

OVER-THE-COUNTER AND OFFICE-BASED NON-SURGICAL THERAPIES FOR NON-SCARRING ALOPECIA: A SYSTEMATIC REVIEW



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Introduction

- Alopecia comprises a heterogeneous group of disorders, including androgenetic alopecia, telogen effluvium, and alopecia areata, each with distinct underlying mechanisms and clinical presentations.¹⁻³
- Beyond its physical manifestations, hair loss is associated with substantial psychosocial burden, with measurable impacts on quality of life, self-esteem, and daily functioning.⁴⁻⁶
- Current management strategies span over-the-counter therapies, office-based interventions, and adjunctive approaches, with variable efficacy and a fragmented evidence base across modalities.⁷
- Within this therapeutic landscape, osteopathic manipulative treatment (OMT) may represent a potential adjunct through its effects on circulation and tissue homeostasis, though its role in alopecia remains poorly defined.⁸
- This systematic review, conducted in accordance with PRISMA guidelines, synthesizes evidence across these treatment categories to better characterize efficacy and identify persistent gaps in the literature.⁹

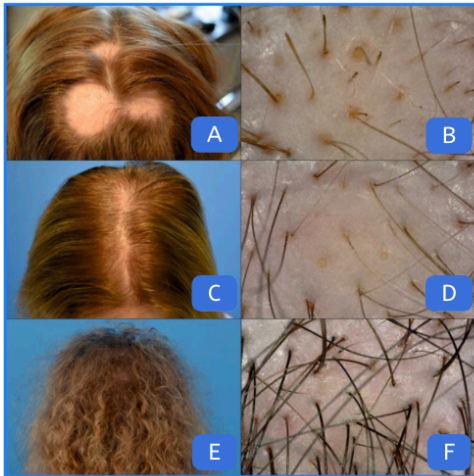


Figure 1. Clinical and trichoscopic features of non-scarring alopecia: alopecia areata (A,B), androgenetic alopecia (C,D), and telogen effluvium (E,F). Adapted from Wróblewska-Kończalik K et al. *Life*. 2024;14(5):609.

Objective

- To systematically evaluate and compare the efficacy of over-the-counter and office-based therapies for alopecia, and to explore the potential role of adjunctive approaches, including OMT in order to characterize therapeutic outcomes and identify gaps in the current evidence base.

Methodology

- Study Design:**
 - PRISMA guidelines, Protocol prospectively registered in PROSPERO
- Search Strategy:**
 - Databases: PubMed, Embase, Cochrane Library
 - Date of search: December 3, 2025
 - Keywords included: "alopecia," "hair loss," "over-the-counter treatment," "osteopathic manipulative treatment"
- Inclusion criteria:**
 - Adult human participants with hair loss
 - OTC therapies or office-based/manual treatments
 - Studies reporting treatment outcomes
- Exclusion Criteria:**
 - Non-English studies
 - Animal or in vitro studies
 - Reviews, editorials, or abstracts without full text
 - Studies not evaluating treatment for hair loss
- Study Selection**
 - 79 studies identified
 - Dual independent screening (E.G., S.m.)
 - Discrepancies resolved by consensus
 - 7 studies included in final analysis
- Data Extraction**
 - Performed independently by two reviewers
 - Extracted data included: Study characteristics, population demographics, alopecia type, intervention details, outcomes, adverse events, study quality

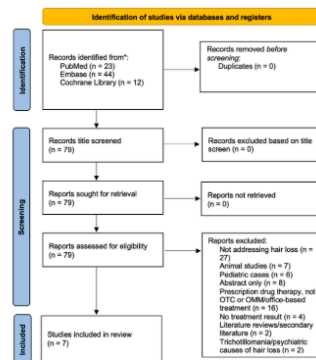


Figure 2. PRISMA flow diagram for systematic review of OTC and office-based therapies that contribute to the treatment of hair loss.

Results

Table 1. Summary of Included Studies on OTC and Office-Based Hair Loss Interventions

STUDY	INTERVENTION	OUTCOME	TAKEAWAY
GUPTA 2025 [10]	Minoxidil, botanicals	↑ Hair density	Minoxidil most effective OTC
GUPTA 2025 [11]	Minoxidil, botanicals	↑ Hair density	Consistent benefit across OTCs
AFOLABI 2025 [12]	Minoxidil, LLLT	Treatment patterns; no efficacy data	Common use reported; no outcome measurements
SASAKI 2021 [13]	PRP injections	↑ Density & thickness	Effective office-based option
ALRV5XR 2020 (M) [14]	Multi-component regimen	↑ Density (+21 hairs/cm ²)	Strong results; industry-funded
ALRV5XR 2020 (F) [15]	Multi-component regimen	↑ Density (~20%)	Effective in females; bias risk
DHURAT 2022 [16]	Minoxidil + enzyme booster	↑ Response (75% vs 33%)	Enhances minoxidil efficacy

Legend: Overview of seven included studies: study type, participants, hair loss type, interventions, dosing, key outcomes, adverse events, and quality

Abbreviations: AGA = androgenetic alopecia; TE = telogen effluvium; FPML = female pattern hair loss; AA = alopecia areata; LLLT = low-level laser therapy; PRP = platelet-rich plasma; ALRV5XR = multi-component botanical/nutraceutical regimen

Conclusion

- Topical minoxidil demonstrated the most robust evidence for efficacy, supporting its role as a first-line therapy.^{10,11,16}
- PRP showed favorable outcomes among office-based interventions, while LLLT demonstrated potential benefit but with limited standardized outcome data.^{12,13}
- Interpretation across modalities is limited by heterogeneity in study design and outcome reporting, highlighting a lack of standardized measures and limiting direct comparison.¹²⁻¹⁶
- Despite the absence of direct evidence, the physiologic effects of OMT on vascular and lymphatic function support its investigation as a potential adjunctive strategy in alopecia management.⁸

References

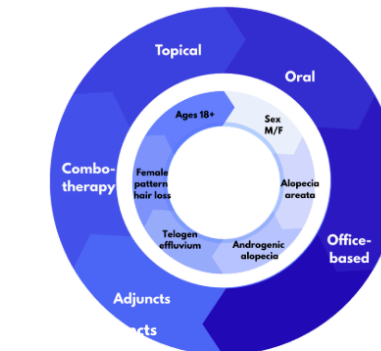


Figure 3. Overview of review process and study characteristics. The inner circle represents included study types (systematic reviews, RCTs, interventional, cohort), and the outer circle shows key study features, including population, hair loss type, and interventions evaluated.