

Poster #90

# Outcomes of Biceps Tenodesis Variations with Concomitant Rotator Cuff Repair

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# Disclosures

- **Dr. Joseph King** has received consulting fees from Exactech and LinkBio Corp.
- **Dr. Ramesh Srinivasan** has received consulting fees and compensation for services other than consulting from Acumed; hospitality from Exactech and Integra LifeSciences Corp; education payments from Medinc of Texas.
- **Dr. Thomas Wright** has received royalties and consulting fees from Exactech.
- **Dr. Michael Moser** has received education payments from Fortis Surgical
- **Dr. Kevin Farmer** has received consulting fees from Exactech, Pacira Therapeutics, and Arthrex; compensation for services other than consulting from Arthrex, Baudex, CCG Medical, Arthrosurface Inc; honoraria from Baudex; education payments from Arthrex and CCG Medical
- **Dr. Jonathan Wright** has received hospitality from Stryker, Acumed, and Zimmer Biomet; education payments from Pinnacle
- **Dr. Ryan Roach** has received education payments from Arthrex and Smith+Nephew; grant from Arthrex

# Objective & Hypothesis

- Biceps tenodesis is frequently performed in the setting of rotator cuff repair (RCR)
- Optimal tenodesis methods have been debated
  - Subtle differences in tenodesis methods may be elucidated with larger numbers
- Objective: To determine whether an optimal biceps tenodesis method exists in concomitant RCR
- Hypothesis: All tenodesis methods would provide positive outcomes without any difference between methods



# Materials & Methods

## Retrospective Cohort Study

- Arthrex Surgical Outcomes Systems (SOS) database

Surgical Outcomes System™



## Patient Selection

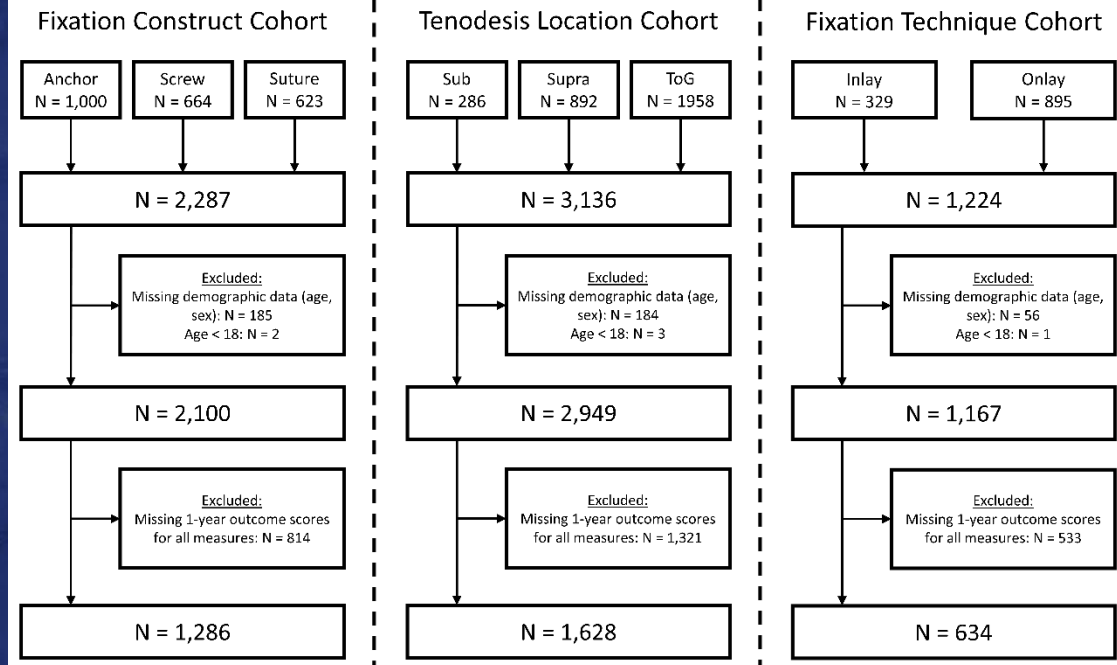
- SOS Database queried for each study group of interest
- Inclusion:
  - ≥18 years
  - Minimum 1-year follow-up
  - Undergoing biceps tenodesis with concomitant RCR
  - Medium or large cuff tears (1-5cm) per Cofield classification

