

Available online on 15 Sep, 2026 at <http://www.hjhs.co.in/index.php/hjhs>

Himalayan Journal of Health Sciences

Published by Himalayan Group of Professional Institutions

Associated with Himalayan Institute of Pharmacy

Copyright© 2016-26 HJHS



Review Article

Open Access

An Overview of Mesotherapy and its Synergistic Effect in Specific Dermatological Conditions

Rabab Abdo Mohamed Fadlelmula**Regulatory Affairs and Quality Assurance Specialist, Faculty of Pharmacy, Ahfad University for Women, Sudan*

Abstract

Mesotherapy is a minimally invasive, evidence-based procedure used in various medical specialties, including vascular conditions, pain management, rehabilitation, dermatology, and aesthetic medicine. This technique involves injecting small amounts of active substances into the skin to produce therapeutic effects. This article covers the history of mesotherapy, its classification, synergistic mechanism, some typical ingredients used in mesotherapy injections, and the regulatory framework. Additionally, it discusses the role of mesotherapy in specific dermatological conditions (Acne, Melasma, Rosacea, Cellulite, and Androgenetic alopecia), as well as the contraindications for its use.

Keywords: Mesotherapy; Acne; Melasma; Rosacea; Cellulite; Androgenetic alopecia; Dermatological Conditions**Article Info:** Received 15 Aug 2026; Review Completed 14 Sep 2026; Accepted 15 Sep 2026

Cite this article as:



Mohamed Fadlelmula RA. An Overview of Mesotherapy and its Synergistic Effect in Specific Dermatological Conditions. *Himalayan J H Sci* [Internet]. 2026 Sep 15 [cited 2026 Sep 15]; 11(3):16-19. Available from: <http://www.hjhs.co.in/index.php/hjhs/article/view/256>

DOI: 10.22270/hjhs.v11i3.256

*Corresponding author: Rabababdo181@gmail.com

1. Introduction

The word “Mesotherapy” comes from the Greek words mesos, meaning “middle,” and therapeia, meaning “medical treatment.” It is essentially a transdermal injection method where various enzymes, vitamins, hormones, hyaluronic acid are administered into the skin. This technique serves as a localized drug delivery system and should be distinguished from tissue filler injections. Mesotherapy has a long-standing history and has been used for decades in fields like pain management, sports medicine, and rheumatology, but it has gained increased popularity in recent times. (1)

2. History of Mesotherapy

Mesotherapy was first developed in 1952 by Dr. Michel Pistor, a French physician, as a treatment for pain and vascular conditions. Dr. Pistor introduced the term “mesotherapy,” defining it as therapy targeting the mesoderm. In 1976, he described mesotherapy with the phrase: “little volume, few times, and in the right place.” In 1964, Pistor established the French Society of Mesotherapy, and in 1987, the French National Academy of Medicine officially recognized mesotherapy as a medical specialty. Over time, mesotherapy gained popularity across much of Europe and South America, and more recently, it has spread to the United States and various Asian countries. (2)

Over the years, several recommendations highlighted that mesotherapy should be performed based on a precise diagnosis, aligned with specific pharmacological requirements, and customized for each patient. (3)

3. Mesotherapy Operates through Dual Synergistic Mechanisms:

3.1. Targeted delivery of active substances
Customized compounds—such as hyaluronic acid, vitamins, amino acids, or peptides—are injected directly into the skin’s middle layer, known as the mesoderm. In this layer, blood vessels, fibroblasts, and receptors respond to regenerative signals. The aim is to stimulate local processes like collagen production, cell renewal, and improved microcirculation.

3.2. Mechanical stimulation via microinjections
The fine needle punctures also provide a mechanical stimulus that triggers the body’s natural repair mechanisms. This leads to the release of growth factors and increased cellular activity, boosting the effectiveness of the active substances. The injections are administered in small, shallow points, often using very fine needles or a mesotherapy device, typically targeting particularly responsive areas of the skin. (4)

Experimental data show that the area under the concentration–time curve (AUC) is higher when the drug is administered intradermally compared to intramuscular

injection. This suggests that the drug remains available locally for a longer period and is absorbed into the system more slowly. These pharmacokinetic properties provide a clinical basis for mesotherapy, which seeks to deliver effective treatment using lower drug doses, extended intervals between doses, and a decreased likelihood of systemic side effects. (3)

Table 1. Classification of Mesotherapy (1)

Mesotherapy	Classification
Needleless Mesotherapy	No-needle mesotherapy is a non-invasive procedure designed to enhance the transepidermal delivery of medicinal, regenerative, or nourishing substances. This is achieved through electroporation techniques that allow these substances to reach the deeper layers of the epidermis.
Microneedle Mesotherapy	Microneedles cause mechanical injury and create channels on the skin's surface, which not only improve the absorption of active ingredients but also stimulate the skin's natural renewal process.
Mesotherapy Injection	This method involves localized intradermal or transdermal injections. Depending on the patient's symptoms, severity, and response, one or multiple treatment sessions may be administered. For instance, treating chronic pain typically involves three distinct phases. The depths represent the actual anatomical layers targeted by the injections, ranging from 1-2mm, 2-4mm, 4-6mm, and potentially up to 10mm.

