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Title: Factors that Predict Success Rate and Return to Sport in Arthroscopic Patellar Tendinopathy Surgery: A Systematic Review

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Background

- Patellar Tendinopathy is characterized by pain and tenderness of inferior patella and proximal patellar tendon^{1,2}
- Conservative management options often first line; refractory cases are often treated arthroscopically
- Common arthroscopic procedures: shaving dorsal proximal tendon, tendon debridement, debriding Hoffa's fat pad, and patellar bony work^{3,4,5,6,7,8}



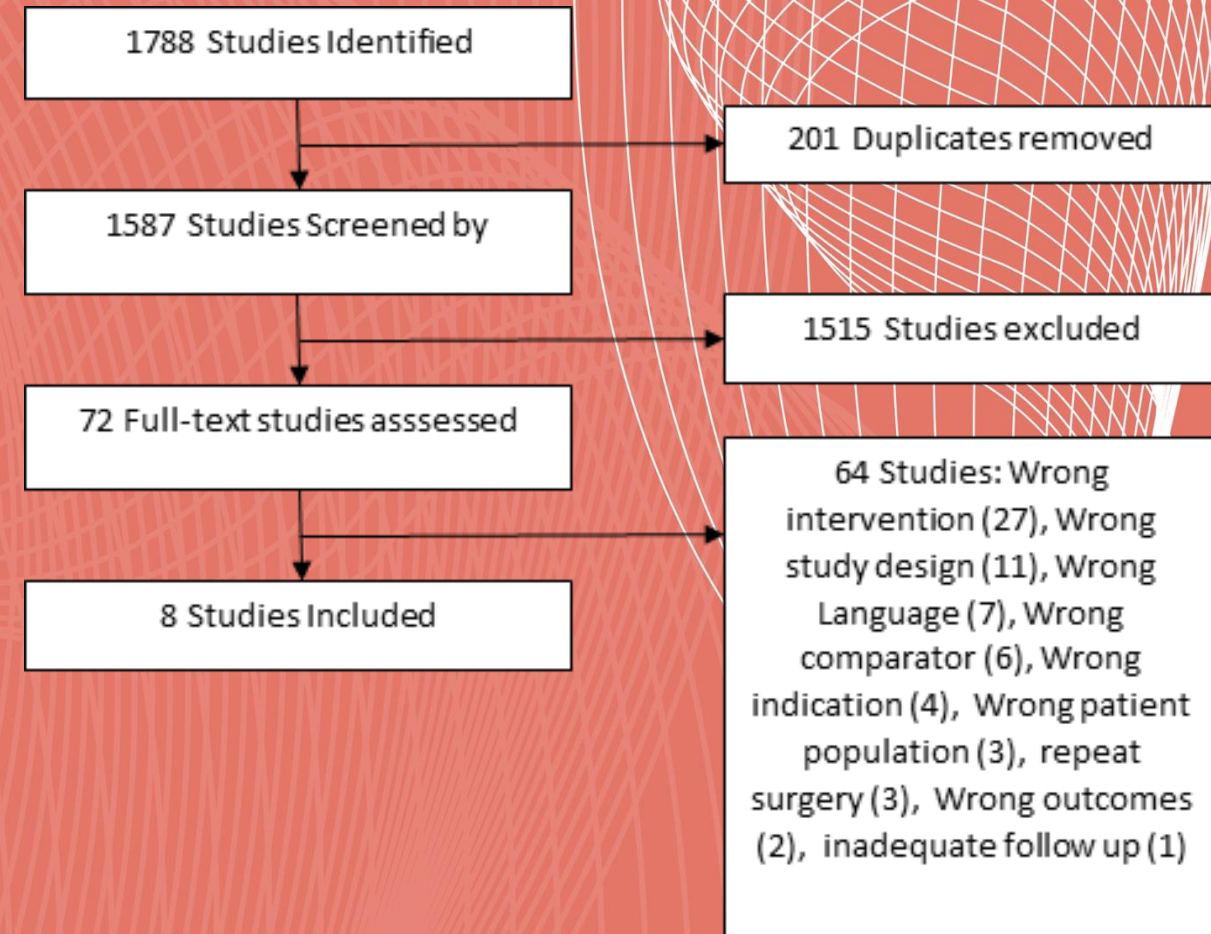
Background

- It is not well-defined how certain factors (ie demographics, surgical techniques, or postoperative protocols) influence success of procedures
- Aim: Compare metrics of success based on several perioperative factors for arthroscopic management of patellar tendinopathy (Jumper's Knee) refractory to conservative management.