## Biceps Tenodesis Variables

- Construct: anchor, screw, suture to soft tissue
- Location: subpectoral, suprapectoral, top of groove
- Technique: inlay, onlay

## Analysis

- Outcome measures compared based on tenodesis variables at 1- and 2-year follow-up points
  - Continuous values - nonparametric testing
  - Proportion of patients exceeding the largest reported MCID (ASES = 27.1, SANE = 16.9, VAS = 2.4)



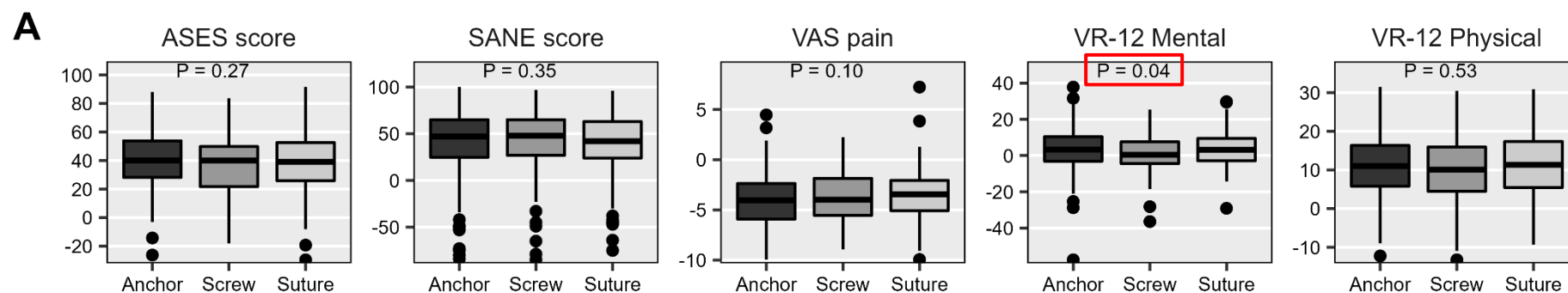
Demographics of included shoulders

Construct	Anchor (N = 293)	Screw (N = 202)	Suture (N = 191)	P
Age	59.6 ± 9.3	61.5 ± 9.3	60.6 ± 9.4	.045
Female Sex	28.7% (118)	28.1% (79)	26.8% (70)	.725
Location	Subpectoral (N = 33)	Suprapectoral (N = 261)	Top of Groove (N = 553)	P
Age	58.0 ± 9.1	58.9 ± 8.8	61.8 ± 9.4	<.001
Female Sex	19.5% (8)	25.6% (90)	30.4% (242)	.007
Technique	Inlay (N = 112)	Onlay (N = 258)		P
Age	61.8 ± 8.1	61.1 ± 9.8		.909
Female Sex	30.4% (49)	30.8% (115)		.974

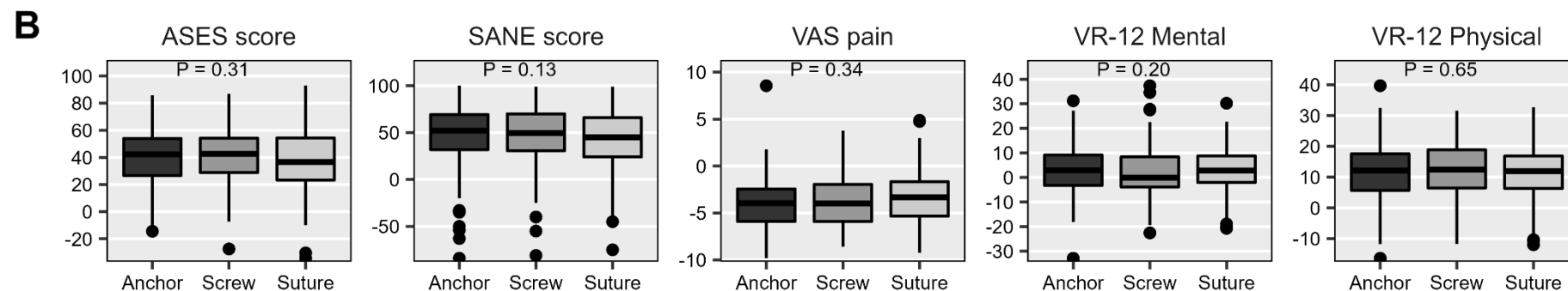
# Fixation: Anchor vs. Screw vs. Suture

Anchor and suture > screw for VR-12 Mental Score @ 1-year ( $P = .042$ )  
No difference in proportion exceeding MCID

