



## Q/What treatment is best for hypertrophic scars and keloids?

### EVIDENCE-BASED ANSWER

**A** | NO ONE TREATMENT IS BEST (strength of recommendation [SOR]: C, meta-analysis of heterogenous studies); no good evidence exists comparing treatments with each other.

Triamcinolone injections, triamcino-

lone injections combined with excision, and cryotherapy all improve hypertrophic and keloid scars (SOR: C, case series studies).

Silicone gel products have weak evidence of efficacy (SOR: C, Cochrane review with no clear recommendation).

### Evidence summary

The TABLE summarizes the evidence for the best-studied treatments.<sup>1-5</sup> A systematic review of 396 studies, 36 of which were included in an accompanying meta-analysis, concluded that, overall, any treatment gave patients a 70% (95% confidence interval [CI], 49%-91%) chance of improvement.<sup>6</sup> The mean improvement in scar appearance or symptoms was 60% for all the studies combined (no CI reported).

The review found no statistically significant difference between outcomes of 27 different treatments or combinations of treatments. The authors concluded that no optimal evidence-based therapy exists and recommended choosing treatment based on cost and adverse effect profile.<sup>6</sup>

### Many studies have limitations

Studies often don't distinguish between hypertrophic and keloid scars, although much evidence supports important differences in their natural histories and response to therapy.<sup>7</sup> Hypertrophic scars may resolve spontaneously, can improve with surgical revision, and are less likely to recur.

Moreover, many studies looked only at initial response, although good initial response to therapy doesn't translate into a low

recurrence rate, particularly for keloid scars. Studies were also flawed by lack of controls, nonvalidated outcome measures, and small size.

No available evidence supports using over-the-counter products such as Mederma and other creams, gels, and oils, to treat scars.

### Recommendations

The American Academy of Dermatology does not make any recommendations about hypertrophic or keloid scars.

The International Clinical Recommendations on Scar Management (written for the International Advisory Panel on Scar Management) recommend silicone gel sheeting and intralesional corticosteroids as first-line therapy, based on a systematic review of the clinical literature. For secondary management, the authors accepted localized pressure therapy, specific wavelength laser therapy, and surgical revision with adjuvant silicone gel therapy as standard practice based on expert opinion. They conclude that many standard practices and emerging therapies need to be studied in well-designed trials before being conclusively recommended.<sup>8</sup>

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TABLE

## What the evidence tells us about these scar treatments

Treatment	Study design	Number of scars treated	Inclusion/exclusion criteria	Results	Comment
Triamcinolone injections <sup>1</sup>	Case-control	195	None	>90% of scars showed moderate to marked improvement in 3 wk	Only study with control group; no controls showed improvement
Triamcinolone injections plus excision <sup>2</sup>	Case series	58	None	100% of patients were symptom-free in 5 wk	No recurrences in 91.9% of keloids and 95.2% of hypertrophic scars at a mean follow-up of 30.5 mo
Cryotherapy study 1 <sup>3</sup>	Case series	119	Only fair-skinned patients	61.3% of patients had good to excellent results; most patients needed ≥3 treatments. Hypertrophic scars responded better than keloids	Side effect of hypopigmentation limits use of this therapy in dark-skinned patients  Lesions <2 y responded better than older scars ( $P<.5$ ); no recurrences were noted
Cryotherapy study 2 <sup>4</sup>	Case series	65	None	Complete flattening in 73% of scars; improvement in 17%	All lesions that responded showed hypopigmentation that persisted in mean 31-mo follow-up  6 lesions didn't respond; all had been present >2 y
Silicone gel products <sup>5</sup>	Cochrane review	NA	NA	Weak evidence of reduction in scar thickness and color	Poor-quality studies, highly susceptible to bias

NA, not applicable.

### References

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