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INTRADERMOCAPILLARY THERAPY: A TREATMENT AGAINST HAIR LOSS

INTRADERMOTERAPIA CAPILAR: UM TRATAMENTO CONTRA A QUEDA DOS FIOS

INTRADERMOTERAPIA CAPILAR: UN TRATAMIENTO CONTRA LA CAÍDA DEL HILO

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Abstract: Hair loss is a condition that can compromise not only appearance, but also quality of life and well-being. Among the therapeutic alternatives used in the treatment of hair dysfunctions, capillary intradermotherapy stands out, also called mesotherapy, a technique that consists of the intradermal application of substances directly on the scalp, with the aim of acting in the affected region. This work aimed to analyze, through a literature review, the scientific evidence about the application of capillary intradermotherapy in the treatment of hair loss, considering the main assets used, its effectiveness, possible adverse effects and the limitations of available evidence. For this, articles, studies and books published between 2010 and 2026 were analyzed, available in Portuguese, English and Spanish, selected from searches in the SciELO, PubMed/MEDLINE databases, Google Scholar and Brazilian Dermatology Journals. The studies analyzed presented promising results for the use of capillary intradermotherapy, with emphasis on active agents such as minoxidil and finasteride, in addition to the association of the technique to microneedling and topical therapies. However, differences in results were observed according to the assets, protocols and methods used, as well as limitations related to the low number of participants and the short follow-up period in some studies. Among the reported adverse effects were pain, erythema, edema and hematomas, usually transient in nature. It was concluded that capillary intradermotherapy has potential as a therapeutic resource in the management of hair loss, especially in certain protocols and therapeutic associations. However, clinical studies with larger samples, prolonged follow-up and more standardized protocols are necessary in order to broaden the quality of evidence and establish its efficacy, safety and clinical applicability with greater certainty.

Keywords: Intradermal capillary therapy. Hair loss. Capillary therapy. Capillary disorders.

Resumo: A queda capilar constitui uma condição que pode comprometer não apenas a aparência, mas também a qualidade de vida e o bem-estar dos indivíduos. Dentre as alternativas terapêuticas utilizadas no tratamento das disfunções capilares, destaca-se a intradermoterapia capilar, também denominada mesoterapia, técnica que consiste na aplicação intradérmica de substâncias diretamente no couro cabeludo, com o objetivo de atuar na região afetada. Este trabalho teve como objetivo analisar, por meio de uma revisão da literatura, as evidências científicas acerca da aplicação da intradermoterapia capilar no tratamento da queda dos fios, considerando os principais ativos utilizados, sua eficácia, os possíveis efeitos adversos e as limitações das evidências disponíveis. Para isso, foram analisados artigos, estudos e livros publicados entre 2010 e 2026, disponíveis nos idiomas português, inglês e espanhol, selecionados a partir de buscas nas bases SciELO, PubMed/MEDLINE, Google Acadêmico e Anais Brasileiros de Dermatologia. Os estudos analisados apresentaram resultados promissores para a utilização da intradermoterapia capilar, com destaque para ativos como minoxidil e finasterida, além da associação da técnica ao microagulhamento e a terapias tópicas. Entretanto, foram observadas diferenças nos resultados de acordo com os ativos, protocolos e métodos empregados, bem como limitações relacionadas ao número reduzido de participantes e ao curto período de acompanhamento em alguns estudos. Entre os efeitos adversos relatados, destacaram-se dor, eritema, edema e hematomas, geralmente de caráter transitório. Concluiu-se que a intradermoterapia capilar apresenta potencial como recurso terapêutico no manejo da queda dos fios, especialmente em determinados protocolos e associações terapêuticas. Contudo, são necessários estudos clínicos com amostras maiores, acompanhamento prolongado e protocolos mais padronizados, a fim de ampliar a qualidade das evidências e estabelecer

com maior segurança sua eficácia, segurança e aplicabilidade clínica.

Palavras-chave: Intradermoterapia capilar. Queda de cabelo. Terapia capilar. Distúrbios capilares.

