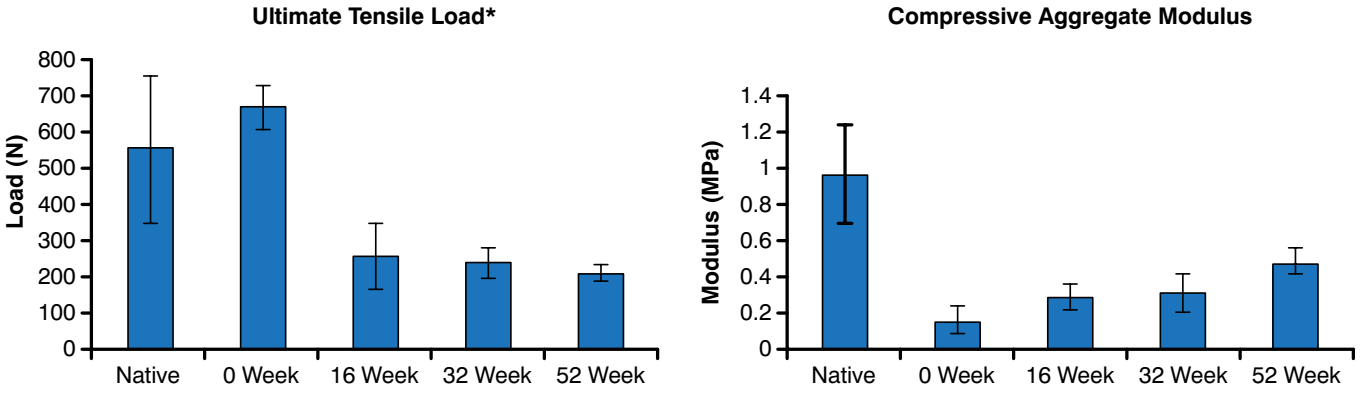
Figure 3. Mechanical Evaluation of Meniscus Scaffold in Sheep[a]



[a]Function tensile load is ~40 to 50 N.

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*On November 12, 2014, this was changed from Ultimade Tensile Load to Ultimate Tensile Load.

After total medial meniscectomy replacement with meniscus scaffold in 30 sheep, there was improvement in tensile load and compressive aggregate modulus out to 52 weeks (Figure 3).

Gross and histologic evaluation noted that all implants were intact at 1 year. There was good articular cartilage preservation, robust and organized tissue ingrowth, maintenance of meniscus shape, and no gross adverse joint reactions or significant foreign body rejection.

Unlike partial meniscal replacement, which is not designed for hoop stress, provides only symptom relief, and may not prevent degenerative changes, the total meniscal replacement load-sharing scaffold offers the potential for long-term restoration of mechanical joint function and may prevent degenerative changes in addition to providing symptom relief. Longer-term studies will be necessary to confirm the true chondroprotective capabilities of this device.

Injury to the IBSN During ACL Surgery Clarified

Written by Brian Hoyle

Steven B. Cohen, MD, Thomas Jefferson University, Philadelphia, Pennsylvania, USA, discussed the findings of a prospective study of patients who underwent reconstructive surgery of the anterior cruciate ligament (ACL) to understand the incidence of and characterize injury to the infrapatellar branch of the saphenous nerve (IBSN), as measured by numbness.

ACL reconstruction is a common procedure in sports medicine. While surgery is typically effective in restoring the degree of knee function needed for the rigors of athletic activity, numbness of the lateral portion of the knee is a complication regardless of the type of graft used. This complication arises because of injury to the IBSN, which is susceptible to surgery-related damage because of its transverse or oblique passage between the lower portion of the patella and the tibial tubercle. The outcome of the ACL reconstructive surgery, however, is generally not affected.

Despite the frequency of IBSN injury, the incidence is unclear. Estimates range widely from very low (.5% of cases) to very high (88% of cases) [Kjaergaard J et al. *Int J Sports Med* 2008; Mistry D, O'Meeghan C. *ANZ J Surg* 2005]. Injury can occur during harvesting of the hamstring [Sabat D, Kumar V. *Knee Surg Sports Traumatol Arthrosc* 2013] or during routine knee arthroscopy, and can occur irrespective of whether the incision is vertical, oblique, or horizontal [Kerver ALA, et al. *J Bone Joint Surg Am* 2013].

The current study sought to determine the incidence of numbness around the knee after ACL reconstructive surgery in 218 patients. Secondary aims were to subjectively assess if postoperative knee numbness persisted at 6 weeks and if the total area of numbness changed at 6 months or after 1 year. Patients completed a questionnaire at 6 weeks, 6 months, and 1 year after surgery and the numbness score was determined. Patient satisfaction with the outcome despite numbness was also queried. Table 1 summarizes the surgical variables in the patient population.

At 6 weeks, numbness in the inferolateral knee and along the distal midline was evident in 34% and 30% of patients, respectively. The use of an autograft was

Table 1. Surgical Variables

Graft type
• Bone-tendon-bone (n = 52; 24%)
• Hamstring autograft (n = 58; 27%)
• Quadriceps tendon autograft (n = 1; < 1%)
• Allograft (n = 106; 48%)
  • Tibialis anterior/posterior (n = 53; 24%)
  • Bone–tendon–bone (n = 33; 15%)
  • Achilles (n = 20; 9%)

Tibial incision direction • Vertical • Horizontal • Oblique (only for 9 hamstring autografts)
Tibial incision length
Tibial fixation
Meniscal repair • All-inside • Inside-out • Outside-in
Number of infrapatellar arthroscopic portals • 2 vs 3

n=number of patients.

associated with an increased numbness score (average of 1.85 ± .60). Patient-reported numbness scores declined with increasing postoperative time (overall population –1.00 ± .16 at 6 months and –1.26 ± .18 at 1 year).

Linear-mixed-effects model analysis revealed that hamstring and bone–tendon–bone autografts were associated with 1.94 ± .52 times and 1.57 ± .51 times more numbness than were allografts, respectively. The two autografts did not differ significantly from each other. The length of the incision, the number of arthroscopic portals, and the presence of meniscus repair had no appreciable effect on numbness. At 1 year, numbness remained in one-third of patients, although, in general, the severity had lessened over the year.

The data from this study support the common occurrence of sensory deficits (ie, numbness) after ACL reconstructive surgery. The data also shows that the majority of deficits improved with time and resolved within 1 year. Numbness was more prevalent with autografts than with allografts.

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