

The Effect of Obesity on Surgical Treatment of Achilles Tendon Ruptures

Jamal Ahmad, M.D.

Kennis Jones, B.A.

American Orthopaedic Foot & Ankle Society

July 15-18, 2015



No Conflict To Disclose



The Effect of Obesity on Surgical Treatment of Achilles Tendon Ruptures

Jamal Ahmad, M.D.

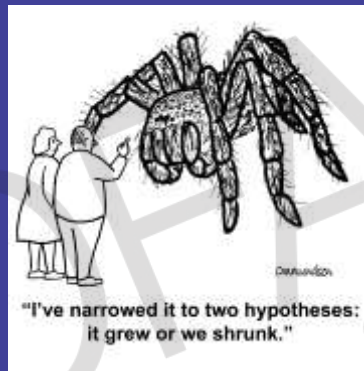
Kennis Jones, B.A.

Our disclosures are in the Final AOFAS Mobile Application. We have no potential conflicts with this presentation.

- Obesity
 - Defined by a body mass index (BMI) $> 30 \text{ kg/m}^2$
 - Over 78 million U.S. adults are obese
 - Obesity-related orthopaedic conditions include higher rates of wound infection & thromboembolic events
- Acute Achilles tendon ruptures
 - Most commonly ruptured tendon in the lower extremity
- No studies regarding the effect of obesity upon surgically treating acute Achilles ruptures
 - Higher risk of peri-operative complications?
 - Higher risk of post-traumatic arthritis?



- To compare outcomes after surgically treating acute mid-substance Achilles tendon ruptures in non-obese & obese patients



- Hypothesis
 - Obese patients are at higher risk for –
 - Lower post-operative functional scores
 - Higher post-operative pain scores
 - Higher incidence of post-operative complications
 - I.e., wound complications, re-rupture

- 73 patients with acute mid-substance Achilles tendon ruptures
 - October 2006 – February 2014
 - Open surgical repair by 1 treating surgeon (J.A.)
- Clinical assessment
 - Foot & Ankle Ability Measures (FAAM)
 - Visual analog scale (VAS) for pain
 - Independent observer (K.J.)



■ Operative technique

- Open incision
- Tendon repair with core & epitendinous sutures



■ Post-operative protocol

- Non-weightbearing (NWB) x 4 weeks
 - 1st 2 weeks in a splint
 - Next 2 weeks in a 2-wedge Achilles boot
- Progressive to full WB in Achilles boot x 4-6 weeks
- Gradual return to activity at 10-20 weeks





Pre-operative Data



	<u>Non-Obese</u>	<u>Obese</u>
Female:Male	8:35	6:24
Mean age	39.2 yrs	41.1 yrs
Mean BMI	25.9	33.4
Right:Left	22:21	16:14
Mean preop FAAM	38.1/100	34.2/100
Mean preop VAS	7.1/10	6.2/10

With the exception of BMI...

No statistical difference between groups

Comparative Results

Non-Obese Obese

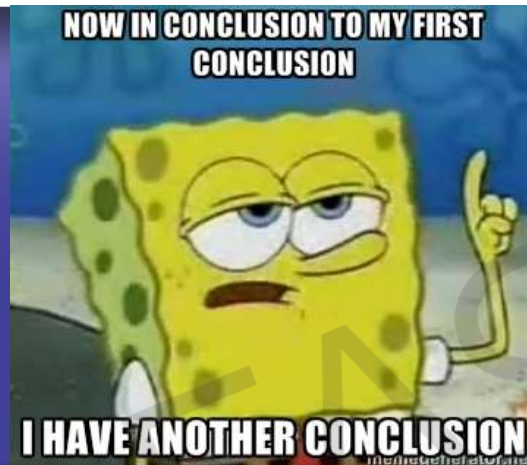
Mean postop FAAM	90.2/100	83.3/100	P=0.10
Mean VAS (of 10)	1.6/10	1.9/10	P=0.35
Tendon healing by 16 wks	100%	100%	
Rate of wound problems	14.0%	3.3%	
P<0.05			
Re-rupture	0%	0%	



WHAT HAVE WE LEARNED, Charlie Brown



- Compared to non-obese patients, obese patients displayed –
 - Lower functional scores & higher pain scores
 - Due to increased demands & stress on the Achilles with increased weight?
 - **SIGNIFICANTLY** lower rates of wound problems
 - Due to larger soft-tissue envelope?



- After Achilles tendon repair, obese patients achieved
 - High rates of improved function & pain, & tendon healing
 - Significantly lower rate of wound complications compared to non-obese patients!
- Further research with larger populations may be needed to confirm these findings

- Andreshak TG, An HS, Hall J, Stein B. J Spinal Disord 1997; 10 (5): 376-379.
- Chiodo CP et. al. JAAOS 2010; 18: 503-510.
- Guss D, Bhattacharyya T. JAAOS 2006; 14: 425-432.
- Mantilla, CB, Horlocker TT, Schroeder DR, Berry DJ, Brown DL. Anesthesiology 2003; 99: 552-560.
- Mihalko WM, Bergin PF, Kelly FB, Canale ST. JAAOS 2014; 22: 683-690.
- Ogden CL, Carroll MD, Kit BK, Flegal KM. JAMA 2014; 311 (8): 806-814.