Resumen: La caída capilar constituye una condición que puede comprometer no solo la apariencia, sino también la calidad de vida y el bienestar de los individuos. Entre las alternativas terapéuticas utilizadas en el tratamiento de las disfunciones capilares, se destaca la intradermoterapia capilar, también denominada mesoterapia, técnica que consiste en la aplicación intradérmica de sustancias directamente sobre el cuero cabelludo, con el objetivo de actuar en la región afectada. Este trabajo tuvo como objetivo analizar, por medio de una revisión de la literatura, las evidencias científicas sobre la aplicación de la intradermoterapia capilar en el tratamiento de la caída de los hilos, considerando los principales activos utilizados, su eficacia, los posibles efectos adversos y las limitaciones de la evidencia disponible. Para ello, se analizaron artículos, estudios y libros publicados entre 2010 y 2026, disponibles en los idiomas portugués, inglés y español, seleccionados a partir de búsquedas en las bases SciELO, PubMed/MEDLINE, Google Académico y Anales Brasileños de Dermatología. Los estudios analizados presentaron resultados prometedores para la utilización de la intradermoterapia capilar, con énfasis en activos como minoxidil y finasterida, además de la asociación de la técnica a la microagudización y a terapias tópicas. Sin embargo, se observaron diferencias en los resultados según los activos, protocolos y métodos empleados, así como limitaciones relacionadas con el número reducido de participantes y el corto período de seguimiento en algunos estudios. Entre los efectos adversos reportados, se destacaron dolor, eritema, edema y hematomas, generalmente de carácter transitorio. Se concluyó que la intradermoterapia capilar presenta potencial como recurso terapéutico en el manejo de la caída de los hilos, especialmente en determinados protocolos y asociaciones terapéuticas. Sin embargo, son necesarios estudios clínicos con muestras más grandes, seguimiento prolongado y protocolos más estandarizados, a fin de ampliar la calidad de las evidencias y establecer con mayor seguridad su eficacia, seguridad y aplicabilidad clínica.

Palabras clave: Intradermoterapia capilar. Caída del cabello. Terapia capilar. Trastornos capilares.

1 INTRODUCTION

Hair pathologies significantly impact overall health, particularly psychological well-being. Hair loss can affect a patient's quality of life by causing aesthetic changes and emotional discomfort, leading these patients to seek treatment (Louzada, Mendes, & Leite, 2019).

Hair is closely tied to self-confidence, self-esteem, personal image, and perception of beauty in human beings. In a society that heavily values physical appearance, hair serves as an expression of personal identity and lifestyle. Consequently, when an individual experiences hair loss, it can trigger feelings of distress, shame, and social isolation (Leite Júnior, 2013).

According to Fassheber et al. (2018), common conditions causing hair loss include alopecia areata, androgenetic alopecia, and telogen effluvium, all of which present distinct mechanisms and clinical manifestations. These scalp dysfunctions have been treated using various modalities, including capillary intradermotherapy or mesotherapy, the subject of this study, which has shown promising results and proven efficacy across several studies, particularly when combined with hair therapy (Bloch et al., 2023).

According to Vicente and Hochheim (2017), hair therapy is a technique that uses cosmeceuticals which are topical products with high permeability. The composition contains bioactive substances whose specific metabolic and physiological action on the scalp directly fights the signs and symptoms reported by patients. Capillary therapy when combined with intradermal therapy contributes to the maintenance of scalp hair health conditions.

Intradermal therapy is considered one of the most effective approaches to stimulating hair shaft growth and combating hair loss; it is a minimally invasive procedure consisting of intradermal microinjections into the scalp delivering drugs, vitamins, and other active substances (Silva et al., 2024).

In Brazil, the indication and practice of this procedure by biomedical professionals are regulated by the Federal Council of Biomedicine (CFBM) under Resolution No. 241 of May 29, 2014 (authorizing aesthetic practice), and Resolution No. 359 of May 2, 2023, specifically regulating biomedical practice in aesthetic trichology. Professionals must be qualified in their respective Regional Councils and comply with ethical health standards and professional boundaries.

This study aims to analyze capillary intradermotherapy, through a literature review, as a treatment against hair loss, by conducting a critical evaluation of existing scientific literature. This work seeks to synthesize evidence regarding active ingredients, efficacy, and adverse effects, thereby offering valuable insights for health professionals and society.

