

Mesotherapy and Cellulite

Dr. Gustavo Leibaschoff

President of the International Union of Lipoplasty

Director of the International School of Mesotherapy

Cellulite disorders involve endocrine-metabolic changes that affect the microcirculatory system. Discomfort and aesthetic issues drive patients to accept any type of so-called therapeutic treatments in order to solve the problem. Too frequently, such “treatments” have no scientific basis.

We should always keep in mind that ineffective or barely effective aesthetic treatments have three inescapable consequences—clinical damage, aesthetic injury, and more frequently, serious psychological damage.

Cellulite appears to be the result of a number of biochemical and metabolic changes. They start in the extra cellular matrix and connective structures level and continue with changes in microcirculatory function.

In the extra cellular matrix (ECM), there is a change in fibroblasts with a decrease in the function and production of collagen, elastin, and glycosaminoglycans (GAGs). Increased acidosis gradually results in an increase in free radicals and a decrease in the speed of microcirculatory arteriole flow (reduction in blood flow) that leads to a slowing and reduction in the flow in the capillaries and venules. There is a change in the permeability of the capillaries, a loss of collagen fibers, and an increase in free water in the ECM that causes lipedema.

An effective cellulite treatment should correct the changes in the extra cellular matrix. Only then can an improvement in cellulite disease truly be achieved.

Extra cellular matrix (ECM) or interstitial matrix

The matrix is the link between cells and the extra cellular space. It provides a framework for cell movement. This three-dimensional complex of proteins, carbohydrates, salts, fixed cells, migrating cells, and fibers fully supports tissues and organs. In Europe, it is referred to as the “interstitial matrix.” It’s important to know the composition of the ECM in order to understand the action of different treatment techniques.

Composition of the ECM:

- 1 STRUCTURAL FIBROUS PROTEINS (fibroblasts)
- 2 ADHESIVE PROTEINS (glycoproteins)
- 3 GLYCOSAMINOGLYCANS (GAGs)
- 4 PROTEOGLYCANS

GAGs are responsible for producing the flow of the microcirculation. A good concentration of GAGs is important for appropriate viscosity in the ECM, which allows proper movement of molecules. Without a good concentration of GAGs in the ECM, it is impossible to detoxify the ECM. If the ECM is not clean, impurities coming from metabolic processes cannot be removed and treatments will not be successful.

Mesotherapy

Mesotherapy is defined as: several intradermal or superficial subcutaneous injections of low doses of medication to treat local or regional pathologies. Mesotherapy is a technique employing a new route of drug administration that delivers very low quantities of medication at the site of a disease. The therapeutic effects depend on the choice of medication, administration site, drug composition, depth of administration, and a broad understanding of therapeutic technique on the part of the physician.

Mesotherapy is a therapeutic discipline that cannot be ignored. Today, it is widely used in several different specialties and has been the subject of numerous international congresses. This technique should be considered as a complementary therapeutic measure in a physician’s medical practice.

According to Dr. Michel Pistor (1958), mesotherapy is an allopathic, light, parenteral, polyvalent, and regionalized therapy.

- 1 Allopathic therapy: Medications are included in the official pharmacopeia
- 2 Light therapy: Lower doses are used in comparison with doses used in traditional medicine
- 3 Parenteral therapy: Intradermal or subcutaneous injections with active drugs are administered, using procaine as the vehicle
- 4 Polyvalent therapy: Multiple diseases in various specialties have been effectively treated
- 5 Regionalized therapy: Treatment is delivered close to the site of disease

Following is a chronological list of theories explaining the mechanism of action of mesotherapy:

1. Microcirculatory Theory (Dr. Bicheron)
2. Mesodermic Theory (Dr. Dalloz-Bourguignon)
3. Theory of Integumentary Stimulation Therapy (Dr. Dalloz-Bourguignon)
4. Energetic Theory (Dr. Ballesteros)
5. Systematized Spot Theory (Dr. Mrejen)
6. Third Circulation Theory (Dr. Multedo, Dr. Grau-Llobet)

Mesotherapy provides a route of administration that allows for delivery of low doses of medication with minimal complications. In Europe and South America, many practitioners choose to use mesotherapy guns for injections. The benefits of using mesotherapy guns include:

- 1 Speed: Faster than manual injections
- 2 Precision: Delivers precise doses of medication per injection
- 3 Consistency: Achieves the same depth of penetration on each injection
- 4 Comfort: More comfortable for the physician and patient