5. Advantages of Choosing the Appropriate Mesotherapy Needle

Different areas of the body require different needles due to variations in skin thickness and treatment objectives. Using the right needle for each specific area leads to noticeable improvements.

- **Enhanced Accuracy:** Selecting the proper needle length and gauge ensures that nutrients or active ingredients are delivered precisely to the targeted skin layer.
- **Greater Comfort:** A fine, sharp needle tip minimizes discomfort. Most patients report feeling a light scratch rather than a strong injection.
- **Uniform Application:** Proper distribution of the solution results in a balanced appearance of the skin, avoiding patchiness.
- **Increased Efficiency:** Using the correct tools speeds up treatment sessions. Multi-injectors accelerate body procedures, while single needles improve accuracy and reduce time spent on corrections. On the scalp, thin, delicate needles allow practitioners to reach just below the skin surface to stimulate hair follicles with minimal pain.
- **Lowered Risk of Injury:** Needles tailored for specific areas glide more easily, decreasing the likelihood of bruising and promoting faster skin recovery after treatment. (5)

6. The Role of Mesotherapy in Dermatological Conditions

Mesotherapy is most commonly used for skin rejuvenation, treating acne, and managing melasma. In dermatology, this technique relies on inducing controlled trauma and promoting repair. It involves the intradermal injection of sterile, water-soluble substances such as minerals, antioxidants, and vitamins. To ensure both effectiveness and safety, each substance must be administered separately using different syringes.

Mesotherapy generally involves three distinct injection techniques that target the skin at different levels: the epidermal level, the dermo-epidermal level known as 'papule,' and the intradermal level referred to as 'nappage'.

4. Classification of Mesotherapy

6.1 Mesotherapy for Acne

Acne vulgaris is a prevalent inflammatory skin condition, primarily affecting adults. Some research suggests that mesotherapy may be more effective than traditional acne treatments. For example, Chen and colleagues studied the use of mesotherapy with glycyrrhizin for acne treatment, comparing it to clindamycin gel. Their study involved 108 patients divided equally into treatment and control groups. Results showed that mesotherapy yielded better outcomes than clindamycin gel, including less loss of skin moisture and improved skin barrier function. Additionally, mesotherapy helped reduce inflammatory responses in patients. Post inflammatory erythema (PAE), a common acne aftermath that can persist after acne clears, was also found to improve with mesotherapy. Mesotherapy can be combined with other treatments as well. For instance, a 33-year-old woman with acne scars underwent four sessions of mesotherapy alongside 20% glycolic acid. After treatment, she experienced decreased inflammation and a reduction in the number of acne scars.

6.2 Mesotherapy for Melasma

Melasma is a pigmentation disorder that typically appears on the face. The darkened patches have uneven edges and are mostly found in areas exposed to the sun. One major challenge in treating melasma is the poor absorption and resistance of water-soluble substances through the thick, water-repellent outer skin layer (stratum corneum). This barrier leads to a limited effectiveness of topical treatments, especially for dermal or mixed types of melasma. A pilot study investigated the use of Tranexamic acid (TA) mesotherapy for treating melasma, administering doses between 150 and 200 mg per session. After treatment, the melanin levels gradually improved by the eighth week, with a statistically significant reduction noted by the sixteenth week. Likewise, combining mesotherapy with 4% Hydroquinone (HQ) cream has been found to be more effective than using 4% HQ cream alone, showing improvement rates of 20.96% compared to 14.11%.

6.3 Mesotherapy for Rosacea

Rosacea is a long-lasting condition marked by facial redness, visible blood vessels, and sometimes pus-filled bumps on the skin. Recent research indicates that mesotherapy could help alleviate rosacea symptoms. For instance, Bharti and colleagues proposed that mesotherapy involving topical and systemic antibiotics, azelaic acid, tranexamic acid, isotretinoin, chemical peels, and intense pulsed light therapy may improve the papulopustular aspects of rosacea, thereby reducing the visibility of lesions on patients' faces and scalps. (6)

6.4 Mesotherapy for Cellulite

When discussing cellulite, it is important to distinguish between cellulite and localized fat accumulation, as they are not the same. Cellulite (also known as hydrolipodystrophy) develops in the superficial subcutaneous layer of the skin. In contrast, fat accumulation occurs deeper in the subcutaneous tissue and is therefore not directly addressed by mesotherapy. The purpose of mesotherapy is to tailor a specific treatment to each type of cellulite. Cellulite can present in various forms depending on its texture when touched, which corresponds to different clinical and pathological types: flaccid cellulite, fatty cellulite, fibrous cellulite, fibro-sclerotic cellulite, and "orange peel" cellulite caused by water retention. (7)