This study is justified by the growing need to investigate intradermal capillary therapy as a valid resource for managing hair loss. In current days, hair care extends beyond cosmetic appeal to encompass a vital link between aesthetics and physical, mental, and social health (Vicente & Hochheim, 2017).

Thus, there is a need to understand the treatment possibilities available to the thousands of male and female patients, who daily have been seeking solutions within the clinics to prevent or reduce their hair loss. It is becoming necessary to deepen the knowledge about available treatment techniques, such as capillary intradermotherapy. In this sense, it is hoped that this work will be used as a basis for future research by professionals and clinical practice.

2 MATERIAL AND METHODS

A survey of scientific and literary production was conducted to collect and analyze scientific evidence about the use of intradermal capillary therapy in the treatment of changes related to the hair loss. This synthesis different studies, allowing a better understanding of the application of the technique, the active ingredients, its mechanisms of action and clinical efficacy.

The search was conducted using digital platforms such as Scielo, PubMed/MEDLINE, Anais Brasileiros e Dermatologia and Google Acadêmico, using the terms "intradermohair therapy", "hair loss", "hair therapy" and "hair disorders". Articles, studies and books published between 2010 and 2026 available in Portuguese, English and Spanish, which presented a direct relevant to the topic were included. Excluded were duplicate papers, paywalled articles, summaries of events, and studies that did not evaluate injectable treatments.

Initially, it was performed the reading of titles and summaries of the studies found, aiming to identify those relevant to the research objective. Subsequently, the full reading of the articles and books that presented potential for use in this work was carried out, followed by the organization of the information considered relevant. At the end of the selection process, 11 articles were included in the research, being used as a basis for the scientific argumentation presented in the discussion of the results.

The extracted data were categorized by publication year, the methodology, the type of capillary change

studied, the active ingredients used in the technique, the results found and the main conclusions were considered. Because it is a literature review, without direct involvement with humans, it was not required to submit the study to the Ethics and Research Committee. All cited sources were obtained from bibliographic sources and consulted works, duly referenced, and ensuring the transparency and reliability of the information presented.

3 RESULTS AND DISCUSSION

Below are systematized, in the form of a table, the 11 selected articles that were analyzed.

Table 1: Selected articles and studies on capillary intradermotherapy.

Título	Autores	Ano	Revista de Publicação
Estudo comparativo da eficácia de intradermoterapia associada ou não a microagulhamento e solução tópica na redução da perda capilar em homens com alopecia androgenética	Bloch, L. D.; Carlos, R. M. D.; Sarruf, F. D.	2023	Surgical & Cosmetic Dermatology
Intradermoterapia capilar para tratamento de Alopecias	Lima da Silva, A.; Santos, V. M. dos	2024	Brazilian Journal of Implantology and Health Sciences
Estudo comparativo da eficácia de tratamentos para a alopecia androgenética por meio da técnica intradermoterapia capilar: Minoxidil e finasterida	Formiga, M. W. M. et al.	2021	Research, Society and Development
Efficacy and safety of mesotherapy with 0.5% minoxidil versus topical 2% minoxidil for female androgenetic alopecia: a randomized controlled trial	Wang, X. et al.	2026	Dermatologic Therapy
Aplicação de microagulhamento associado a terapia capilar no tratamento de alopecia androgenética masculina	Rocha, J. J.	2017	The Scientific World Journal
Mesotherapy: from historical notes to scientific evidence and future prospects	Mammucari, M. et al.	2020	The Scientific World Journal
Actualización de fármacos empleados en mesoterapia	Folch Garcia, J.; Alcoléa López, J. M.	2020	Medicina Estética
Male androgenetic alopecia	Cortez, G. L. et al.	2025	Anais Brasileiros de Dermatologia
Alopecia androgenética: principais abordagens terapêuticas	Louzada, L. M.; Mendes, R. de F.; Leite, S. A.	2019	Centro Universitário UNIFACIG
Minoxidil 7,5 mg oral para queda de cabelo aumenta a frequência cardíaca sem alteração da pressão arterial no Holter de 24 h e na monitorização ambulatorial da pressão	Sanabria et al.	2024	Anais Brasileiros de Dermatologia

arterial de 24 h			
Mesotherapy – The French Connection	Sivagnanam, G.	2010	Journal of Pharmacology and Pharmacotherapeutics

