

drawer test between the groups, but the side-to-side difference in posterior translation was  $3.8 \pm 2.2$  mm in the higher and  $2.0 \pm 1.4$  mm in the lower group (mean difference, 1.8 mm;  $p = 0.037$ ).

**Discussion and Conclusion:** A higher femoral tunnel position resulted in better anteroposterior stability than that of the higher position in single bundle PCL reconstruction. However, it was unclear whether the lower femoral tunnel position was clinically superior to the higher femoral tunnel position.

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#### B0086

##### The ideal femoral tunnel position using 3D-CT in anatomic single-bundle ACL reconstruction

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**Background:** The purpose of this study was to find the ideal femoral tunnel position in single-bundle ACL reconstruction using three-dimensional computed tomography (3D-CT) by comparing clinical scores, stability of the knee joint, and graft signal intensity on follow-up MRI.

**Materials and Methods:** Two-hundred patients underwent arthroscopic single-bundle ACL reconstruction with a soft tissue graft; all patients had the same surgical technique and rehabilitation protocol. Each patient underwent 3D-CT within 1 week after the operation and MRI at 1 year after the operation. Outcomes were evaluated with 3D-CT 1 week postoperatively using the Quadrant method of Bernard et al. We classified patients into three groups based on the femoral tunnel position: group A, AM tunnel; group B, PM tunnel; and group C, center tunnel. We evaluated graft signal intensity on follow-up MRI.

**Results:** This study included 77 patients (group A, 25 patients; group B, 15 patients; group C, 33 patients). The three groups did not differ significantly in preoperative demographics. There were no significant differences between groups in clinical scores or stability. However, patients in the AM tunnel and center tunnel groups had better graft signal intensity on follow-up MRI than those in the PL tunnel group.

**Discussion and Conclusion:** Positioning the femoral tunnel near the AM bundle and center led to better graft signal intensity on follow-up MRI in anatomic single-bundle ACL reconstruction than did positioning the femoral tunnel near the PL bundle. There were no differences in clinical scores or stability of the knee joint between groups.

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#### B0087

##### Biomechanical comparison of 3 different suture-bridge techniques for rotator cuff tear repair

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**Purpose:** To compare the biomechanical properties of 3 different suture-bridge techniques for rotator cuff tear repair.

**Methods:** Twelve pair-matched fresh-frozen shoulder specimens were randomized to 3 groups of different repair types regarding medial-row configuration: the medially Knotted Suture Bridge group (KSB), the medially Untied Suture Bridge group (USB), the Modified Suture Bridge group (MSB). Cyclic loading test and load-to-failure test were performed for all specimens. Parameters of elongation, stiffness, load at failure and mode of failure were finally recorded.

**Results:** The MSB technique had the significantly greatest load to failure ( $515.6 \pm 78.0$  N,  $P=0.04$  for KSB group,  $P<0.001$  for USB group), stiffness ( $58.0 \pm 10.7$  N/mm,  $P<0.001$  for KSB and USB group) and lowest elongation ( $1.49 \pm 0.39$ mm,  $P=0.009$  for KSB group,  $P=0.001$  for USB group) among 3 constructs. For the remaining groups, the KSB repair had significantly higher ultimate load ( $443.5 \pm 65.0$  N) than USB repair ( $363.5 \pm 52.3$  N,  $P=0.024$ ). However, there was no statistical difference in stiffness and elongation between KSB and USB technique ( $P=0.229$  and  $0.242$ , respectively). Modes of failure varied among 3 groups.

**Conclusions:** Our modified suture bridge technique (MSB) may provide enhanced biomechanical properties when compared with medially knotted or knotless repair.

**Clinical Relevance:** Our modified technique may represent a promising alternative in arthroscopic rotator cuff repair.

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#### B0088

##### Local delivery of controlled-release simvastatin to improve the biocompatibility of polyethylene terephthalate artificial ligaments for reconstruction of the anterior cruciate ligament

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**Background:** The Ligament Advanced Reinforcement System (LARS) has recently been widely used as the primary graft of choice in ACL reconstruction. But the biological graft–bone healing

still remains a problem. Previous studies have shown that simvastatin (SIM) stimulates bone formation.

**Purpose:** The objective of this study was to investigate whether surface coating with collagen (COL) containing low-dose SIM microsphere could enhance the surface biocompatibility of polyethylene terephthalate (PET) artificial ligaments to accelerate graft-to-bone healing.