Materials & Methods

- PubMed, Embase, CINAHL, Scopus, and Cochrane databases searched
- Inclusion criteria:
 - Published date 2000-Jan 2022, Arthroscopic intervention, prospective study design, Follow up > 6 months, Reported quantifiable outcomes measures
- Exclusion Criteria:
 - LOE < IV, Studies on revision surgeries, Methods Papers
- Data analyzed without meta-analysis due to heterogeneity of surgical techniques.
- Variables compared: Duration of symptoms (DOS), Patellar Bony Work (PBW), Hoffa's fat pad debridement (HFPD), and Post-Op Immobilization (POI)



Results – Summary Table

Paper	n	Follow-up (months)	DOS	PBW	HFPD	POI	Success (%)	RTS Rate (%)	RTS Time (months)	VISA-P Improvement	Lysholm Improvement	Technique Notes
Andonovski et al. (2020)	14	12.2 (±0.9)	n/r	+	+	+	85.7	85.7	3.9 (±0.8)	44.6 (±7.3)	42.3	Arthroscopic debridement of Hoffa fat pad, debridement and resection of the abnormal lower patellar pole
Alaseirlis et al. (2012)	11	17.4 (±4)	13.5	+	+	+	81.2	100	3* (N/R)	45.6 (±13.1)	42.6	Arthroscopic debridement of Hoffa fat pad, proximal posterior patella tendon, with osteoplasty of the distal patellar pole, cauterization of neovessels
Lee et al. (2018)	37	51.3 (±14.8)	8.4	+	+	-	94.8	86.5	3.5 (±1.7)	39.7 (±11.8)	43.5	Arthroscopic patellar tendon and Hoffa's debridement, decortication of inferior patellar pole
Pestka et al. (2018)	54	79 (24-216)	n/r	-	+	-	100.0	92.6	3 (N/R)	45.2 (±7.2)	N/R	Arthroscopic ablation probe to release inferior patellar pole (Ogon Release)
Maier et al. (2013)	30	52.8 (±36)	n/r	-	+	-	80.0	90	4.4 (±3.3)	37.8 (±10.2)	N/R	Arthroscopic patellar release with focal synovectomy and fat pad resection, denervation of patellar pole
Pascarella et al. (2011)	73	36 (n/r)	15.7	-	+	-	88.5	88.8%	5 (N/R)	35.4 (±3.8)	43.2	Arthroscopic debridement of Hoffa fat pad and abnormal tendon with shaver, excised part of patella, osteophyte removal
Willberg et al. (2007)	15	6 (n/r)	27	-	-	-	86.7	100	2.2 (±0.56)	N/R	N/R	Arthroscopic shaving of diseased dorsal proximal tendon and neovessels, calcified tendon and osteophyte removal
Willberg et al. (2011)	26	12.9 (±7.8)	23.8	-	-	-	86.8	N/R	N/R	N/R	N/R	Ultrasound/Color doppler (US/CD) guided arthroscopic shaving of high-flow neovessels