From the academic perspective this work was based on the need to fill the gap in the literature about capillary intradermotherapy, especially regarding the availability of evidence, studies, data and information about the technique. This gap becomes relevant since the increasing demand search for therapeutic alternatives for the treatment of hair disorders, reinforcing the importance of producing scientific knowledge that contributes to the capillary health of numerous patients who have been sought by professionals, and also collaborate to improve the performance in their professional environment.

On the origin of the technique, Mammucari et al. (2020) in the article "Mesotherapy: from historical notes to scientific evidence and future prospects", described that during the 19th century some studies and practices were carried out that helped in the development of intradermal application for therapeutic purposes; over the years, these techniques have been improved and used in different ways.

Mammucari et al. (2020) highlighted that in 1958 the French physician Michel Pistor used the term "mesotherapy" to define the application of drugs on the dermis. Subsequently, the authors stated that the technique has been studied and used in different areas. They also pointed out that in 2004, Sergio Magiori proposed the term "local intradermal therapy highlighting the application of small amounts of drugs directly at the site that needed to be treated. With the evolution of the technique, mesotherapy began to be used also in aesthetic and dermatological areas. The authors also explained that the effect of mesotherapy does not depend only on the medication used, other factors may participate in the response, such as the physicochemical characteristics of the substance applied, pH, osmolarity, stimulus caused by the needle itself, the points of application and depth of injection.

The work of Mammucari et al. (2020) further described that the technique consists in carrying out small applications on the skin, forming microdeposits of the substance with the use of needles of different lengths, which are positioned in a suitable way to carry out intradermal deposit. In the discussion it was described that among the advantages of using the technique are the possibility to use smaller quantities of drugs, reduce systemic exposure and in some cases associate the technique with other treatments. Although mesotherapy is already used in different situations, the authors noted that there are still areas where better controlled clinical studies are lacking. Her article showed that mesotherapy has a history built over many years and that currently the scientific interest is mainly related to the possibility of producing local effects using lower doses and taking advantage of the mechanisms of the skin.

In the study conducted by Bloch, Carlos and Sarruf (2023), the effectiveness of intradermotherapy was evaluated, both isolated and associated with microneedling and topical solutions to reduce hair loss in men with androgenetic alopecia, whose active components are Octapeptide-2, Copper Tripeptide-1, Chondrus crispus

extract and Silanediol salicylate.

The study of Bloch, Carlos and Sarruf (2023) was composed of 20 patients, divided into 2 groups of 10, with the first group receiving only intradermal therapy while the second group received intradermal therapy associated with microneedling and topical solution. In addition, three sessions were conducted over five months, during which patients were followed through standardized photographs and clinical evaluations, in which dermatologists evaluated the patients individually, assigning classification according to the degree of improvement in hair loss.

According to Bloch, Carlos and Sarruf (2023), 70% of patients undergoing intradermotherapy associated with microneedling and topical solution showed visible improvement in hair loss. There was a statistically significant difference between the treatments, according to the scores described in the study, indicating greater effectiveness of combined therapy compared to intraderm therapy alone.

The associated microneedling was also described in the work of Rocha (2017) where the author evaluated different substances used in capillary intradermotherapy. The study aimed to evaluate the application of microneedling associated with capillary therapy in the treatment of male androgenetic alopecia, considering the ability of microneedling to facilitate permeation and absorption of assets in the scalp.

Among the active principles used by Rocha (2017), TrichogenTM VEG was highlighted, a botanical complex associated with reducing hair fall and stimulating hair growth. The therapy also presented other active ingredients, such as burdock, ginseng, rosemary, jaborandi, capsicum, salvia and other components with stimulating, anti-inflammatory and antiseptic functions. A qualitative case study was conducted with a 65-year-old man, who had grade 5A androgenetic alopecia (Norwood-Hamilton scale). In which 10 weekly sessions of microneedling with 0.25 mm Derma Roller associated with capillary therapy were performed, the results being evaluated through photographs before and after treatment.

