

**Subscapularis Management:
Subscapularis Peel**

Richard J. Friedman, MD, FRCSC
Chief, Shoulder and Elbow Surgery
Professor of Orthopaedics
Medical University of South Carolina
Charleston, SC

MUSC Health
Medical University of South Carolina

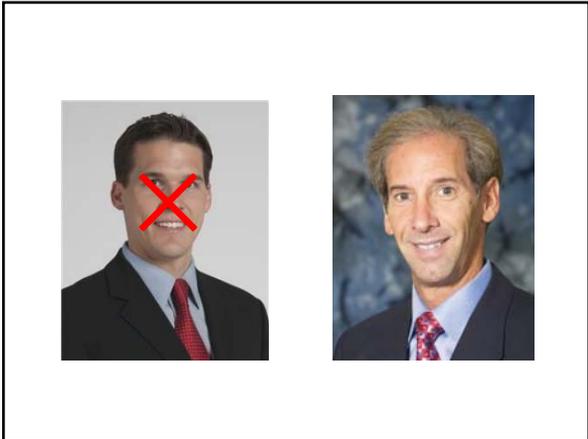
MUSC
TOURNAIS

CLEVELAND
CAVALIERS

TORONTO
RAPTORS

C

TORONTO
BLUE JAYS



Subscapularis Management

- ◆ Subscapularis tenotomy
 - ◆ Tendon-tendon healing
- ◆ Lesser tuberosity osteotomy (LTO)
 - ◆ Bone-bone healing
- ◆ Subscapularis peel
 - ◆ Tendon-bone healing



Subscapularis Management

- ◆ Why take something simple that works and make it complicated and may not work?



Subscapularis Peel Advantages



- ◆ Can reattach more medial through drill holes in bone to gain more ER
- ◆ Easy to do in patients with IR contractures
- ◆ Allows for early ROM
- ◆ Excellent exposure



Subscapularis Peel Disadvantages



- ◆ None



LTO Advantages



- ◆ Allows for early ROM
- ◆ Excellent exposure



LTO Disadvantages

- ◆ Non-union
- ◆ Fracture
- ◆ Difficult to do in patients with IR contractures
- ◆ Cannot gain maximum ER in patients with subscapularis contracture
- ◆ No proven benefit and increased complications
- ◆ Need to put it back where it came from




What Do The Biomechanics Say About The LTO?

Biomechanical comparison of lesser tuberosity osteotomy versus subscapularis tenotomy in total shoulder arthroplasty

Steven A. Guseff, MD*, Pravit Wongbrattananach, MD*, Hiromichi Omas, MD*, Akim Oki, MD*, Mark E. Zobitz, MS*, Kai-Nan An, PhD*, John W. Sperling, MD, MBA*, Scott P. Steinmann, MD** 2012, JSES

- ◆ Uncemented humeral prostheses in 20 paired upper extremities from 10 cadavers
- ◆ 1 limb underwent LTO other limb underwent subscap tenotomy
- ◆ LTO maximum load NOT significantly different and more cyclic displacement

Variables*	Tenotomy	Osteotomy	Difference	Difference 95% CI†	P‡
Maximum load	439 ± 96	447 ± 89	-8 ± 93	-58 to 75	.78
Cyclic displacement	0.8 ± 0.2	1.8 ± 0.6	-1.0 ± 0.6	0.5 to 1.5	.002




What Are The Clinical Concerns With LTO?

SUBSCAPULARIS MUSCLE FUNCTION AND STRUCTURE AFTER TOTAL SHOULDER REPLACEMENT WITH LESSER TUBEROSITY OSTECTOMY AND REPAIR

Dr. Christopher C. Amis, MD, PhD, et al. JSES 2005, JBJS

- ◆ 39 shoulders involving a LTO with TSA
- ◆ 11% positive belly-press tests, 25% abnormal lift-off test with either partial internal rotation lag or positive test
- ◆ Fatty infiltration of subscapularis increased and was at stage two in 32% of shoulders (p<0.0001)

	Postop. Stage 0	Postop. Stage 1	Postop. Stage 2	Postop. Stage 3	Postop. Stage 4	Total
Preop. stage 0	14	4	1			19
Preop. stage 1	4		3	3	2	12
Preop. stage 2	1	1	1	1	1	5
Total	14	6	5	5	6	36