**Methods:** The in vitro studies demonstrated that BMSCs on the SIM/COL/PET scaffolds proliferated vigorously. Compared with the PET group and the COL/PET group, simvastatin could induce BMSCs' osteoblastic differentiation, high alkaline phosphatase activity, more mineralization deposition and more expression of osteoblast-related genes such as osteocalcin, runt-related transcription factor 2, bone morphogenetic protein-2 and vascular endothelial growth factor growth factor in the SIM/COL/PET group. In vivo, rabbits received ACL reconstruction with different scaffolds.

**Results:** Histological analysis demonstrated that graft–bone healing was significantly greater with angiogenesis and osteogenesis in the SIM/COL/PET group than the others groups. In addition, biomechanical testing at the eighth week demonstrated a significant increase in ultimate failure load and stiffness in the SIM/COL/PET group.

**Conclusion:** The low dose of simvastatin sustained released from SIM/COL/PET promoted the graft–bone healing via its effect on both angiogenesis and osteogenesis.

This study suggested that collagen containing low-dose SIM microsphere coating on the surface of PET artificial ligaments could be potentially applied for ACL reconstruction.

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#### B0090

##### Rotator cuff tears combined with long head of the biceps tendon lesions: Tenotomy versus tenodesis

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**Background:** Long head of the biceps tendon (LHBT) lesions are often associated with partial or complete rotator cuff tears, especially in elderly patients. Arthroscopic biceps tenotomy and tenodesis with tenodesis are two well-established surgical procedures. However, which technique is preferred over the other in treating patients with LHBT lesions and repairable cuff tears is still a controversy.

**Purpose:** The purpose of this meta-analysis was to assess whether there are differences in the outcomes between tenotomy and tenodesis in treating LHBT lesions combined with rotator cuff tears.

**Methods:** We searched for articles comparing tenotomy and tenodesis combined with rotator cuff repair that were published before 2015. The controlled clinical studies that met the inclusion and exclusion criteria were assessed for quality of methodology. These results were evaluated and compared to provide an overview on benefits and drawbacks of the respective surgical procedures.

**Results:** Both tenotomy and tenodesis are effective and equal for the treatment of long head biceps lesions. Compared with tenodesis, tenotomy is more simple, shorter surgical time, faster pain relief, lower cost, and avoidance of implant complication. Because both the tenotomy and tenodesis with concomitant rotator cuff repair used the same rehabilitation protocol just for rotator cuff repair. Namely, this can somewhat offset the weakness that tenodesis needs a longer rehabilitation period than tenotomy. However, the incidence of the Popeye sign is significantly lower, even though tenodesis does not provide any significant clinical or functional improvement than isolated tenotomy.

**Conclusions:** Both tenotomy and tenodesis are effective in pain relief and functional improvement in patients with repairable rotator cuff tears. Various factors should be taken into consideration, such as ages, functional demands, cosmesis concern, and surgeon preferences, in order to decide which surgical procedure to choose. Because tenotomy requires a shorter surgical time and results in faster pain relief, we recommend tenotomy with concomitant rotator cuff repair in older than 55 years patients, with a low level of physical activity, no cosmesis concern.

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#### B0091

##### Paralabral spinoglenoid cysts with suprascapular nerve palsy – A comparison of two arthroscopic approaches

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**Background:** Focal spinoglenoid cysts are often excised through a translabral approach. This may be inadequate when treating extensile cysts that progress from spinoglenoid to suprascapular region. Posterosuperior capsulotomy (paralabral approach) allowing better visualization, dissection, and excision of the cyst with suprascapular nerve decompression may be warranted in such cases. This study compares the results of the two arthroscopic approaches in suprascapular neuropathy secondary to spinoglenoid ganglion cysts.

**Methods:** 27 consecutive patients underwent arthroscopic decompression of spinoglenoid cysts with labral repair. Two cyst types were identified: focal and extensile; and three treatment groups based on approach. Group A included 17 focal cysts excised through translabral approach. Group B included 3 extensile cysts that underwent translabral approach. Group C included 7 extensile cysts excised through paralabral approach. Patients were evaluated preoperatively and 12 months postoperatively by clinical examination, MRI, and ASES scores. 13 patients underwent postoperative EMG. The mean follow-up was 31 months (range=12 to 83 months).