Rocha (2017) concluded that microneedling facilitated the permeation of the active ingredients and provided small capillary growth in the treated region. However, the results were limited, indicating that a larger number of sessions might be needed to achieve more expressive effects.

The study by Formiga et al. (2021) aimed to compare the effectiveness of intradermal hair therapy with Minoxidil and Finasterida, both associated with growth factors and vitamins, in the treatment of androgenetic alopecia. The research sought to evaluate mainly changes in hair volume and hair loss.

In relation to the active principles, Formiga et al. (2021) used Minoxidil, Finasterida, growth factors and vitamins. Minoxidil is related to increasing the duration of hair growth phase and hair density, while Finasterida acts by inhibiting the enzyme 5α-reductase type 2, reducing the conversion of testosterone into DHT and consequently the miniaturization of follicles.

As a study method, Formiga et al. (2021) conducted a randomized, double-blind, prospective clinical trial with a quantitative approach involving 10 patients with androgenetic alopecia, divided into two groups of five people. Group A received Minoxidil, growth factors and vitamins, while Group B received Finasteride, growth factors and vitamins. The treatment took place between March and June 2021, with capillary volume and fall reduction being evaluated

Formiga et al. (2021) observed a slight advantage in the group treated with Minoxidil, growth factors and vitamins, mainly in relation to the increase in hair volume, while the reduction of fall showed similar results between the groups. However, due to the small number of participants, the authors highlighted the need for studies with larger samples to obtain more reliable results and better assess the effectiveness of these therapies.

Among the capillary dysfunctions described by Fassheber et al. (2018) such as alopecia areata, androgenetic alopecia and telogen effluvio, intradermotherapy is indicated mainly for the treatment of androgenetic alopecia in both male and female patterns.

Described in the work of Cortez et al. (2025) as a fairly frequent disease that worsens with age and has a significant impact on quality of life. In the work, Cortez stated that the etiopathogenesis of the disease is multifactorial, with emphasis on genetic and hormonal influences, and its onset occurs with follicular miniaturization in various phenotypic patterns. The authors highlighted that their diagnosis is basically clinical, and currently it is corroborated by well-established trichoscopic findings. Despite this, therapeutic options are limited, especially when considering drugs with a high level of scientific evidence.

In their work, Cortez et al. (2025) approach intradermotherapy as an adjunctive treatment done with injections into the scalp using medications or with the mixture of various substances, among the main Minoxidil, Finasterida and Dutasterida that has been prominent, according to the authors, for the increasing use and scientific publications.

The authors in the study of Cortez et al. (2025) emphasized that there is still no standardization regarding the frequency of application in patients and the main adverse effect reported by them is pain, which can be contorted by professionals with anesthetic blockages. In the article, other adverse effects were described about this technique such as: swelling of the forehead and face and hematomas and regarding intradermotherapy with dutasteride, it was reiterated that further studies are needed to prove its therapeutic effectiveness.

In the paper by Cortez et al. (2025) intradermotherapy with Finasterida and Minoxidil and with the use of vitamins such as biotin, the technique did not demonstrate efficacy. However rare adverse events are described, the authors concluded in this work that the treatment of androgenetic alopecia in general must be personalized, because one of the most important factors for therapeutic success is to improve adherence through individualized therapeutic strategy.

In contrast to the findings of Cortez et al. (2025), the randomized clinical trial conducted by Wang et al. (2026) demonstrated significant results with the use of intradermal therapy based on minoxidil. In her work, the efficacy and safety of low-concentration mesodermic injection of minoxidil versus topical minoxidil was evaluated in the treatment of female androgenetic alopecia (HAA).

The study of Wang et al. (2026) included 40 women who were randomly distributed into two groups, each consisting of 20 participants. The first group underwent intradermal application of minoxidil at 0.5%, while the second received topical treatment with minoxidil at 2% for 16 weeks. The only active ingredient used in intradermal application was minoxidil, not being employed in the mesotherapy protocol, finasteride, vitamins, biotin or growth factors.

