

Minimally Invasive SI Joint Fusion Procedures for Chronic SI Joint Pain: Systematic Review and Meta-Analysis of Safety and Efficacy

Whang PG, Patel V, Duhon B, Stureson B, Cher D, Reckling WC, Capobianco R, Polly D.

Int J Spine Surg. 2023 Dec 26;17(6):794-808.



KEY POINTS

• Surgical Techniques and Cohorts:

Lateral Transiliac (LTI) = 43 cohorts (2126 patients)

Posterolateral Transiliac (PLTI) = 6 cohorts (228 patients)

Posterior Interpositional (PI) = 8 cohorts (497 patients)

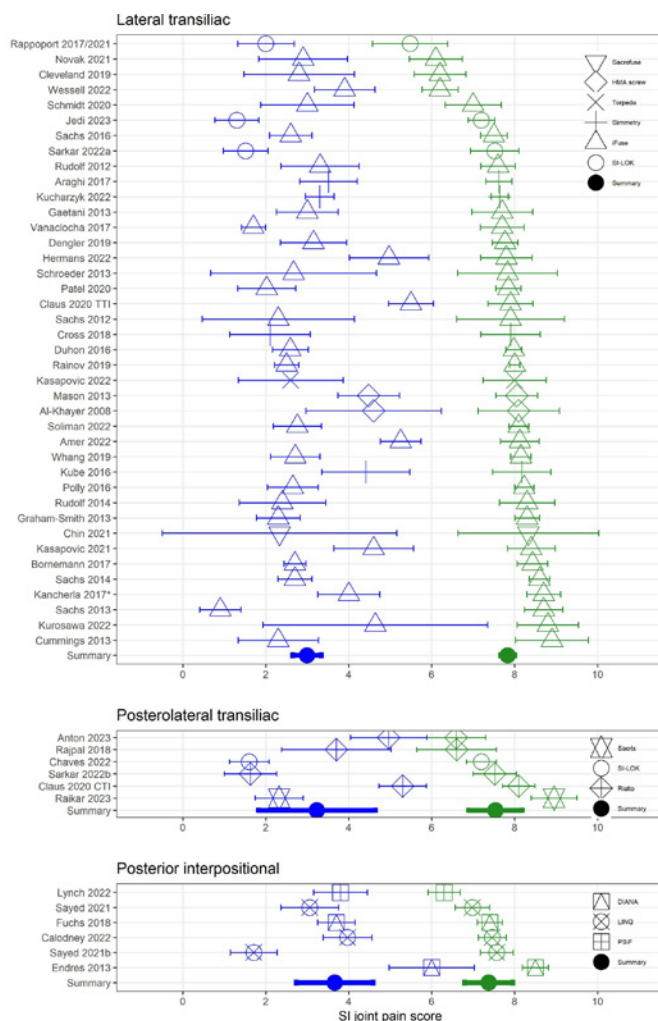
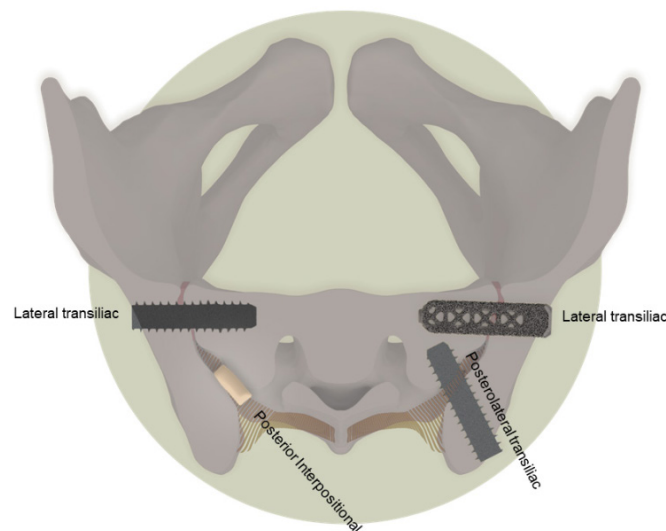
	Implant	Pain Patients (%)	ODI Patients (%)	Safety Patients (%)
LTI	iFuse	1605 (75.5)	1161 (73.3)	1637 (69.6)
	Simmetry	288 (13.5)	269 (17.0)	288 (12.3)
	SI-LOK	136 (6.4)	72 (4.5)	157 (6.7)
	HMA screw	79 (3.7)	9 (0.6)	79 (3.4)
	other	17 (0.8)	73 (4.6)	190 (8.1)
PLTI	Rialto	122 (68.9)	135 (100.0)	240 (75.7)
	SI-LOK	36 (20.3)	-	55 (17.4)
	Sacrix	19 (10.7)	-	19 (6.0)
	Sacrofuse	-	-	3 (0.9)
PI	LinQ	237 (53.9)	69 (26.6)	237 (47.7)
	DIANA	190 (43.2)	190 (73.4)	190 (38.2)
	Threaded Cage	13 (3.0)	-	13 (2.6)
	PSiF	-	-	57 (11.5)