The pharmacologically active agents used act on the adipose tissue, on the connective tissue, or on the microcirculation. The drugs acting on the adipose tissue are methylxanthines (theophylline, aminophylline, caffeine), which have a lipolytic effect and inhibit phosphodiesterase. *In vitro* studies show that the beta-adrenergic agonists and methylxanthines stimulate lipolysis and reduce the size of adipocytes through an increase in cyclic intracellular AMP (cyclic - adenosine monophosphate) and inhibition of phosphodiesterase. Coenzyme A and the amino acid L-carnitine facilitate the effects of methylxanthines by stimulating mobilization and destruction of free fatty acids, improving their active transport through the mitochondrial membrane. To achieve methylxanthine activity in subcutaneous fat over the beta-1, -2, and -3 adrenergic receptors, it is important to block the alpha-2 receptors (antilipolytic receptors) using yohimbine.

Mesotherapy is often described as a “magical treatment” for localized adiposities that is sometimes called liposculpture. However, the two treatments have entirely different actions on adipose tissue. Drugs used in mesotherapy to reduce adiposities have a lipolytic action (reducing the size of fat cells) while liposculpture has a lipoclastic action (reducing the number of fat cells).

Of the drugs acting on the connective tissue, silicium salts have been most extensively studied. Silicium is a structural element of the connective tissue that regulates and normalizes cellular metabolism and cellular division. In France, the brand name product is Conjonctyl® (Amino methyl silanetriol silicylate). It is not available in the U.S. so contact your local compounding pharmacy for substitutes.

Agents that act on the microcirculation include the vegetable extracts ivy and Indian chestnut—which are rich in saponins—and ginkgo biloba and rutin, which contain bioflavonoids. They reduce capillary hyperpermeability and increase venous tone by stimulating proline hydrolysis and inhibition of prostaglandin. They also reduce platelet aggregation, inhibiting the formation of microthrombi. Although pentoxifylin is a methylxanthin, it is most effective at improving perfusion in the microcirculation through its effect on erythrocyte deformation, platelet aggregation, and fibrinogen plasma concentration.

Cellumesotreat

Mesotherapy is a technique that can be used to treat cellulite. Keep in mind the following:

There are four stages in the treatment for cellulite

1. Reducing lipodema

-Use benzopirone plus procaine

2. Restoring efficient microcirculation

-Use derivatives of the flavonoids, which offer a particularly beneficial vasculo-protective effect

-Pentoxifylin

-Vitamin C is essential for neutralizing the effects of free radicals generated in the newly oxygenated tissue

-Procaine

3. Lipolysis

-use Theophylline + Caffeine + L-Carnitine + Yohimbine + Procaine

4. Restructuring and protecting the connective tissue

-Silicium (Conjonctyl) stimulates the regeneration of connective tissue

A cellulite mesotherapy treatment requires at least 3 months' time. In treating cellulite, for better clinical results, it is important to use a combination of different techniques, including mesotherapy. To be effective, these techniques have to work first on the extra cellular matrix, the microcirculation (arteriolar, capillary, venous) and the lymphatic system, and finally, on the fat tissue.

There are more than 28 clinical types of cellulite. It is important to make an accurate clinical diagnosis so that the patient receives the proper treatment.

Currently, the therapeutic options with a scientific basis for providing beneficial medical and aesthetic outcomes are the following:

- 1 Manual lymphatic drainage
- 2 Mesotherapy
- 3 No-needle mesotherapy
- 4 Endermology
- 5 Carboxitherapy
- 6 External ultrasound
- 7 Liposculpture
- 8 Subcutaneous injection of phosphatidylcholine
- 9 Unipolar or bipolar radiofrequency

In the end, remember that mesotherapy is a medical technique.

- 1 **Performing it requires medical knowledge and practice**
- 2 **An accurate diagnosis is essential, using clinical and instrumental(?) tests**
- 3 **The efficacy of the treatment is not linked to the amount of drug given but to the choice of drug**
- 4 **This requires precise pharmacological criteria**

Mesotherapy requires:

- 1 **A sensible indication**
- 2 **A correct clinical assessment**
- 3 **Flawless technology**
- 4 **Proper technique**
- 5 **Suitable drug combinations**

Mesotherapy is one of many treatment modalities that we should master in order to be accomplished cosmetic medicine practitioners.

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