

Open Versus Percutaneous Techniques and Time to Surgery for Achilles Rupture Repairs

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Disclosures

- No relevant disclosures

Background

- Achilles tendon ruptures
 - Can be Challenging injuries
 - Operative treatment preferred in athletes
 - Complications following surgery can lead to poor outcomes
 - Impact of time to surgery on outcomes is unknown



Source: Mayo Clinic

Surgical Techniques

- Open repair and percutaneous repair both supported in early investigations.
- More research and outcomes needed

Clinical Outcomes and Complications of Percutaneous Achilles Repair System Versus Open Technique for Acute Achilles Tendon Ruptures

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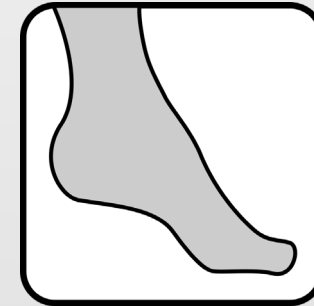
Hsu et al., 2015, FAI

- 270 Achilles repairs
 - 101 percutaneous vs 169 open
- No differences in
- Re-ruptures
 - Sural nerve injury
 - Wound complications
- Perc more likely to return to activities by 5 months



Study Purpose

- Determine if time to surgery and an open versus percutaneous surgical technique were related to postoperative complications
- Assess differences in functional outcomes between groups



Study Hypothesis

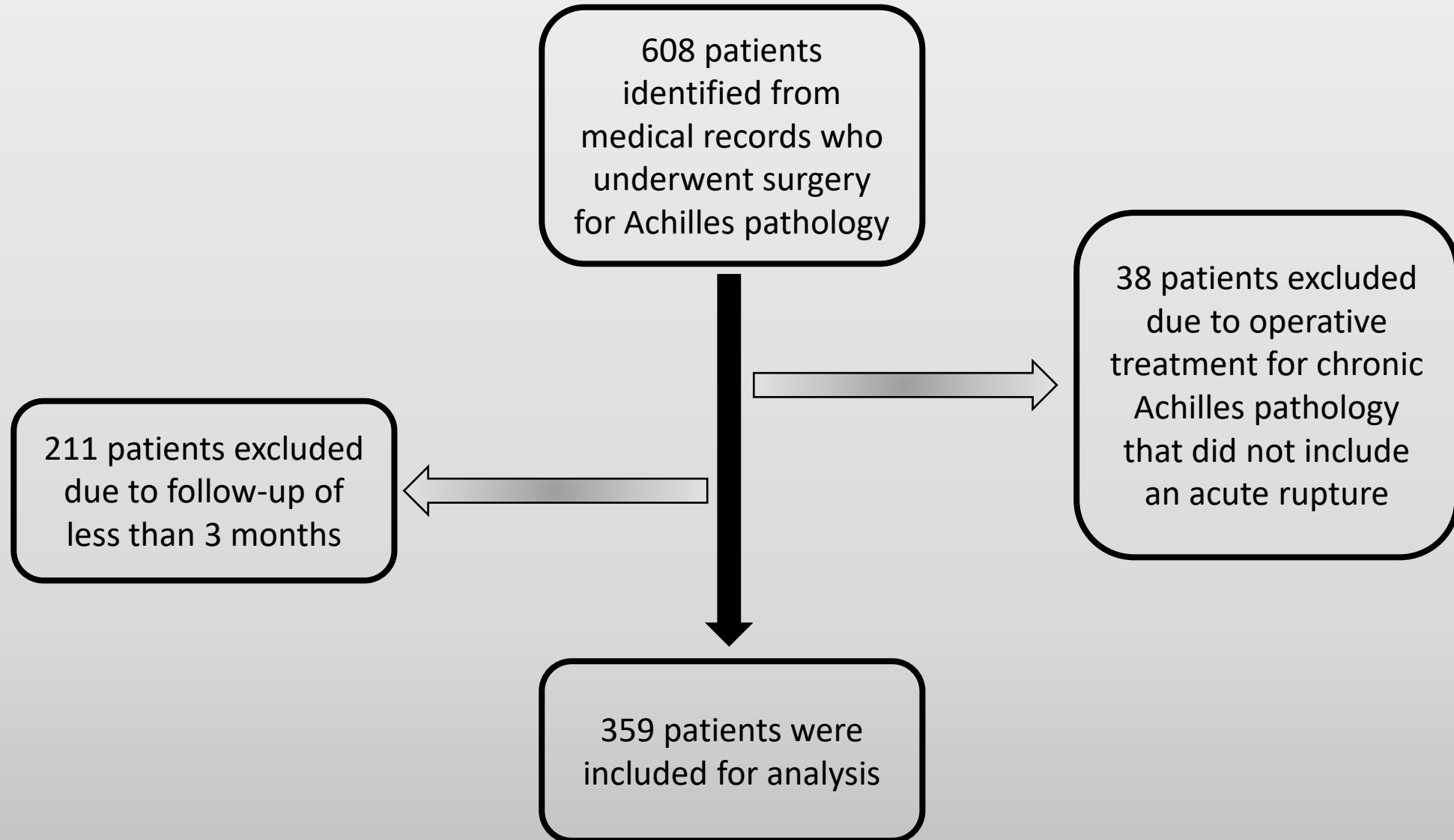
- **Increased time to surgery and open surgical technique** would correlate with an increase in complications and lower outcomes scores

