ABSTRACT SUBMISSION THAT WAS APPROVED FOR A PODIUM PRESENTATION AT THE AOFAS SPECIALTY DAY MEETING, February 28, 2009, in Las Vegas

CATEGORY: Foot and ankle

ABSTRACT TITLE (100 characters or less)
Effects of Acute Exercise on Bilateral Isokinetic Strength One Year after Achilles Tendon Repair

ABSTRACT SUMMARY (200 characters or less)
A year after Achilles tendon repair, the involved side is smaller, functionally strong and loses less strength after exercise than the uninvolved side, implying differences in muscle recruitment.

KEY WORDS
1) Achilles tendon repair
2) Isokinetic calf strength
3) Achilles rehabilitation
4) Muscle recruitment
5) Muscle fatigue

ABSTRACT (max 250 words)
Introduction: Seventeen patients with midsubstance repairs were studied after returning to pre-injury levels of athletic activity (≥ 12 months post-operatively), to determine how an acute bout of exercise affects the isokinetic strength of both lower legs (DF/PF).

Methods: Calf circumference, maximal dorsiflexion (goniometric) and subjective function/pain measurements (AAOS F/A module) were evaluated. Bilateral isokinetic strength testing of the ankle in dorsiflexion and plantarflexion was performed on a Cybex dynamometer at 60, 120, and 180^{o}/second, before and after 30 minutes of standardized treadmill exercise (70% of subjective max, using Borg RPE and a heart monitor). Pre- and post-exercise Cybex testing results were compared in evaluating exercise's effect on strength and fatigability.

Results: Calf size averaged 1.9 cm smaller on the involved side. However, the involved leg lost less strength proportionally after exercise than the uninvolved leg. Also, dorsiflexion strength was greater on the involved side at pre- and post-exercise testing. Average AAOS lower limb core function score was 100%; average AAOS foot and ankle function score was 96%.

Discussion: Exercise affected the two calves differently. Less strength loss in the surgically repaired leg after exercise indicated that this leg was not used as much during exercise as the uninvolved leg—despite near-normal pre-exercise strength. A smaller calf size indicated that short-duration isokinetic strength testing has limitations in measuring "normalcy" of use during exercise, even if maximal torq is near normal. Postoperative rehabilitation needs to normalize recruitment of the surgically repaired Achilles, to equalize strength recovery and normal use of both limbs.

ABSTRACT # (submitted online): 1626