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Are We Allowing Patients to Return to Participation Too Soon? Letter to the EditorResponse

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Are We Allowing Patients to Return to Participation Too Soon?

Letter to the Editor / Response

Dear Editor:

We were very interested by the information presented in the articles “When Do Rotator Cuff Repairs Fail? Serial Ultrasound Examination After Arthroscopic Repair of Large and Massive Rotator Cuff Tears” by Miller et al³ and “Long-term Survivorship of Rotator Cuff Repairs Using Ultrasound and Magnetic Resonance Imaging Analysis” by Kluger et al.² Both studies report failure rates as high as 33% and 41% after rotator cuff repair. In the majority of cases in these studies, the recurrent tears happened in the early rehabilitation phase, within 3 months postoperatively.

The presented numbers clearly parallel what is currently happening in the field of anterior cruciate ligament (ACL) reconstruction and certainly to other sports medicine pathologies. Failure rates in ACL surgery show impressive numbers as well. Barrett et al¹ reported failure rates of up to 29.2% in allograft ACL reconstruction and 25% when semitendinosus-gracilis autograft is used. In a similar study, van Eck et al⁴ showed failure rates of up to 13% in young patients with allograft. In this study, most failures happened between 3 and 9 months after surgery. This time period when failures are most likely to happen represents the period that patients are often released to return to sports.

Pressure from the media, coaches, family members, and patients for an early return to sports has resulted in surgeons prematurely releasing their patients to activities while the graft is still undergoing the tissue healing process. Moreover, rehabilitation protocols base the decision for return to sports or previous activities exclusively on functional parameters that do not always correlate with the condition of the graft or secondary stabilizers for this return. Objective assessment of tissue healing is often neglected. For example, surgeons rarely obtain a postoperative magnetic resonance image (MRI) to assess graft or tissue maturation.

Tissue healing takes time, and surgeons must learn to be patient. In order to best take care of our patients we must allow for adequate healing before authorizing certain activities. Further studies to define imaging properties of tissues and grafts are needed to aid in rehabilitation protocols after surgery. Hopefully, in the near future we will be able to develop objective assessment tools of tissue and graft healing so that we may decrease the presented data

regarding failures after tendon and ligament repairs and reconstructions.

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Dr Kluger was invited to respond, but declined.

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REFERENCES

1. Barrett AM, Craft JA, Replogle WH, Hydrick JM, Barrett GR. Anterior cruciate ligament graft failure: a comparison of graft type based on age and Tegner activity level. *Am J Sports Med.* 2011;39:2194-2198.
2. Kluger R, Bock P, Mittlböck M, Krampfl W, Engel A. Long-term survivorship of rotator cuff repairs using ultrasound and magnetic resonance imaging analysis. *Am J Sports Med.* 2011;39:2071-2081.
3. Miller BS, Downie BK, Kohlen RB, et al. When do rotator cuff repairs fail? Serial ultrasound examination after arthroscopic repair of large and massive rotator cuff tears. *Am J Sports Med.* 2011;39:2064-2070.
4. van Eck CF, Schkrohwsky JG, Working ZM, Irrgang JJ, Fu FH. Prospective analysis of failure rate and predictors of failure after anatomic anterior cruciate ligament reconstruction with allograft [published online ahead of print January 11, 2012]. *Am J Sports Med.* doi:10.1177/0363546511432545.

Authors' Response:

It is with great interest that we read the recent letter from Drs Araujo, Rabuck, and Fu. The parallel between the failure rates in rotator cuff repair and anterior cruciate ligament reconstruction is intriguing. It is clear that we must improve our understanding of the biological processes that govern soft tissue healing, whether it is a tendon repair or a ligament reconstruction. We strongly agree that protocols that govern postsurgical rehabilitation and return to activities should be based on solid scientific evidence regarding the tissue healing and maturation process.

Emerging evidence should lead us in the right direction. For example, Sonnabend et al¹ recently described the timeline of healing and maturation of the bone-tendon interface in a primate model of rotator cuff repair. In this study, Sharpey fibers did not appear at the zone of repair until 12 weeks, and full maturation of the repair site remained incomplete at 15 weeks. Thus, our progression in resisted shoulder

activities should respect this timeline. The Multicenter Orthopaedic Outcomes Network (MOON) Shoulder group has recently launched a randomized clinical trial to investigate an early versus delayed rehabilitation protocol after rotator cuff repair. We look forward to learning of the results of this trial.

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REFERENCE

1. Sonnabend DH, Howlett CR, Young AA. Histological evaluation of repair of the rotator cuff in a primate model. *J Bone Joint Surg Br.* 2010;92(4):586-594.

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