Methods

- Retrospective review, patients underwent Achilles rupture repair surgery Oct 2016-Jan 2022
 - All patients had minimum of 3 months of f/u
- Data collection included:
 - Injury and treatment time points
 - Surgical technique (open vs. perc)
 - Complications
 - Operation time
- Surveys sent to all patients:
 - Foot and Ankle Single Assessment Numeric Evaluation (FA SANE), VISA-A, PROMIS Physical Function (PF), PROMIS Pain Interference (PI)



Patient Inclusion



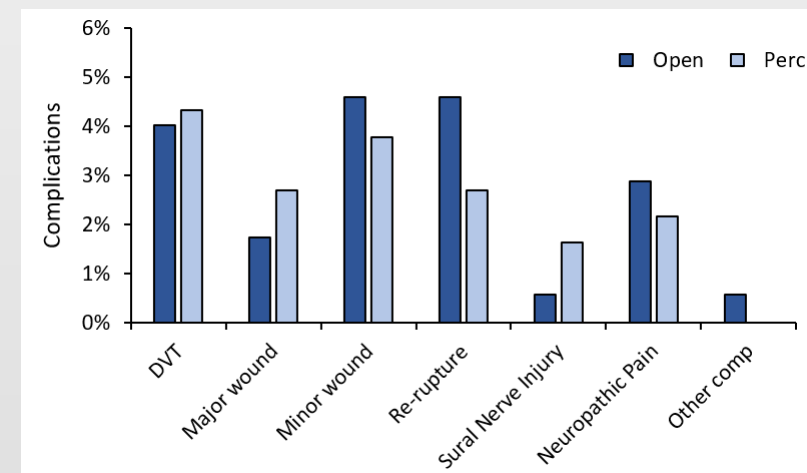
Patient Demographics

Demographic	Freq (n)	Average	Standard Deviation
Age	359	41.0	± 12.8
BMI	359	27.6	± 5.3
Time Injury to Surgery			
Acute (0-14 days)	262	7.3	± 3.4
Sub-acute (15-42 days)	65	22.0	± 6.7
Chronic (42+ days)	32	177.8	± 233.5

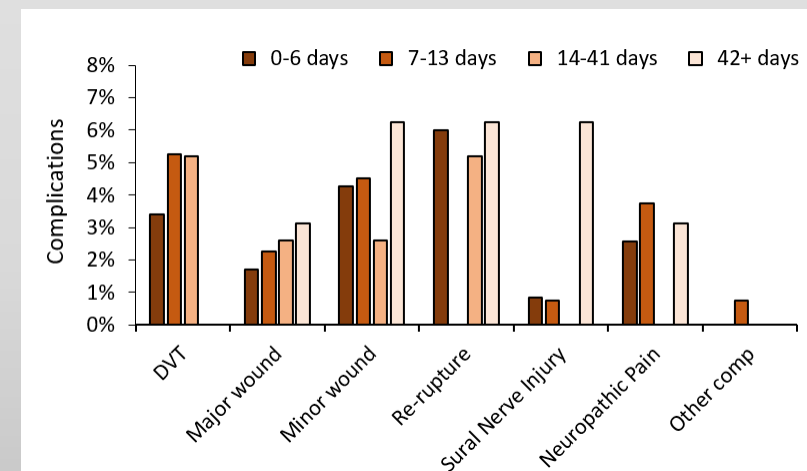
Demographic	Freq (n)	Percent
Sex		
Male	286	79.7%
Female	73	20.3%
Laterality		
Left	175	48.7%
Right	184	51.3%
Method of injury		
Sports	266	74.1%
Basketball	65	18.1%
Soccer	43	12.0%
Football	19	5.3%
Volleyball	18	5.0%
Tennis	17	4.7%
Not Sports	93	25.9%