The inclusion criteria established by Wang et al. (2026), included women between 18 and 60 years old, with clinical and tricoscopic diagnosis of female androgenetic alopecia, classified between grades I and III according to the Ludwig scale. Prior to inclusion, participants underwent laboratory tests including blood count, urinalysis, liver and kidney function evaluation, and autoantibody screening. Pregnant and lactating women, those who had used minoxidil or antiandrogenic drugs in the previous year and patients with other causes of capillary loss such as alopecia areata, cicatricial alopecia and telogen effluvio were excluded. Participants with a recent history of acute stress, severe illness or rapid hair loss were also excluded, seeking to reduce the possibility of interference from other conditions in the evaluation of results.

In the study of Wang et al. (2026), as for intervention, the group submitted to mesotherapy received a 0.5% minoxidil solution, prepared from the dilution of 0.5 mL of 2% minoxidil in 1.5 mL of saline solution. The application was carried out in the vertex and temporal regions, using a 30 G gauge needle and point-to-point technique, with approximately 1 cm distance between the application sites. Each point received between 0.02 and 0.05 mL of the solution, totaling approximately 2 mL per session. The applications were performed at a depth of 2 to 4 mm and at an angle of 30° to 60°. The protocol consisted of eight sessions over 16 weeks: weekly applications in the first four sessions, fortnightly in the next two and monthly in the last two.

In the second group, Wang et al. (2026) topically applied a 2% minoxidil solution twice daily in the morning and evening. In each application, 1 mL of the solution was used distributed evenly over the affected area of the scalp. In each consultation, the researchers reviewed participants' medication diaries and measured the remaining product quantity to assess treatment adherence over 16 weeks.

To assess the effectiveness of treatment, Wang et al. (2026) analyzed several objective tricoscopic parameters, including hair density, mean wire diameter, capillary coverage rate, relationship between wires and follicular units, and proportions of furry, intermediate, and terminal wires. Also evaluated were the height of the hair line, the doctors' overall perception and patients' own satisfaction. To reduce possible measurement biases, the computerized trichoscopic analysis and evaluation of the height of the capillary line were carried out by independent assessors who were blind to the distribution of groups.

The results of Wang et al. (2026) showed improvement in hair density in both groups, but the average increase was higher in the group subjected to mesotherapy, with an addition of 8.70 wires/cm 2, compared to 4.50 wires/cm2 in the topically treated group. There was also a greater improvement in hair coverage and reduction of the height of the frontal line among participants subjected to intradermal application. However, some variables, such as the diameter of the wires and certain proportions between types of wires, did not present statistically significant differences between treatments.

In this study, considered relevant for the present research, Wang et al. (2026) observed that after 16 weeks of treatment, the group submitted to mesotherapy with minoxidil showed a greater increase in certain objective parameters when compared to the group treated with conventional topical minoxidil. Among the main results, there were significant differences in capillary density, capillary coverage and changes in hair line height, suggesting that intradermal administration of minoxidil may favor certain aspects of the therapeutic response in female androgenetic alopecia.

The authors, Wang et al. (2026), described the action of minoxidil that acts as a hair growth stimulator, being associated with opening potassium channels, improving local circulation and prolonging the anagen phase of the follicular cycle, and has its mechanism of action partially understood, however the action of topical minoxidil is limited by the barrier of the stratum corneum of the scalp resulting in low bioavailability, while intradermal administration presents as a possible advantage the deposition of the drug directly in the dermis, close to the follicular structures, reducing the limitation imposed by the skin barrier.

According to Wang et al. (2026), scalp mesotherapy involves the direct injection of relevant compounds into the tissue to treat various hair problems, aiming to improve the scalp environment, alleviate hair loss symptoms and maintain the health of the hair. Among the advantages of scalp mesotherapy is the ability that professionals have to administer multiple components directly in the area -target, which overcomes the low transdermal absorption efficiency of topical administration and the inability of oral administration to exert localized effects. The comparison was made in relation to topical application, in which, in the case of injectable application, the duration of action of the drug can be prolonged, since the skin layer of the scalp can serve as a reservoir of drugs to exert gradual release providing relatively sustained efficacy.

