

Online Resource 5. Risk-of-Bias Assessment

Article title: Incidence of Hypertrophic Scarring After Non-Burn Surgery in Children: A Systematic Review and Meta-analysis

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Caption: Study-level risk-of-bias judgments and supporting rationale across all assessed domains.

Risk-of-bias tool

Risk of bias was assessed with an incidence-focused traffic-light tool adapted from prevalence-study appraisal domains and nonrandomized-study bias concepts. Domains were population selection, pediatric eligibility clarity, outcome measure, denominator/follow-up clarity, confounding or selection concerns, and overall judgment.

Judgment definitions

Low risk: the domain was clearly reported and unlikely to bias incidence estimation. Some concerns: the domain was extractable but had limitations such as retrospective ascertainment, variable follow-up, or incomplete standardization. High risk: the domain had major limitations likely to affect interpretation, such as very small uncontrolled series or substantial selection concern. Disagreements were resolved by reviewer consensus.

Study	Selection	Pediatric clarity	Outcome measure	Denominator / follow-up	Confounding	Overall	Supporting rationale
Hayden 2026	Low	Low	Some concerns	Low	Some concerns	Some concerns	Selection: low due to large clearly defined cohort. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: some concerns because hypertrophic scar was reported as a complication without standardized scar-scale detail. Denominator/follow-up: low because denominator and follow-up were clear enough for incidence calculation. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Haws 2025	Some concerns	Low	Some concerns	Some concerns	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: some concerns because hypertrophic scar was reported as a complication without standardized scar-scale detail. Denominator/follow-up: some concerns because denominator and follow-up were extractable but follow-up timing or denominator unit varied. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Mendenhall 2025	Some concerns	Low	Some concerns	Some concerns	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: some concerns because hypertrophic scar was reported as a complication without standardized scar-scale detail. Denominator/follow-up: some concerns because denominator and follow-up were extractable but follow-up timing or denominator unit varied. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
D'Souza 2019	High	Low	Low	Some concerns	High	Some concerns	Selection: high due to small rare-condition case series. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: some concerns because denominator and follow-up were extractable but follow-up timing or denominator unit varied. Confounding: high because the cohort was small and uncontrolled. Overall: some concerns based on domain-level judgments.

Study	Selection	Pediatric clarity	Outcome measure	Denominator / follow-up	Confounding	Overall	Supporting rationale
Fischer 2014	Some concerns	Low	Low	Low	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: low because denominator and follow-up were clear enough for incidence calculation. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Alvarez Vega 2025	Some concerns	Low	Low	Low	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: low because denominator and follow-up were clear enough for incidence calculation. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Vergara 2024	Some concerns	Low	Low	Some concerns	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: some concerns because denominator and follow-up were extractable but follow-up timing or denominator unit varied. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Zhang 2022	Some concerns	Low	Some concerns	Some concerns	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: some concerns because hypertrophic scar was reported as a complication without standardized scar-scale detail. Denominator/follow-up: some concerns because denominator and follow-up were extractable but follow-up timing or denominator unit varied. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Binet 2020	Some concerns	Low	Low	Some concerns	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: some concerns because denominator and follow-up were extractable but follow-up timing or denominator unit varied. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Chan 2015	Some concerns	Low	Low	Low	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: low because denominator and follow-up were clear enough for incidence calculation. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Ersan 2012	Some concerns	Low	Some concerns	Low	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: some concerns because hypertrophic scar was reported as a complication without standardized scar-scale detail. Denominator/follow-up: low because denominator and follow-up were clear enough for incidence calculation. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.
Pankaj 2006	High	Low	Low	Low	High	Some concerns	Selection: high due to small rare-condition case series. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: low because denominator and follow-up were clear enough for incidence calculation. Confounding: high because the cohort was small and uncontrolled. Overall: some concerns based on domain-level judgments.
Yousef 2023	Some concerns	Low	Low	Low	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: low because denominator and follow-up were clear enough for incidence calculation. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.

Study	Selection	Pediatric clarity	Outcome measure	Denominator / follow-up	Confounding	Overall	Supporting rationale
Sidhu 2022	Some concerns	Low	Low	Some concerns	Some concerns	Some concerns	Selection: some concerns due to retrospective or procedure-specific sampling. Pediatric clarity: low risk because the cohort was pediatric or skeletally immature. Outcome measure: low because hypertrophic scar was explicitly reported. Denominator/follow-up: some concerns because denominator and follow-up were extractable but follow-up timing or denominator unit varied. Confounding: some concerns because observational designs limited adjustment for patient, wound, and technique factors. Overall: some concerns based on domain-level judgments.