Results – VISA-P and Success Rates

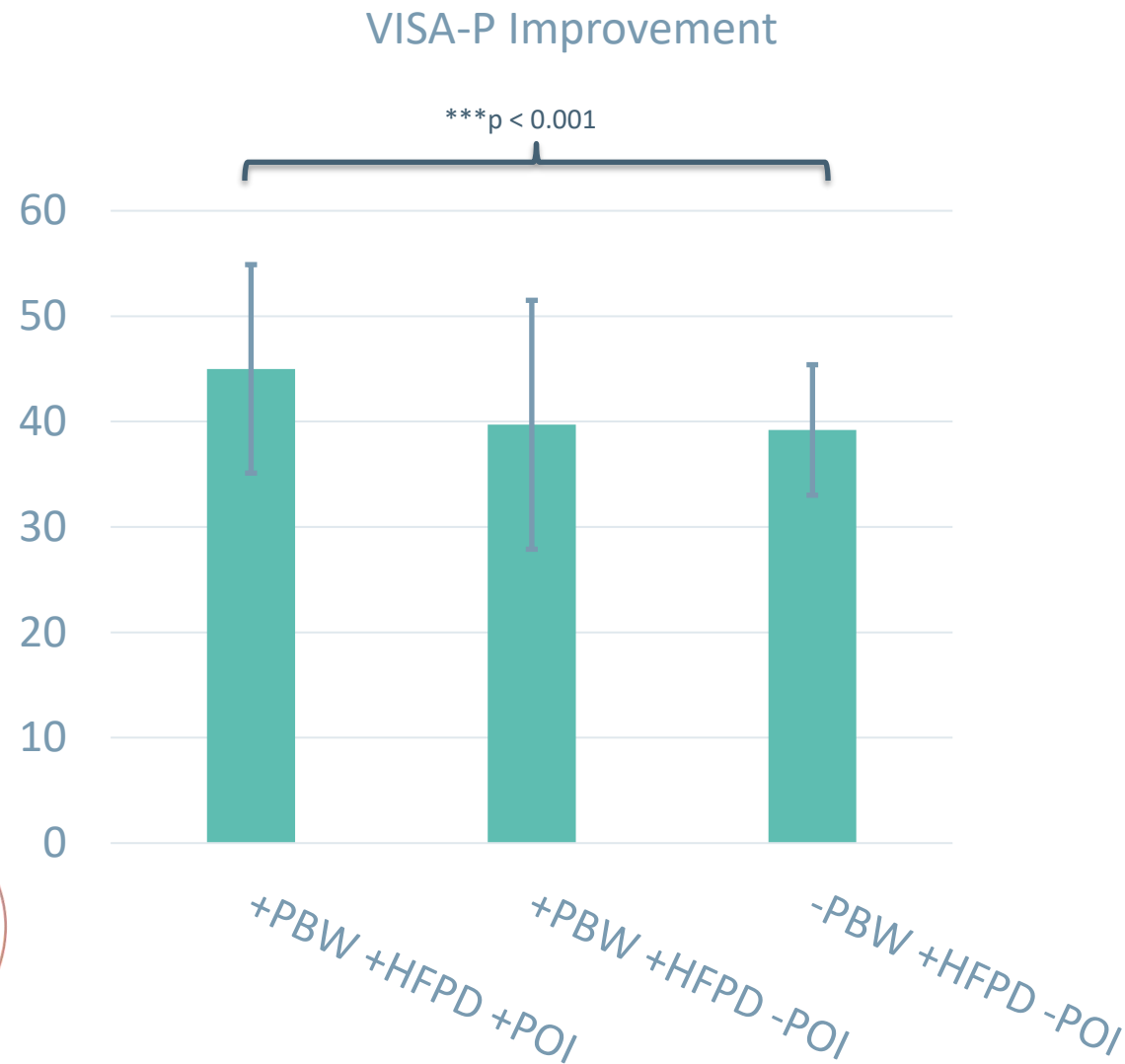


Figure 1. VISA-P scores significantly improved with extra interventions.
 *note no VISA-P reported for studies that were –PBW –HFPD –POI.
 Non-illustrated comparisons were not significant

