ISAKOS CONGRESS 2023

Boston
Massachusetts
June 18–June 21

INCONCLUSIVE EVIDENCE THAT ARTHROSCOPIC TECHNIQUES YIELD BETTER OUTCOMES THAN OPEN TECHNIQUES FOR SUBTALAR ARTHRODESIS

A SYSTEMATIC REVIEW

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DISCLOSURES

- The authors have no relevant financial or non-financial interests to disclose.
- The authors have no conflicts of interest to declare

IMPORTANCE

- There has been a paradigm shift from ISTA(Open in situ Subtalar arthrodesis) to arthroscopic sub-talar arthrodesis (ASTA) over the past two decades due to increase in number of surgeons performing arthroscopy worldwide.

- However, there is only limited evidence in the existing literature to substantiate the benefit of this change with regards to patient benefit.

- This is the *first systematic review* compare the results of the open ISTA and ASTA for subtalar arthrodesis (STA).

Aim of the study

To determine the superior technique for performing STA by comparing:

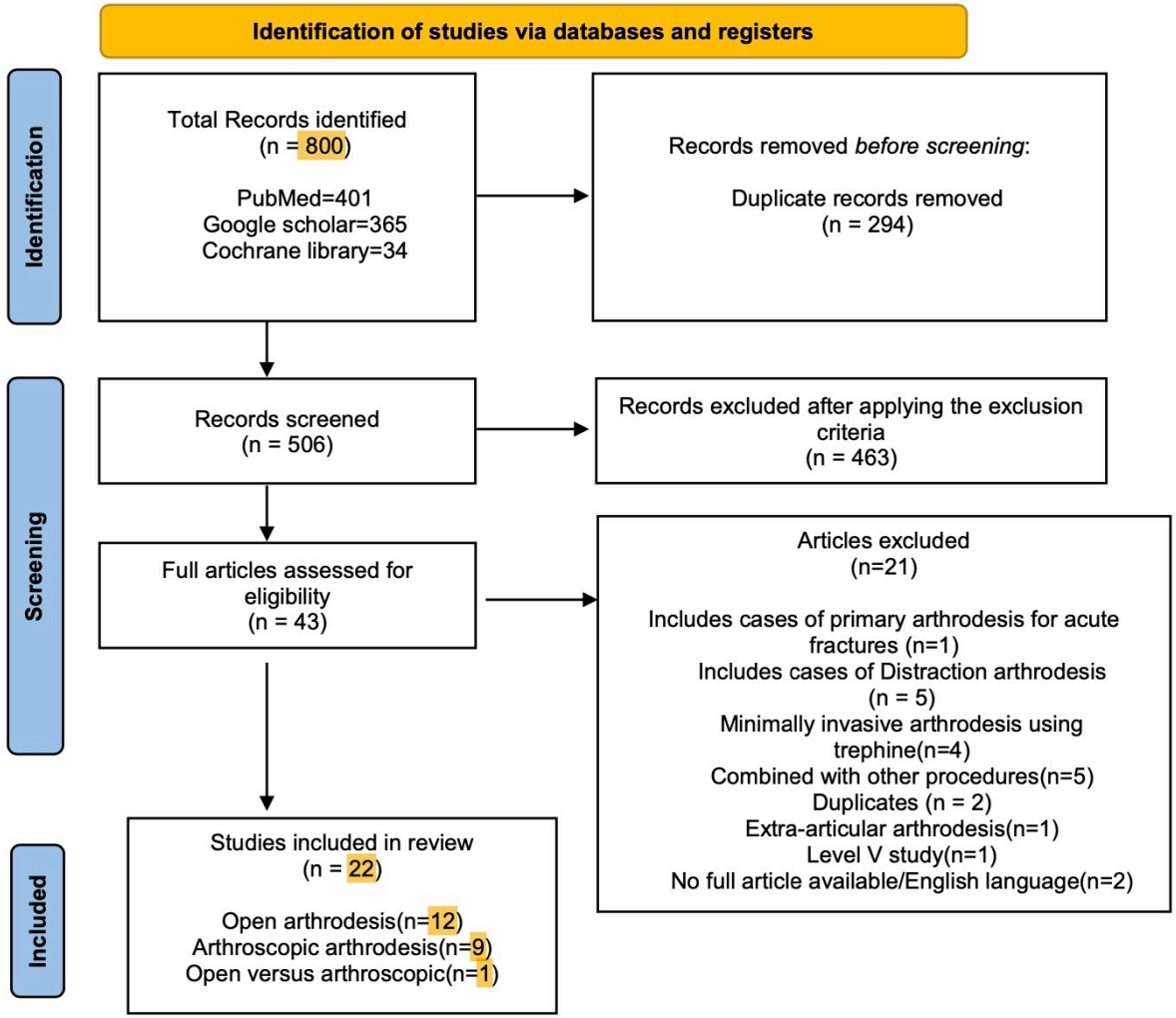
- Outcomes,
- Union rates
- Complications