• All studies reported improvement in pain and disability. LTI provided the largest mean improvements:

	Pain Improvement Points (95% CI)	ODI Improvement Points (95% CI)
LTI	4.8 (4.5-5.2)	25.8 (22.8-28.9)
PLTI	4.2 (2.6-5.8)	6.8 (4.0-9.6)
PI	3.8 (2.9-4.7)	16.3 (12.0-20.6)

• All studies showed good safety profiles

	LTI	PLTI	PI
Acute Implant Malposition	0.43%	0%	0.2%
Bleeding	0.04%	0%	0%
Device Removal	0.06%	1.1%	0.48%



SI Joint Pain – green (baseline), last follow-up (blue)

[Figure 2 of publication]

Minimally Invasive SI Joint Fusion Procedures for Chronic SI Joint Pain: Systematic Review & Meta-Analysis of Safety and Efficacy

PUBLISHED ABSTRACT

Background: Sacroiliac (SI) joint fusion is increasingly used to treat chronic SI joint pain. Multiple surgical approaches are now available.

Methods: Data abstraction and random effects meta-analysis of safety and efficacy outcomes from published patient cohorts. Patient-reported outcomes (PROs) and safety measures were stratified by surgical technique: transiliac, including lateral transiliac (LTI) and posterolateral transiliac (PLTI), and posterior interpositional (PI) procedures.

Results: Fifty-seven cohorts of 2851 patients were identified, including 43 cohorts (2126 patients) for LTI, 6 cohorts (228 patients) for PLTI, and 8 cohorts (497 patients) for PI procedures. Randomized trials were only available for LTI. PROs were available for pain (numeric rating scale) in 57 cohorts (2851 patients) and disability (Oswestry Disability Index [ODI]) in 37 cohorts (1978 patients).

All studies with PROs showed improvement from baseline after surgery. Meta-analytic improvements in pain scores were highest for LTI (4.8 points [0–10 scale]), slightly lower for PLTI (4.2 points), and lowest for PI procedures (3.8 points, $P = 0.1533$). Mean improvements in ODI scores were highest for LTI (25.9 points), lowest for PLTI procedures (6.8 points), and intermediate for PI (16.3 points, $P = 0.0095$).

For safety outcomes, acute symptomatic implant malposition was 0.43% for LTI, 0% for PLTI, and 0.2% for PI procedures. Wound infection was reported in 0.15% of LTI, 0% of PLTI, and 0% of PI procedures. Bleeding requiring surgical intervention was reported in 0.04% of LTI procedures and not reported for PLTI or PI. Breakage and migration were not reported for any device. Radiographic imaging evaluation reporting implant placement accuracy and fusion was only available for LTI.

Conclusions: Literature support for SI joint fusion is growing. The LTI procedure contains the largest body of available evidence and shows the largest improvements in pain and ODI. Only LTI procedures have independent radiographic evidence of fusion and implant placement. The adverse event rate for all procedures was low.

Keywords: minimally invasive surgery, sacroiliac joint, sacroiliac joint fusion, lateral transiliac, systematic review, meta-analysis



Research described herein was supported in part by SI-BONE.

Healthcare professionals please refer to the Instructions For Use for indications, contraindications, warnings, and precautions at www.si-bone.com/label.

There are potential risks associated with iFuse procedures. They may not be appropriate for all patients and all patients may not benefit. For information about the risks, please visit www.si-bone.com/risks

SI-BONE is a registered trademark and SacroPelvic Solutions is a trademark of SI-BONE, Inc. ©2024 SI-BONE Inc. All rights reserved.

si-bone.com

SI-BONE, Inc.
471 El Camino Real
Suite 101
Santa Clara, CA 95050
U.S.A.

t. 408-207-0700
f. 408-557-8312
info@si-bone.com
www.si-bone.com

US

11452.021524