6.5 Mesotherapy for Androgenetic alopecia (AGA)

Androgenetic alopecia (AGA) is characterized as hereditary hair loss affecting both men and women, primarily caused by a genetic tendency toward hair loss. However, it can also be influenced to varying extents by external factors such as diet, stress, smoking, and other environmental elements. (8)

There is limited research available on the use of mesotherapy on the scalp for treating alopecia. Two studies, one by Gajjar et al. and another by Hunter et al., involved a total of 95 patients (65 and 30 patients, respectively). In both studies, participants were divided into two groups: Group A served as the control group using minoxidil, while Group B received 5% topical mesotherapy. In Gajjar et al.'s study, treatments were administered weekly over a four-month follow-up period. Hunter et al.'s study involved weekly injections of 2 mL mesotherapy for 12 weeks. The results indicated no statistically significant differences between the two groups. Patients reported moderate satisfaction, with those receiving mesotherapy experiencing improvements ranging from 25% to 50%. However, the study conducted in Egypt noted notable side effects in the minoxidil group, including facial hypertrichosis, itching, and scaling. Conversely, the mesotherapy group reported side effects such as headaches and pain. (9)

7. Typical Ingredients Used in Mesotherapy Injections

- Hyaluronic acid, which is essential for hydrating the extracellular space, creating a supportive environment for cell growth, and modulating inflammation.
- Vitamin A, which regulates epidermal turnover and acts as an anti-drying agent.

- The Vitamin B complex, which supports cell metabolism and helps neutralize reactive oxygen species (ROS).
- Vitamin C, a vital antioxidant that also promotes collagen production.
- Vitamin E, which serves as both an antioxidant and moisturizer; topical antioxidants can reduce free radical-induced skin damage.
- Ascorbic acid, which is involved in the activity of various enzymes and collagen synthesis. (10)
- Nucleotides and Coenzymes: Certain formulations contain nucleotides that aid in tissue repair. Coenzyme Q10 is another example; it enhances cellular energy production and helps reduce visible signs of fatigue.
- Amino acids serve as the fundamental components of proteins. In mesotherapy, they assist in tissue repair, stimulate collagen synthesis, and help preserve skin elasticity. They play a crucial role in treatments for both skin and hair.
- Minerals are also vital. Zinc regulates oil secretion and supports healing, making it commonly used in treatments for acne-prone skin. Copper encourages the production of collagen and elastin, which maintain skin firmness. Magnesium contributes to improved circulation and overall vitality.
- Plant extracts are frequently used in blends targeting cellulite and fat reduction. Caffeine aids in boosting fat metabolism. Artichoke extract enhances blood circulation. Ginkgo biloba helps improve skin tone and microcirculation. (11)

8. Contraindications for Mesotherapy Treatment

Choosing the right patients is crucial for the safe practice of mesotherapy. Certain health issues and clinical situations greatly increase risks and are usually considered reasons to avoid treatment.

- a) Active skin infections, open wounds, or inflammatory skin conditions in the area to be treated should always be avoided.
- b) Patients with bleeding disorders or those on blood-thinning medications may have a higher chance of bruising and bleeding.
- c) Autoimmune diseases, uncontrolled diabetes, and immunosuppression require extra caution because of delayed healing and a greater risk of infection. Pregnancy and breastfeeding are generally excluded from treatment due to a lack of sufficient safety information.

A comprehensive consultation is vital before any procedure, including reviewing medical history, checking for allergies, and evaluating whether the patient is suitable for injectable treatment. (12)

9. Regulatory Framework

The classification varies depending on the country and the product.

In Asian countries, mesotherapy and filler products do not fit the definition of cosmetics because they are applied

beneath the skin barrier, which excludes them from being considered cosmetics. These products usually contain active ingredients intended to work directly within the dermis or subcutaneous layers, rather than just on the skin's surface. Additionally, their use is inherently invasive, often involving techniques like microneedling or injections, which go well beyond simple topical use. For these reasons, mesotherapy and filler products are not classified as cosmetics under Asean regulations. In Vietnam, based on their method of application and purpose, mesotherapy and filler products are classified as medical devices rather than cosmetics. Specifically, dermal fillers are designated as Class D medical devices due to their high risk and invasive application method. (13)

In the United States, Mesotherapy products are regulated either as medical devices or cosmetics based on their intended purpose. Products that claim therapeutic benefits, such as anti-aging or fat reduction, are considered medical devices and are required to have CE or UKCA certification. (14)

In South Korea, mesotherapy solutions are regulated by the Ministry of Food and Drug Safety (MFDS), and their classification varies based on their formulation. (15)

10. Conclusion

Mesotherapy represents a valuable and innovative approach that is challenging to treat with conventional methods in dermatology, musculoskeletal pain treatment, and other clinical conditions. Its dual mechanism, delivering active substances directly into the skin while stimulating natural repair processes, provides synergistic therapeutic benefits. Ensuring patient safety through proper screening and adherence to guidelines is crucial. With ongoing advancements and growing clinical evidence, mesotherapy is poised to become an integral part of personalized and multimodal dermatological care.