Between open and arthroscopic approach for in situ STA

PRISMA 2020 flow chart

Three Databases employed

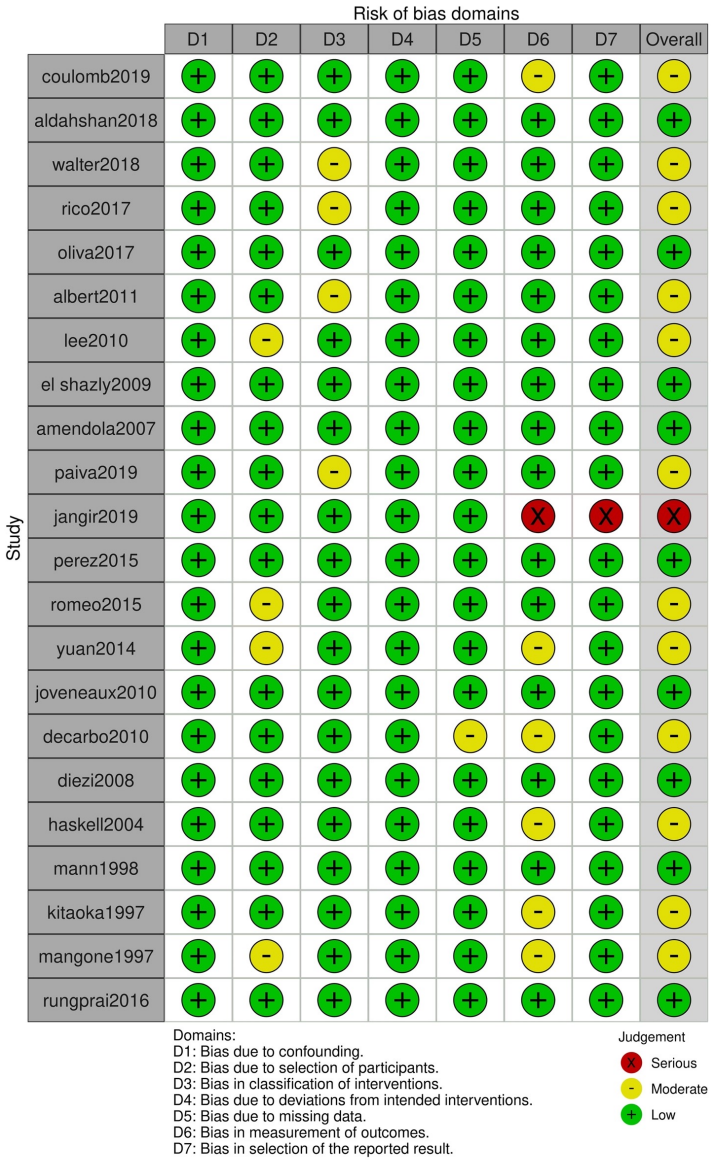
- MEDLINE/PubMed
- Cochrane library
- Google scholar



Results

- We included a total of ***22 studies*** with a total of 978(***ASTA-310, ISTA-668***) patients in the review.

