol occurs. Phosphatidylcholine is a bile component and is responsible for the lipids’ emulsification from the diet.9 This article describes the use of phosphatidylcholine injection into the infraorbital fat to reduce the size of infraorbital fat pads.

Materials and Methods

This study conformed to guidelines of the 1975 Declaration of Helsinki. An informed consent was obtained from all individuals. Preoperative evaluation included examining the size and location of the fat pads. Baseline photographs were obtained. Patients were also examined for any coexisting ocular pathology. The procedure was performed in an outpatient setting with the patient seated. The skin of the lower lid was pulled downward with the forefinger. Gentle pressure was applied over the globe for better visualization of the fat pad. Using a 0.5 inch, 30-gauge needle, 0.4 ml of phosphatidylcholine (250 mg/5 ml) was injected into the infraorbital fat pad. The medication was distributed among the three bulging periorbital fat pads (central, medial, and lateral) based on the individual patient’s need. Anesthetics were not utilized in this study.

Thirty patients with varying degrees of bulging fat pads were included in the study. The patient population included 22 women and 8 men, with ages ranging from 30 to 70 years. Injections were given at 15-day intervals to allow for complete resolution of infraorbital swelling. Two patients received a total of four applications, 5 patients a total of three applications, 12 patients a total of two applications, and 11 patients a total of one application. The number of additional injections administered was determined by the clinical response at the end of the 15-day period as observed by the physician and patient.

Results

Cosmetic improvement occurred in all patients. Pre- and postprocedure photographs were utilized to document the changes (Figures 1 and 2). All patients complained of mild burning following the injections, which typically lasted about 15 minutes. Immediately following the injections, infiltrative edema and local erythema were noted. Edema of the entire lower lid was noted over the initial 6 hours and persisted for approximately 72 hours.

P. G. Rittes, MD has indicated no significant interest with commercial supporters.

Address correspondence and reprint requests to: Patrícia Guedes Rittes, MD, Rua José do Patrocínio, 92 Aclimação, São Paulo SP - Brazil, CEP 04106-15, or e-mail prittes@isumlap.com.br.
Discussion

This study offers a nonsurgical alternative for improving "old-looking" eyes by reducing the prominence of bulging infraorbital fat pads through phosphatidylcholine injection. Up until now, all options for treating this entity have been surgically based. Proper patient selection is essential, as this method only treats infraorbital fat. Prominent infraorbital fat pads must be distinguished from other periorbicular conditions, including prominent malar folds and lax lower eyelid skin.

Because phosphatidylcholine injection does not create scar tissue, ectropion is not a risk. In our experience, the postoperative results offered by phosphatidylcholine injection were as natural in appearance as those obtained from surgical procedures. Postoperative discomfort was also reduced relative to surgery. In addition, no recurrences of protruding infraorbital fat pads were noted.

The cosmetic results observed in this study were satisfactory from both the patients' and the dermatologists' point of view. Patient selection is essential for optimal results. This study provides a simple, nonsurgical office-based procedure for treating prominent infraorbital fat pads.

Acknowledgment I wish to thank Marcelo Gandelman, MD for his help in editing this article and to A.S. Noel MD, French dermatologist and pioneer in the surgical excision of fat pads.

Presented at the 54th Brazilian Dermatology Congress, Belo Horizonte, Brazil, September 1999.

References


Mesoplasting: A New Approach to Non-Surgical Liposculpture

Mokhtar Asaadi, MD, FACS, A. Peter Salas, MD, and Bijan Motamedi, MD.

Mesotherapy was first pioneered in France in 1952 by Michelle Pistor. Since its introduction it has gained widespread acceptance outside the United States. Currently, Mesotherapy is being used to treat a wide range of conditions including pain, alopecia, bone and joint disorders, in addition to lipodystrophy and cellulite. Mesotherapy involves a series of painless injections of nutritional supplements, vasoactive agents, and homeopathic remedies into the dermis overlying the area to be treated. Mesoplasting refers to the implementation of mesotherapy by a qualified plastic surgeon.

