

Supplementary Material S4
Risk-of-Bias Assessment of Studies Evaluating Topical Insulin for Atrophic Acne Scars

A. Randomized controlled trials: RoB 2

Table S4.1. RoB 2 judgments by Reviewer 1.

Study	Randomization process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
<i>Abdelhay 2025</i>	Low	Low	Low	Low	Low	Low
<i>Rageh 2025</i>	Low	Some concerns	Low	Low	Low	Some concerns
<i>Rattananukrom 2025</i>	Low	Low	Low	Low	Low	Low
<i>Saki 2025</i>	Low	Low	Low	Low	Low	Low
<i>Mubeen 2023</i>	Some concerns	Some concerns	Low	Some concerns	Low	Some concerns
<i>Gahlot and Hussain 2025</i>	Some concerns	Low	Low	Some concerns	Some concerns	Some concerns
<i>Peng 2026</i>	Low	Low	Low	Some concerns	Some concerns	Some concerns

Table S4.2. RoB 2 judgments by Reviewer 2.

Study	Randomization process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
<i>Abdelhay 2025</i>	Low	Low	Low	Low	Low	Low
<i>Rageh 2025</i>	Low	Some concerns	Low	Low	Some concerns	Some concerns
<i>Rattananukrom 2025</i>	Low	Low	Low	Low	Low	Low
<i>Saki 2025</i>	Low	Low	Low	Low	Low	Low
<i>Mubeen 2023</i>	Some concerns	Some concerns	Low	High	Some concerns	High
<i>Gahlot and Hussain 2025</i>	Some concerns	Some concerns	Low	High	Some concerns	High
<i>Peng 2026</i>	Low	Some concerns	Low	Low	Some concerns	Some concerns

Table S4.3. RoB 2 consensus judgments after resolution of discrepancies.

Study	Randomization process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
<i>Abdelhay 2025</i>	Low	Low	Low	Low	Low	Low
<i>Rageh 2025</i>	Low	Some concerns	Low	Low	Some concerns	Some concerns
<i>Rattananukrom 2025</i>	Low	Low	Low	Low	Low	Low
<i>Saki 2025</i>	Low	Low	Low	Low	Low	Low
<i>Mubeen 2023</i>	Some concerns	Some concerns	Low	High	Some concerns	High
<i>Gahlot and Hussain 2025</i>	Some concerns	Low	Low	Some concerns	Some concerns	Some concerns
<i>Peng 2026</i>	Low	Low	Low	Some concerns	Some concerns	Some concerns

B. Non-randomized studies of interventions: ROBINS-I V2**Table S4.4.** ROBINS-I V2 judgments by Reviewer 1 (all included non-randomized studies).

Study	Confounding	Selection of participants	Classification of intervention	Deviations from intended interventions	Missing data	Measurement of outcomes	Selection of the reported result	Overall
<i>Abbas 2022</i>	Moderate	Low	Low	Low	Low	Low	Moderate	Moderate
<i>Ali 2024</i>	Moderate	Low	Low	Low	Low	Serious	Moderate	Serious
<i>Karkour 2025</i>	Serious	Low	Low	Serious	Low	Serious	Moderate	Serious
<i>Malik 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate
<i>Mohamed 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate
<i>Mohta 2024</i>	Serious	Low	Low	Low	Low	Serious	Serious	Serious
<i>Pawar 2022</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate

Table S4.5. ROBINS-I V2 judgments by Reviewer 2.

Study	Confounding	Selection of participants	Classification of intervention	Deviations from intended interventions	Missing data	Measurement of outcomes	Selection of the reported result	Overall
<i>Abbas 2022</i>	Moderate	Low	Low	Low	Low	Moderate	Low	Moderate
<i>Ali 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Low	Moderate

<i>Karkour 2025</i>	Serious	Low	Low	Serious	Low	Serious	Moderate	Serious
<i>Malik 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate
<i>Mohamed 2024</i>	Low	Low	Low	Low	Low	Moderate	Low	Moderate
<i>Mohta 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Serious	Serious
<i>Pawar 2022</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate

Table S4.6. ROBINS-I V2 consensus judgments after resolution of discrepancies.

Study	Confounding	Selection of participants	Classification of intervention	Deviations from intended interventions	Missing data	Measurement of outcomes	Selection of the reported result	Overall
<i>Abbas 2022</i>	Moderate	Low	Low	Low	Low	Low	Low	Moderate
<i>Ali 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate
<i>Karkour 2025</i>	Serious	Low	Low	Serious	Low	Serious	Moderate	Serious
<i>Malik 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate
<i>Mohamed 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate
<i>Mohta 2024</i>	Moderate	Low	Low	Low	Low	Moderate	Serious	Serious
<i>Pawar 2022</i>	Moderate	Low	Low	Low	Low	Moderate	Moderate	Moderate

Abbreviations: RoB 2, version 2 of the Cochrane risk-of-bias tool for randomized trials; ROBINS-I V2, Risk Of Bias In Non-randomized Studies - of Interventions, version 2.