- The most common indication for both techniques was post traumatic subtalar arthritis due to malunited calcaneal fracture in both groups (54.5%).



The Risk of Bias in Non-randomized Studies of Interventions (ROBINS-I)

- ROBINS assessment revealed majority studies included were prospective/retrospective level III/IV studies. NO RCT's
- 12 studies had only moderate ROB in at least one domain making them comparable to a well conducted non randomized study.

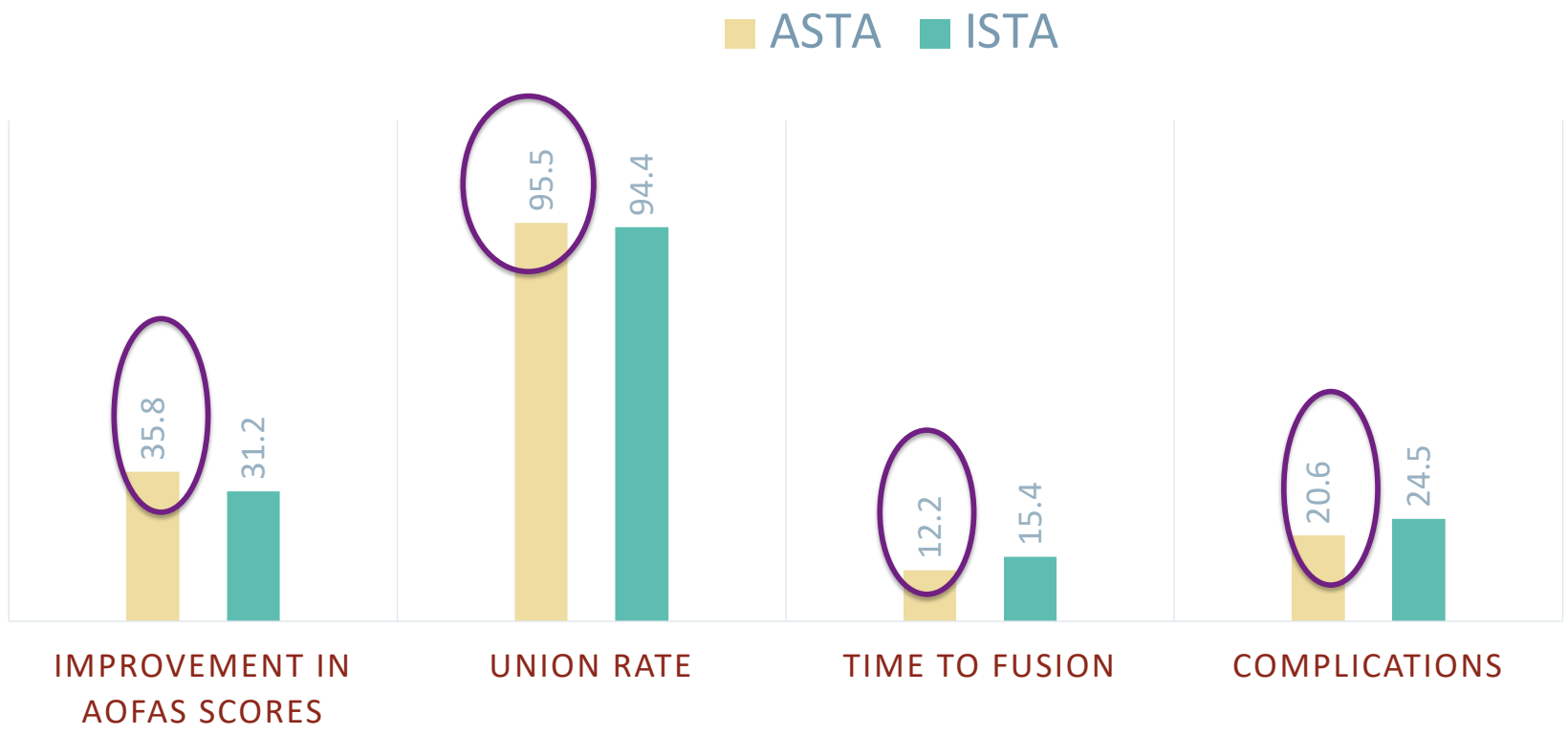
Demographic details

Author(year)	LOE	Portals/Approach	No. of Patients	No. of feet	Mean Age (years)	Sex Ratio (M:F)	Duration to surgery (months)	Follow-up (m)
				ASTA				
coulomb2019	IV	P2P	22	22	49.5	16:6	67.7(8-468)	24.1(12-38)
aldahshan201	IV	P2P	15	15	38	13:2	24(6-36)	36(30-38)
walter2018	IV	Sinus tarsi/lateral 2 portals	74	77	53.4	44:30	NR	15.3
rico2017	III	P2P	65	65	50	38:27	NR	57.5(24-105)
oliva2017	IV	P2P	19	19	50.9	12:7	NR	42.9(15.5-68)
albert2011	IV	P2P	10	10	37.8	6:4	NR	21.5(12-31)
lee2010	IV	P2P	16	16	44	16:0	NR	30(20-46)
el shazly2009	IV	Lateral- 3portal	10	10	42	8:2	NR	28.4(24-32)
amendola2007	IV	P3P	10	11	41	5:5	45(11-168)	34(24-48)
				ASTA VERSUS ISTA				
rungprai2016 (ASTA/Open)	III	PASTA/Lateral	69/60	60/69	47.6	67:54	66.8(6-126)	23.7(6-126)

Abbreviations: ASTA-Arthroscopic subtalar arthrodesis, ISTA- open in situ subtalar arthrodesis, LOE-Level of evidence,P2P-Posterior two portal, P3P-Posterior three portal, NR- Not Reported

ISTA								
Author(year)	LOE	Portals/Approach	No. of Patients	No. of feet	Mean Age (years)	Sex Ratio (M:F)	Duration to surgery (months)	Follow-up (m)
paiva2019(32)	III	Lateral	80	80	47.6	63:17	NR	23.2(14.8-54.1)