Results: Complications rates similar between groups

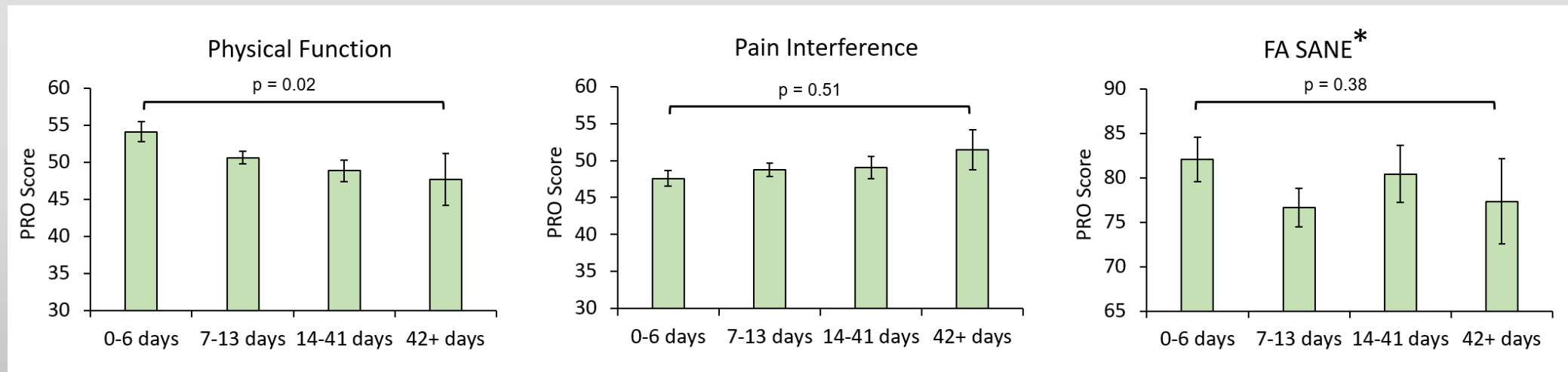
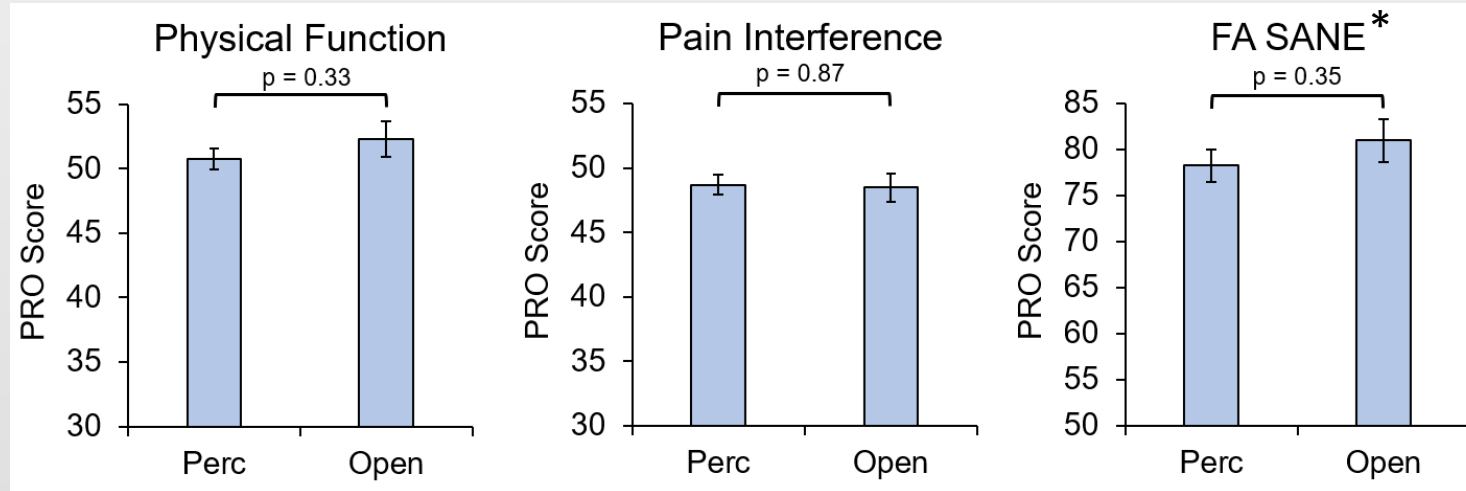
Factor	Group Size (n)	Total Comp	DVT	Major wound	Minor wound	Re-rupture	Sural Nerve Injury	Neuropathic Pain	Other comp
Open	174	31 (17.8%)	7 (4%)	3 (1.7%)	8 (4.6%)	8 (4.6%)	1 (0.6%)	5 (2.9%)	1 (0.6%)
Perc	185	27 (14.6%)	8 (4.3%)	5 (2.7%)	7 (3.8%)	5 (2.7%)	3 (1.6%)	4 (2.2%)	0 (0%)
Stats tests:									
P value (Fisher's exact test)		0.47	1.00	0.72	0.79	0.40	0.62	0.74	0.48