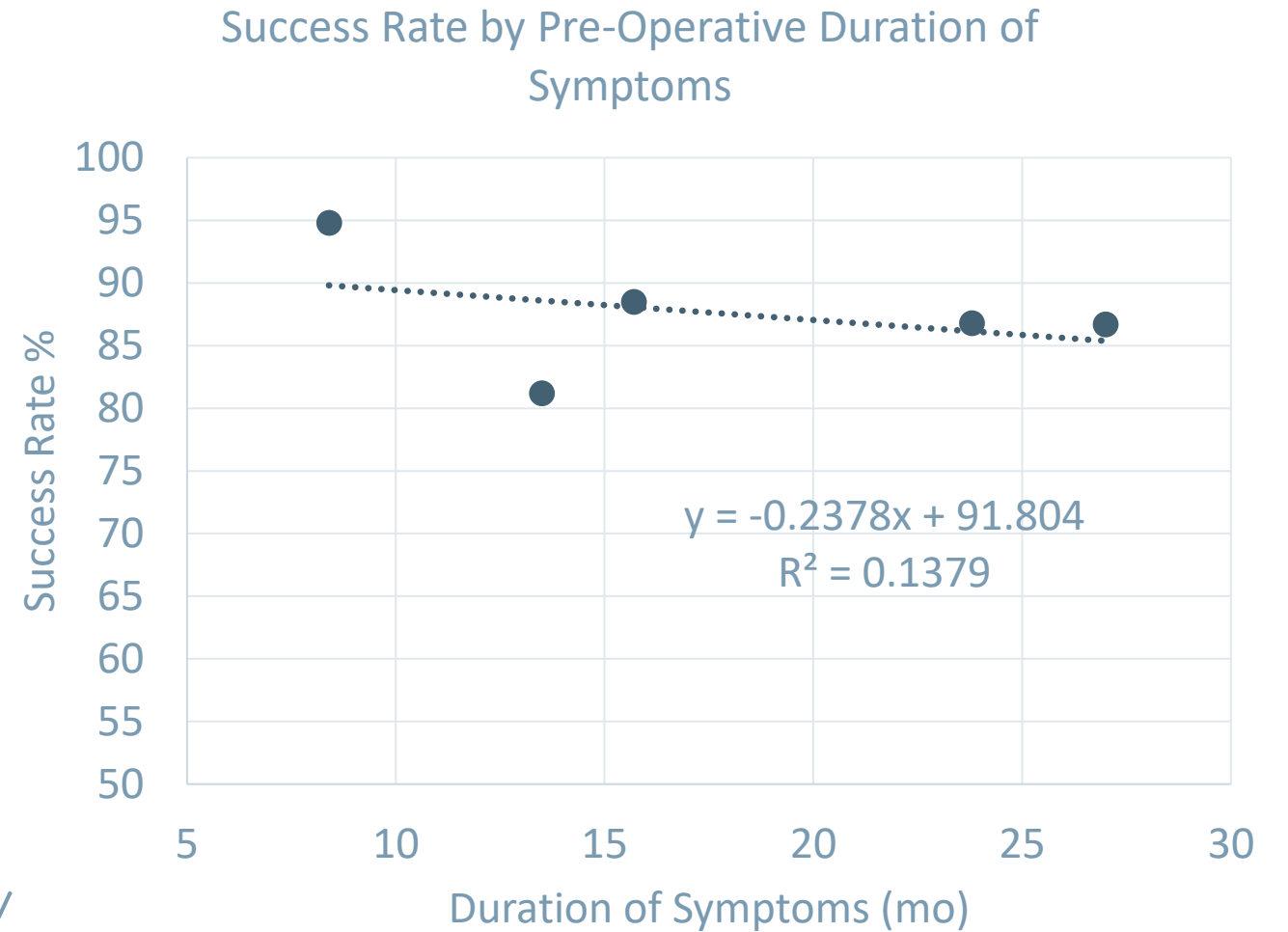


Figure 2. Success rate weakly trends down with longer pre-operative duration of symptoms