jangir2019((9)	IV	Lateral	12	12	39	9:3	NR	22(20-24)
perez2015(28)	III	Lateral	33	33-Total 17(screws), 16(staples)	57	26:7	NR	43(24.5-84.3)
Romeo2015(29)	III	Lateral	33	33	41.5	22:11	NR	44(14-70)
yuan2014(27)	III	A: Lateral, B: Sinus tarsi, C: Posterolateral	102	102	43.2	64:38	38(1-360)	NR
joveneaux2010(30)	IV	Lateral	26	28	48	19:16	NR	NR
decarbo2010(33)	IV	Lateral	113	113	49	54:59	NR	24
diezi2008(31)	IV	Lateral	12	15	45.3	6:6	NR	33(24-47)
haskell2004(34)	III	Lateral	100	101	52	48:52	NR	NR
mann1998(3)	III	Lateral	44	48	41	18:26	42(12-156)	59.5(24-177)
kitaoka1997(35)	IV	Lateral	21	21	60	18:3	NR	36(24-60)
mangone1997(42)	IV	Lateral	32	34	53	16:16	NR	30.8(16-55)

WEIGHTED AVERAGE MEAN VALUES



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Discussion

- Though better functional outcomes were observed in patients undergoing ASTA, ***a conclusive opinion cannot be based on existing evidence due to lack of statistical analysis.***

- The overall fusion rate & time to fusion was also better in the ASTA group than in the ISTA group.

  11 studies in our review have employed plain radiographs, using CT scans only in case of doubt to assess union. *This result could have been validated better if there was uniformity in the usage of plain radiographs or CT scans across the studies for reporting union.*

Conclusion

- From the existing literature, ***our review suggests that both ASTA and ISTA techniques are effective procedures for STA***.
- ***However, there is no conclusive evidence to recommend one technique over another.***
- High quality randomised studies may be further required to clearly define the superiority of one technique over another.

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