Despite the growing popularity of mesotherapy, there is a paucity of data available on the optimal technique and treatment regimen. In order to shed some light on this area, we prospectively evaluated Mesoplasting in the treatment of patients with lipodystrophy.

From September 2003 to March 2004, one hundred patients were prospectively enrolled in a double blind study to determine the effectiveness of the individual ingredients used in Mesoplasting. The patients were divided into 5 equal groups. A single body area was selected for treatment. Using aseptic technique each group of twenty patients was treated with a single regimen. An automated injector was used to deliver the injections into the dermis. Patients were treated weekly for 5 weeks followed by monthly maintenance therapy. Group A was treated with a vasodialator, Group B was treated with lipolytic agent, Group C was treated with homeopathic agent, group D was treated with a combination of all three agents listed above, and finally group E was treated with a placebo (saline).

At the completion of the study, all patients were given a questionnaire and a physician who was not involved in the treatments, and was unaware of the regimen used evaluated all patients. Review of the questionnaires revealed an overall satisfaction rating of good to excellent in 72% of patients. In addition, 16 patients (80%) in Group D reported a mean decrease in dress size of 2 sizes.

Objective physician evaluation included measures of circumference, pinch test, and patient weight. The largest number of patients experiencing a decrease in circumference was in Group D, 18 patients (90%). The mean decrease in circumference was 4.2cm around the waist and 2.5cm around each thigh. Groups A, C, and E had similar, yet small decreases in circumference which were not statistically significant. Pinch test was assessed in the flank area. Again, Group D had the largest number of patients showing a significant decrease in pinch test measurements (17 patients). The mean decrease in pinch test was 50%. Groups A, C, and E showed no statistically significant change in pinch test measurements. All patients were weighed before, during, and after completion of treatment. There was no statistically significant change in patient weight in any of the groups.
Mesoplasty has recently gained a great deal of media attention and popularity. This study demonstrates the effectiveness of Mesoplasty in the treatment of lipodystrophy with the use of combination therapy. Although patients obtained a moderate response to lipolytic agents, combination therapy proved to be significantly superior. In addition, patient satisfaction was greatest with combination therapy.

Interestingly, there was no significant decrease in patient weight as a result of treatment. This may be due to the fact that only isolated areas were treated, or possibly due to the fact that a modest reduction in fat volume can significantly alter shape, but does not drastically affect the weight. We are currently evaluating various combination therapies and treatment protocols to determine the optimal ingredients and schedule of treatment. With ongoing experience many of the questions surrounding Mesotherapy can be elucidated.
The "Lipodissolve Injection“
By Dr. Hasengschwandtner, Spielau 8, A-4190 Bad Leonfelden

What were lipodissolve injections able to achieve in the last working year since their introduction to Austria by Dr Hasengschwandtner

Completed treatments: 187
23 male patients completed the treatment, the remainder being female
Patients who broke off treatment for no given reason after the first treatment: 4

Patients still under treatment: 201
Waiting list: 192

Areas

<table>
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<tr>
<th>Group 1</th>
<th>problem area:</th>
<th>belly</th>
<th>52 experimentees</th>
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<tr>
<td>Group 2</td>
<td>problem area:</td>
<td>gluteofemoral adiposity</td>
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<td>Group 3</td>
<td>problem area:</td>
<td>love handles</td>
<td>27 Probanden</td>
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<td>Group 4</td>
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<td>Group 5</td>
<td>problem area:</td>
<td>double chin</td>
<td>9 Probanden</td>
</tr>
<tr>
<td>Group 6</td>
<td>problem area:</td>
<td>inner knee joints</td>
<td>9 Probanden</td>
</tr>
<tr>
<td>Group 7</td>
<td>problem area:</td>
<td>buttocks</td>
<td>9 Probanden</td>
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<tr>
<td>Group 8</td>
<td>problem: Lipoma</td>
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<td>6 Probanden</td>
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<tr>
<td>Group 9</td>
<td>other areas: cheeks, neck, gynaecomasts, upper-arms, calves</td>
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Number of Sessions