1-Year  $\Delta$



2-Year  $\Delta$

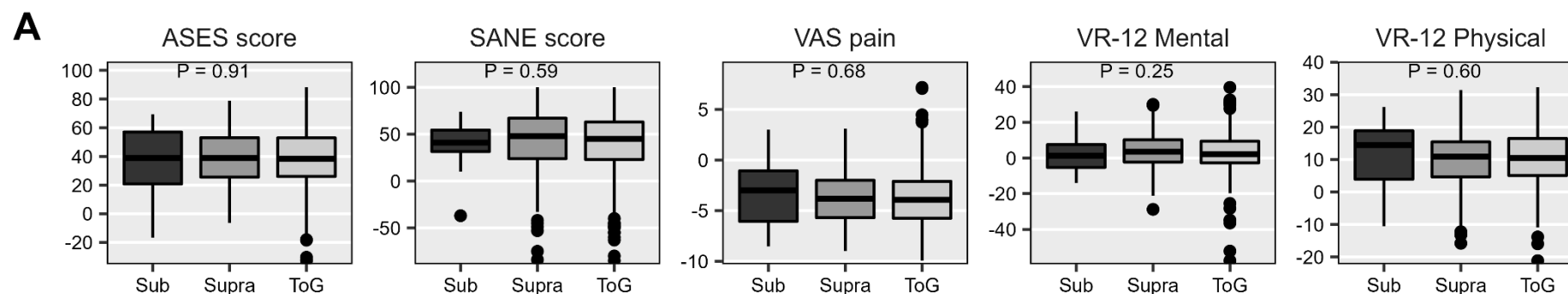


# Location: Subpectoral vs. Suprapectoral vs. Top of Groove

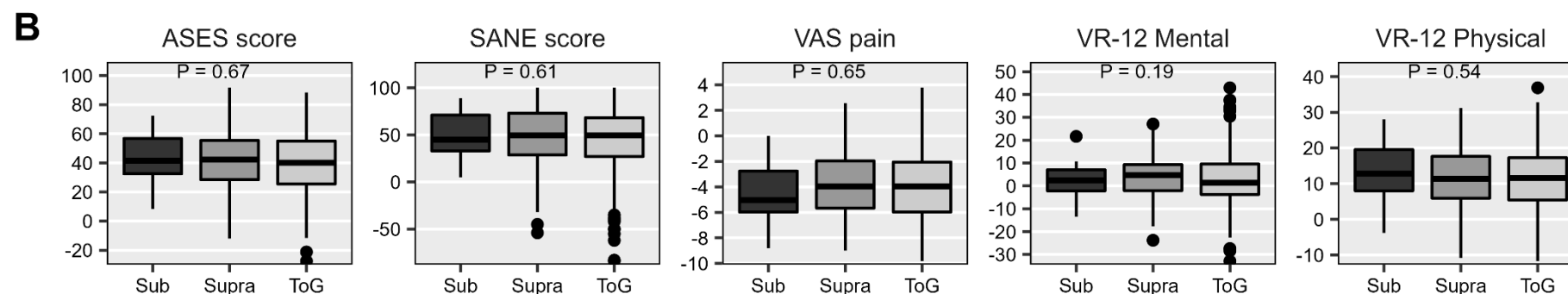
No differences in scores

No difference in proportion exceeding MCID

1-Year  $\Delta$



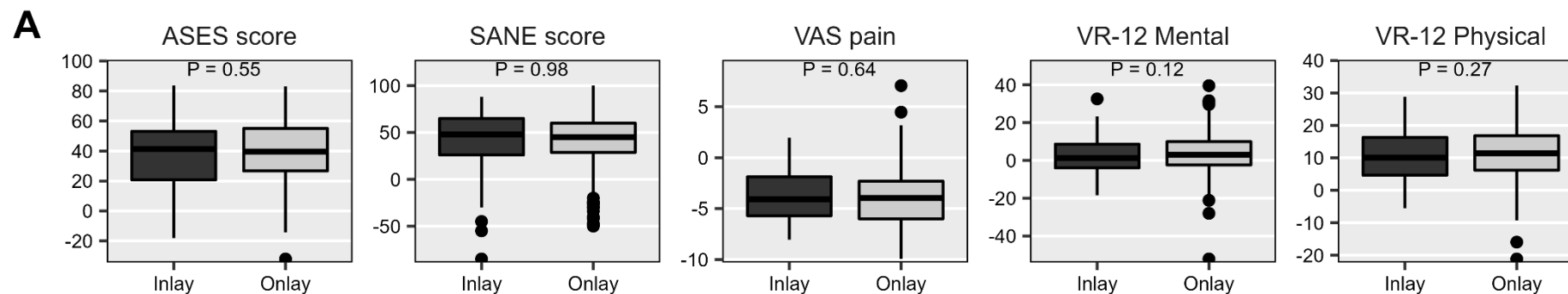
2-Year  $\Delta$



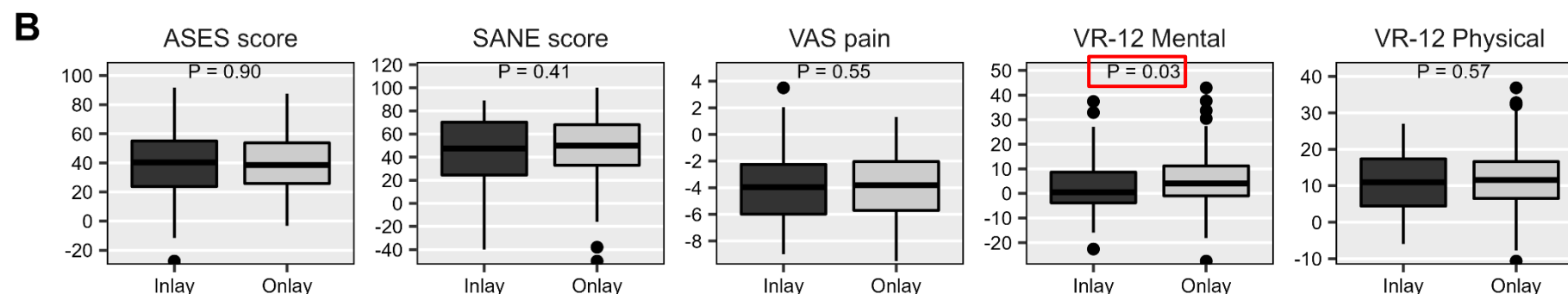
# Technique: Inlay vs. Onlay

Onlay > Inlay for VR-12 Mental Score @ 2-year ( $P = .029$ )  
No difference in proportion exceeding MCID

1-Year  $\Delta$



2-Year  $\Delta$





# MCID Analysis for Outcome Measures

**Table II.** Comparison of shoulders that exceeded the minimal clinically important difference for ASES, SANE, and VAS scores after arthroscopic rotator cuff repair at 1-year and 2-year follow-up.

Cohort	ASES score (MCID: 27.1)		SANE score (MCID: 16.9)		VAS score (MCID: 2.4)	
	1-year	2-year	1-year	2-year	1-year	2-year
Construct						
Anchor	77.0% (194)	74.1% (140)	81.0% (204)	86.7% (163)	74.0% (191)	75.9% (145)
Screw	72.6% (119)	76.3% (103)	81.2% (134)	83.1% (113)	70.2% (118)	69.3% (97)