Time to surgery	Group Size (n)	Total Comp	DVT	Major wound	Minor wound	Re-rupture	Sural Nerve Injury	Neuro pathic Pain	Other comp
0-6 days	117	20 (17.1%)	4 (3.4%)	2 (1.7%)	5 (4.3%)	7 (6%)	1 (0.9%)	3 (2.6%)	0 (0%)
7-13 days	133	21 (15.8%)	7 (5.3%)	3 (2.3%)	6 (4.5%)	0 (0%)	1 (0.8%)	5 (3.8%)	1 (0.8%)
14-41 days	77	11 (14.3%)	4 (5.2%)	2 (2.6%)	2 (2.6%)	4 (5.2%)	0 (0%)	0 (0%)	0 (0%)
42+ days	32	6 (18.8%)	0 (0%)	1 (3.1%)	2 (6.3%)	2 (6.3%)	2 (6.3%)	1 (3.1%)	0 (0%)
Stats tests:									
P value (Fisher's exact test)		0.91	0.64	0.84	0.82	0.02	0.06	0.36	1.00



Results: Patient-reported outcomes

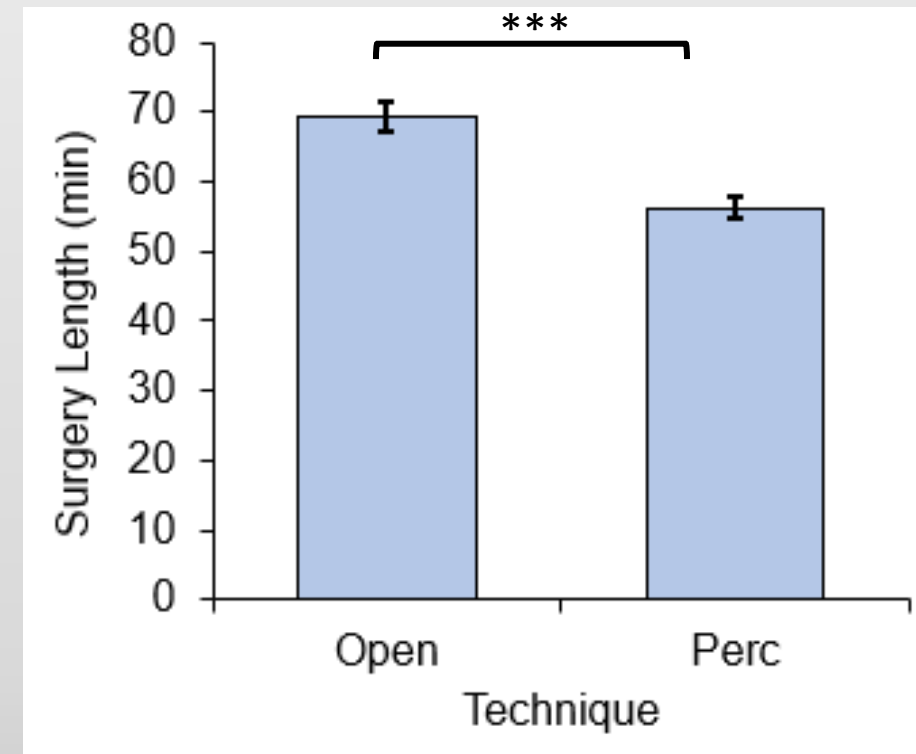


*Foot and Ankle Single Assessment Numeric Evaluation (FA SANE)

Surgical time longer for open repairs

Factor	Open	Perc
Surgery time average (min)	69 ± 27	56 ± 21

$P < 0.001$



Summary

- Achilles ruptures common in sports
- Percutaneous and open repairs have similar outcomes, but percutaneous repairs are on average shorter procedures.
- Though not statistically significant, complications and re-ruptures were more frequent in patients undergoing surgery >6 weeks following injury.



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Images

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