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<tr>
<td>Group 5</td>
<td>1</td>
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<td>Group 6</td>
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<td>Group 7</td>
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<tr>
<td>Group 8</td>
<td>1</td>
<td>6</td>
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</tr>
<tr>
<td>Group 9</td>
<td>-</td>
<td>16</td>
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Degrees of Patient Satisfaction

<table>
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<th>Group</th>
<th>very satisfied</th>
<th>satisfied</th>
<th>less satisfies</th>
<th>comments</th>
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<td>44</td>
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<td>Group 2</td>
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<tr>
<td>Group 9</td>
<td>12</td>
<td>4</td>
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</table>

Of the total 15 dissatisfied patients (8%) all were either advised to change their lifestyle (nutrition, exercise) or were referred to surgeons. Generally speaking, these experimentees expected too much of the treatment, often demanding too much of their figures and were too impatient, so that they already expected miraculous fat dissolving results after the first treatment. Dissatisfied does not mean that the injections were not successful, but that the patients simply expected more.

Before treatment commenced 12 persons were rejected because of their unsuitability (general obesity, apple shape), 9 of these were men. These persons received advice as to changes in their lifestyle.

Those referred to surgeons because of an abdominal skinfold or excessive local adiposity: 9

Not one of the patients complained of unexpected side-effects (expected side-effects being a burning sensation following the injection, swelling of the injected area and small haemotomes). 12 experimentees reported a not unwelcome increase and softening of their stools. One patient reported twice-monthly menstrual bleeding outside the normal cycle following every series of injections. After the injections the tissue in all experimentees was without exception firm and surplus skin receded in all cases.

Some patients, without being asked, stated that after the injections they had a greater feeling of wellbeing. In the case of 4 patients who had a raised cholesterol level before the injections, a substantially lower level of cholesterol was by chance found after the injections. This could be linked to the substance Lipostabil which is administered intravenously in cases of extremely high fat levels.

With a more refined injection technique developed over the year: depth of injection and injected material, even better results were achieved.

The visible fat dissolving process took place regardless of age: the youngest patient so far was 19 and the oldest an unbelievable 80. She demanded treatment for her lower abdomen; a wish I willingly fulfilled because as a senior citizen she was exemplary in her active lifestyle, in the way she still enjoyed life to the full and laid great store by her outer appearance.

There was not the slightest sign of lumps, holes or necrosis (ulcers) as has sometimes been asserted by the press.

Over this period the interval between the injections increased as weight reduction was often still seen to take
tell them clearly that they should be patient.

Summary:

What I can confirm:

I can certainly confirm the effectiveness of this method.

I see lipolyse injections as a very gentle and simple method of making smaller unwanted fat deposits disappear without too much effort and risk to the patient.

Lipolyse injections can, in the case of larger fat deposits, certainly not replace liposuction, but can certainly serve as a supplementary method.

Phosphatidylcholin is a substance known for many years and its effects have been documented in innumerable articles.

The transportation mechanism of fatty substances through protein bodies in the liver and their excretion as bile acid has been dealt with in detail in literature.

In mesotherapy these soyalecithines have been administered intracutaneously for some time.

Only fat cells are resorbed. An experiment on myself injecting 5 ml. Lipostabil N into my thigh muscles proved both (almost) painless and had no effect.

Neither I, nor other colleagues who have been administering this treatment since the very beginning, have any side-effects to report.

What I can as yet not confirm:

Because of the short period of application long-term effects are as yet unknown.

After some 8 years of use, the first doctor to use this treatment, Dr. Rittes from Sao Paulo, reports the same results. She began administering the first lipolysen injections in 1995.

Dr. Franz Hasengschwandtner