Suture	73.1% (114)	69.4% (84)	80.3% (126)	81.0% (98)	70.6% (113)	64.2% (79)
<i>P</i> value	.520	.448	.975	.382	.626	.077
Location						
Subpectoral	65.2% (15)	81.0% (17)	87.0% (20)	95.2% (20)	64.0% (16)	78.3% (18)
Suprapectoral	72.2% (148)	77.6% (128)	78.5% (161)	84.1% (138)	68.2% (144)	68.8% (117)
Top of Groove	72.2% (351)	71.8% (234)	79.7% (389)	82.3% (270)	71.8% (356)	70.9% (236)
<i>P</i> value	.763	.292	.633	.290	.494	.632
Technique						
Inlay	71.3% (62)	72.2% (52)	79.3% (69)	79.2% (57)	70.5% (62)	72.6% (53)
Onlay	73.8% (180)	72.4% (97)	83.2% (203)	87.4% (118)	72.9% (180)	70.6% (96)
<i>P</i> value	.755	1.000	.516	.174	.767	.883



# Conclusions

- All tenodesis methods demonstrated positive outcomes in patients undergoing concomitant RCR for medium-to-large tears
- There were minimal differences between tenodesis methods at 1- and 2-year follow-up
  - No differences in MCID

# Significance

- With no clear optimal tenodesis method, approach should be left to the surgeon and individualized for each patient

# Questions?



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