Acknowledgements

I would like to express my gratitude to the Himalayan Journal of Health Sciences (HJHS) who gave me the opportunity to publish the article.

Financial Disclosure statement:

The authors are employees of Piramal Consumer Healthcare (Division of Piramal Pharma Limited), the marketer of the commercial product evaluated. The authors declare no other competing financial or non-financial interest.

Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

References

1. Zhou, Z. Samizadeh, S. Mesotherapy. In: Samizadeh, S. (Editor) Non-Surgical Rejuvenation of Asian Faces. 2022. p.147–159
2. Konda D, Thappa D M. Mesotherapy: What is new? Indian J Dermatol Venereol Leprol. 2013;79:127-134
3. Mammucari M, Russo D, Maggiori E, Di Marzo R, Rossi M, Lugli M, et.al. Consensus statement on mesotherapy for clinical and regulatory practice. Rheumatol Int. 2026 Feb 2;46(2):39. doi: 10.1007/s00296-025-06046-4.
4. Niederhammer H. Mesotherapy - when is it useful? Effects, applications, and benefits [Internet]. Premium Medical Circle; 2026 Feb 6 [cited 2026 Apr 19]. Available from: <https://premiummedicalcircle.com/en/artikel/mesotherapy-when-is-it-useful-effects-applications-and-benefits>
5. Which Needle Is Best for Mesotherapy? [Internet]. Kinami Health; 2025 Oct 1 [cited 2026 Feb 26] Available from: <https://kinamihealth.com/blog/mesotherapy-needles/>
6. Limbana, T.A., Sooknanan, C., AlEdani, E.M. Role of Mesotherapy in Dermatological Disorders. Mesotherapy and Its Medical Applications. Updates in Clinical Dermatology [Internet]. Springer, Cham; 2024 Dec 5 [cited 2026 Mar 12]. Available from: https://link.springer.com/chapter/10.1007/978-3-031-76070-9_3?fromPaywallRec=false
7. Hamida-Pisal P. The applications of mesotherapy in aesthetic medicine [Internet]. PMFA NEWS; 2017 Oct/Nov [cited 2026 Jan 9]. Available from: <https://www.thepmfajournal.com/features/post/the-applications-of-mesotherapy-in-aesthetic-medicine>
8. Androgenetic Alopecia: A Guide to Pattern Hair Loss [Internet]. International Society of Hair Restoration Surgery ISHRS; 2026 [cited 2026 Aug 9] Available from: <https://ishrs.org/androgenetic-alpecia/>
9. Aledani EM, Kaur H, Kasapoglu M, Yadavalli R, Nawaz S, Althwanay A, Nath TS. Mesotherapy as a Promising Alternative to Minoxidil for Androgenetic Alopecia: A Systematic Review. Cureus. 2024 May 5;16(5):e59705. doi: 10.7759/cureus.59705
10. Al Abadie M, Abed N, Elsadek. Mesotherapy Applications in Dermatology. ACTA Scientific Women's Health. Jan 2025;7(1):23-28
11. Mesotherapy Ingredients Explained: What's Actually in Injections? [Internet]. Kinami Health; 2025 Oct 9 [cited 2026 April 13]. Available from: <https://kinamihealth.com/blog/mesotherapy-ingredients/>
12. Helen He. Mesotherapy Safety and Contraindications [Internet]. Reliable Medicare; 2026 May 1 [cited 2026 July 17]. Available from: <https://www.reliablemedicare.co.uk/blog/post/mesotherapy-safety-and-contraindications.html>
13. Meso and Filler - Cosmetics or Medical Devices in 2026? Critical Update [Internet]. GREEN NRJ 2026 [cited 2026 August 1]. Available from: <https://greennrj.com.vn/meso-and-filler-cosmetics-or-medical-devices/>
14. Mesotherapy Products US: A Professional's Buying Guide 2026 [Internet]. Skymedic ;2026 March 12 [cited 2026 July 8]. Available from: <https://skymedicusa.com/blogs/skymedic-journal/mesotherapy-products-uk-buying-guide>
15. Mesotherapy [Internet]. K Station; 2026 [cited 2026 August 6]. Available from: https://kstations.com/pages/mesotherapyguide?srltid=AffmBOoplNdue8C15URNpr_aLIIdLplerd_ujxoD7hk3kjqfPz1cEqvsig