The authors, Wang et al. (2026), also cited that several therapeutic agents such as dutasteride, minoxidil, growth factors, platelet-rich plasma have been administered through intradermal therapy technique, but regarding their exclusive use there are few studies. This reaffirms the relevance of this work by the fact that the drug Minoxidil is widely used for the classic treatment of the main hair dysfunction that is most reported in clinics, according to (Leite Júnior, 2013).

As for safety, in the study of Wang et al. (2026) no serious adverse events were observed. In the mesotherapy group, the main effects were mild to moderate and transient pain during applications and mild erythema after the procedure. In the group treated with topical minoxidil, pruritus and local desquamation were mainly observed.

In their conclusions, Wang et al. (2026), demonstrated that the mesotherapy with minoxidil at 0.5% presented results superior to some objective parameters evaluated with topical minoxidil at 2%, maintaining good tolerability. However, the study had some limitations, such as a short observation period of 16 weeks and due to the complete therapeutic cycle of hair follicles usually requires six months or more, this 16-week period may be insufficient to assess the maximum therapeutic effect. In their final considerations the authors also highlighted the relevant need for more studies with larger samples and longer follow-up to confirm long-term efficacy and safety.

The articles, books and clinical studies analyzed in this research corroborate the potential of intradermal hair therapy in the treatment of various capillary dysfunctions, with emphasis on reducing hair loss and stimulating hair growth, especially in the management of female standard alopecia, according to the promising clinical results found in the study of Wang et al. (2026) which served as an important support and basis for the discussion of this work.

The results of the studies showed that intradermotherapy technique, by making it possible to administer pharmacological assets such as minoxidil and finasteride, and nutrients such as vitamins directly into the scalp,

may favor the localized action of these substances in structures related to hair growth. This approach can contribute to the strengthening of hair and to the control of fall, presenting promising results in the treatment of different types of alopecia, especially androgenetic alopecia. In addition, the localized administration of certain assets can contribute to the maintenance of scalp health and to the supply of important substances to the follicular structures, favoring the growth and quality of the hair.

However, there are still gaps related to the standardization of protocols, the definition of concentrations and associations of assets, as well as the need for clinical studies with larger samples and longer follow-up periods. Therefore, it is necessary to carry out new research that can expand the evidence about the efficacy, safety and applicability of intradermal capillary therapy.

The results of this literature review are intended to contribute to the expansion of knowledge about capillary intradermotherapy and to the understanding of different protocols and active ingredients used in the treatment of capillary dysfunctions. It is hoped that this analysis can serve as a basis for future investigations and provide technical-scientific support and support to professionals working in the field of trichology.

4 FINAL CONSIDERATIONS

Based on the literature review conducted, it is concluded that capillary intradermotherapy with the use of minoxidil, finasteride, growth factors and vitamins is an effective and promising treatment in managing hair loss and stimulating hair tem growth. Because it is a minimally invasive technique that offers the localized and precise delivery of active substances, it presents itself as a prominent therapeutic alternative in aesthetics and hair therapy. Its ability to nourish, strengthen and promote the health of hair follicles supports its recommendation as one of the most efficient methods for the treatment of various alopecia and the overall improvement of the quality of hair.

It is also emphasized the importance that the biomedical trichologist exercise their work ethically, responsibly and based on scientific evidence, respecting their limits of professional action, their technical training and safety protocols applicable to the technique. Knowledge of the operating limits is fundamental to ensure patient safety, quality of care and proper use of capillary intradermal therapy in professional practice.

Conflicts of interest (mandatory)

The authors declare that there are no conflicts of interest. All authors are aware of the submission of the article.

Authors' contributions (required)

Lívia Almeida Freitas: bibliographic survey, data collection and organization, critical analysis of the results, contribution in writing and review of the manuscript; **Jaiane Batista dos Santos:** bibliographic survey, data collection and organization, critical analysis of the results, contribution in writing and review of the manuscript; **Milena Conceição da Silva Portela:** bibliographic survey, data collection and organization, critical analysis of the results, contribution in writing and review of the manuscript; **Karine Rodrigues do Nascimento Chaves:** design and direction of the study, supervision of development stages, critical analysis of results, review of the manuscript and approval of the final version.

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