Results – Return to Sport Analysis

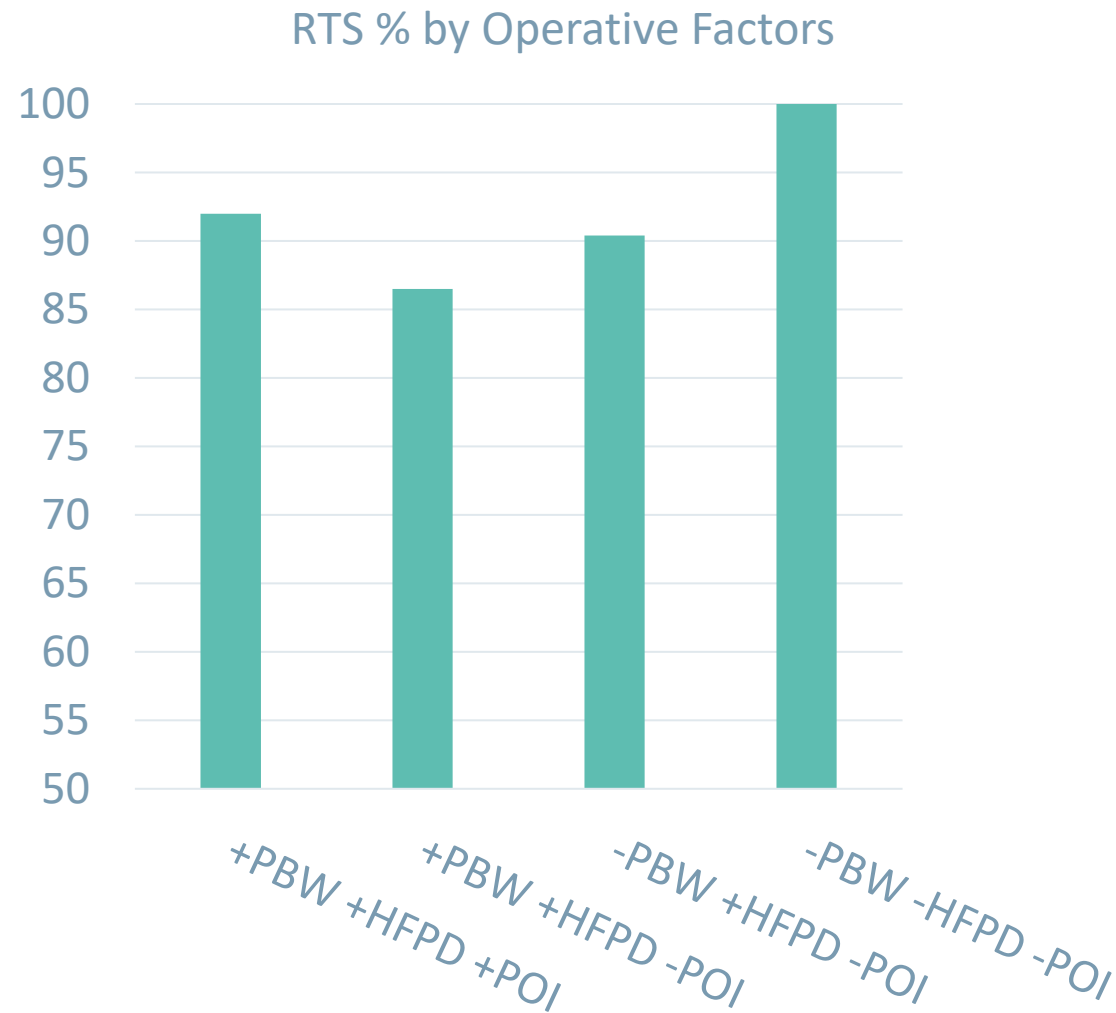


Figure 3. Average RTS rate as reported by intervention groups

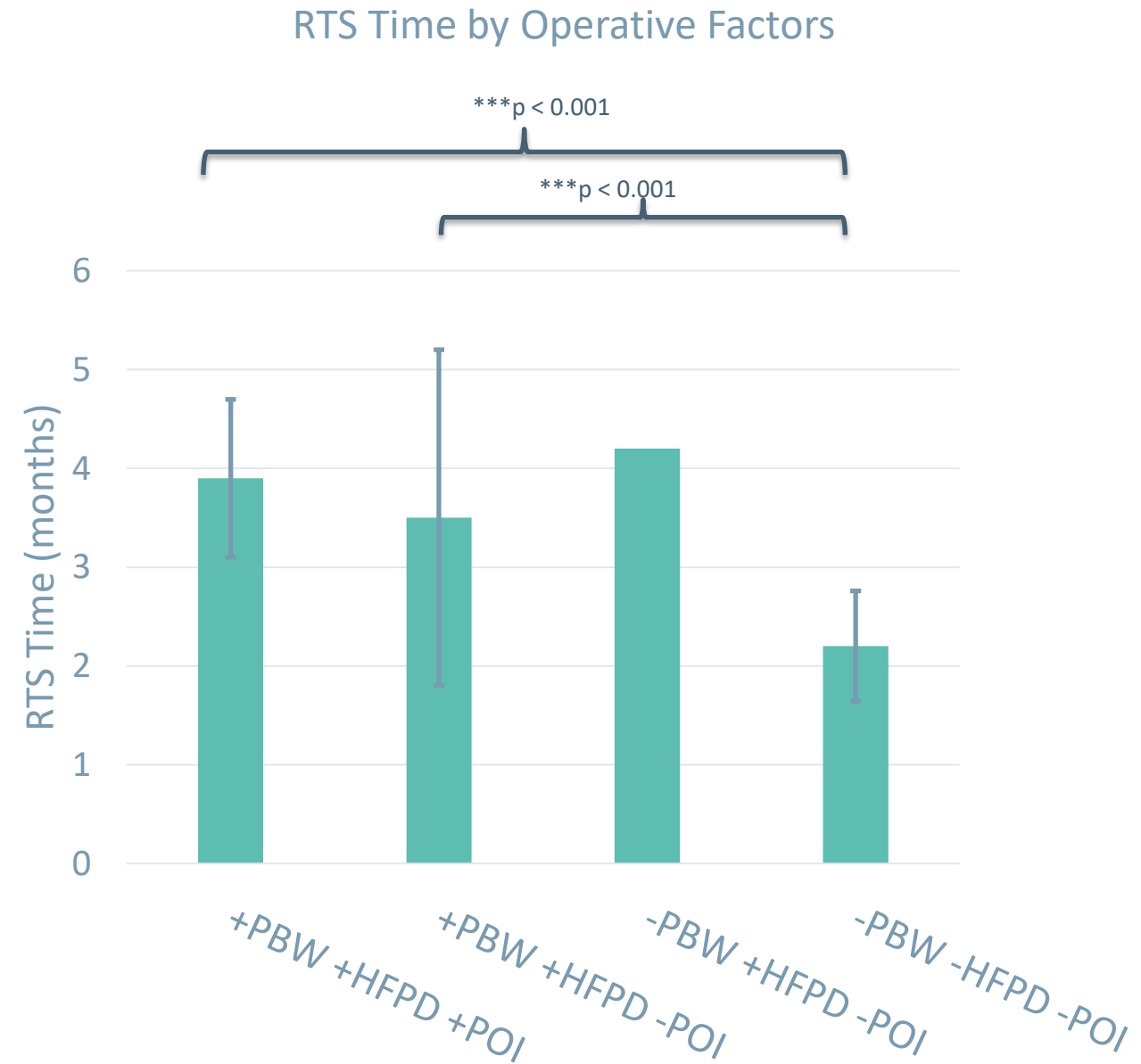


Figure 4. RTS time is significantly lower in the absence of studied interventions. No error could be calculated for group 3 due to under-reporting of SD by 2/3 studies. Non-illustrated comparisons were not significant



Results

Most important finding: Concomitant PBW with HFPD with 3 weeks POI may yield larger VISA-P score increases, but may come at the expense of rapid RTS time.



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Conclusions

- Arthroscopic management with concomitant PBW, HFPD, and ~3 weeks POI as seen in the studies may yield higher VISA-P improvement
- Faster RTS is appreciated in the absence of PBW, HFPD, and POI
- No significant trend is seen between pre-operative DOS and Success rate
- Further study with randomized controlled trials are necessary before definitive surgical conclusions can be made due to heterogeneity of current data and possible confounding of variables



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Thank You!

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