Current Concepts

Treatment of Sports Injuries in Orthopedic Surgery: Recent Advances

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This article reviews the most recent advances in the literature regarding orthopedic surgery for sports injuries. For large-to-massive rotator cuff tears, non-surgical treatment yielded superior results at three months to surgical treatment, although surgical treatment provided better results over time. Arthroscopic partial repair without a posterior interval slide yielded superior results to complete arthroscopic rotator cuff repair with a posterior interval slide. Graft bridging yielded superior results to superior capsular reconstruction. In first-time shoulder dislocations, arthroscopic Bankart repair has yielded superior results to arthroscopic washout. In high-grade acromioclavicular separation, a single clavicle tunnel tendon graft construct is preferable to a double tunnel construct. In femoroacetabular impingement, patients treated with hip arthroscopy had superior short-term results to those treated with physiotherapy alone. The odds of needing anterior cruciate ligament (ACL) graft revision were 2.1-fold higher for patients using a hamstring autograft than those using a patellar bone-tendon-bone (BTB) autograft. The use of a patellar tendon graft reduced the risk of graft rupture. The return-to-sports rate was higher for patients who underwent surgery with a BTB autograft than those with an autograft hamstring. The combination of lateral extra-articular tenodesis and ACL reconstruction-ACLR (single-bundle hamstring autograft) decreased the risk of ACLR failure after two years of follow-up. In complete mid-substance ACL injuries, the bridge-enhanced ACL repair technique resulted in similar outcomes to autograft ACLR. Fresh-frozen allografts have been a good alternative to autografts in ACLR. In posterior medial meniscal root tears, root repair was associated with less arthritic progression than non-surgical treatment and partial meniscectomy. Medial patellofemoral ligament (MPFL) reconstruction has provided better results than MPFL repair in patellofemoral instability.

INTRODUCTION

Sports injuries requiring the intervention of orthopedic surgeons are prevalent. This article, therefore, reviews the most recent information on the orthopedic surgical treatment of locomotor system injuries in various anatomical areas. This review aims to provide useful information for orthopedic surgeons facing sports injuries of the musculoskeletal system. To this end, I have reviewed the articles published in PubMed from 1 January 2019 to 28 February 2023. Considering the information in them, I have selected those that seemed to me to be of greatest interest. In other words, the methodology of this article was based on my personal opinion as to which topics and articles were of the greatest importance from a practical point of view.

Regarding the variety of topics covered, I must admit that I have also selected the headers that I found most interesting. I have not gone into each of the titles in more depth due to the word limit imposed by the Journal. Therefore, the article has a significant limitation: the methodology is based on a personal selection of topics and articles related to sports injuries commonly treated by orthopedic surgeons.

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SHOULDER INJURIES

ARTHROSCOPIC ROTATOR CUFF REPAIR

SUTURE TAPE VERSUS CONVENTIONAL SUTURE

A recent systematic review compared suture tapes and conventional sutures in arthroscopic rotator cuff repairs and found that although suture tapes are biomechanically superior, their re-tear and postoperative function rates were similar to those of conventional sutures.[1]

LARGE-TO-MASSIVE ROTATOR CUFF TEARS

SURGICAL TREATMENT VERSUS NON-SURGICAL TREATMENT

A multicentre, level 2 evidence study compared patients with non-surgically treated rotator cuff tears against surgically treated patients. At three months, the patients in the non-surgical group had superior outcomes; over time, however, the surgically treated patients achieved superior results on several scales.[2]

ARTHROSCOPIC ROTATOR CUFF REPAIR VERSUS POSTERIOR INTERVAL SLIDE AND PARTIAL REPAIR

Jeong et al. compared the arthroscopic rotator cuff repair results with posterior interval slide and partial repair. After a minimum follow-up of 5 years, partial repair appeared superior to complete repair.[3]

GRAFT BRIDGING VERSUS SUPERIOR CAPSULAR RECONSTRUCTION

Lin et al. compared two treatment techniques for reconstructing large and massive rotator cuff tears: graft bridging and superior capsular reconstruction. Improved clinical outcomes were observed in both groups but were greater in the graft-bridging group. In addition, the graft bridging group had a superior active rotation with the arm at the side.[4]

PERIOPERATIVE PLATELET-RICH PLASMA (PRP) INJECTIONS COMBINED WITH ARTHROSCOPIC ROTATOR CUFF REPAIR

A phase II randomized, controlled trial (RCT) compared the results after ten years of follow-up of arthroscopic rotator cuff repair with or without the addition of PRP over the tendon-bone interface at the end of the surgical procedure.[5] The patients' mean age was 71 years. Satisfaction at the end of the follow-up was high (90%) in both treatment groups, although no differences were observed. The clinical outcomes were good to excellent in both groups. When comparing the PRP group versus the control group, the Simple Shoulder Test/Constant-Murley Score was 82 versus 78 points, respectively, the University of California at Los Angeles (UCLA) score was 34 versus 33 points, and the Visual Analogue Scale (VAS) was 0.34 versus 0.70 cm. Statistically significant differences were found only in the American Shoulder and Elbow Surgeons score and the Single Assessment Numerical Evaluation. Thirty-seven percent of the operated patients had a re-tear observed during an ultrasound examination, irrespective of the treatment group. At the 2-year follow-up, 6% of the patients treated with PRP had experienced re-tears compared to 14% in the group treated without PRP.[5]

FIRST-TIME SHOULDER DISLOCATION

ARTHROSCOPIC BANKART REPAIR VERSUS ARTHROSCOPIC WASHOUT

Yapp et al. compared the long-term outcomes of 65 patients who experienced first-time dislocations and were treated with two different techniques: arthroscopic Bankart repair and arthroscopic washout. The patients' mean age was 35 years, and the minimum follow-up was ten years. There was a significantly higher rate of recurrent dislocation in the arthroscopic washout group (47%) than in the arthroscopic Bankart repair group (12%). Therefore, arthroscopic Bankart repair appears to be the superior option for first-time shoulder dislocations.[6]

SURGICAL VERSUS NON-SURGICAL TREATMENT: CAREER LONGEVITY AND PERFORMANCE

A level 3 evidence study (retrospective case-control study) examined 97 National Football League (NFL) players who had experienced their first instability event while playing in the NFL, 91 (94%) of whom returned to play.[7] The study concluded that athletes who return to NFL play after a shoulder instability injury do so with similar workload and performance, regardless of treatment (surgical or non-surgical). Non-surgical treatment was associated with a faster return to play; however, surgical treatment was associated with fewer recurrent instability events, a longer time between recurrent instability events, and greater career longevity.[7]

RECURRENT SHOULDER INSTABILITY

LATARJET PROCEDURE: LONGITUDINAL SPLIT OF THE SUBSCAPULARIS VERSUS VERTICAL TENOTOMY

A retrospective, level 3 evidence study demonstrated that the longitudinal split of the subscapularis muscle is a safe technique that results in faster functional recovery and returns to sporting activity than vertical tenotomy, a result that is of significant benefit, especially for active individuals. Longitudinal split, therefore, appears to be the recommended standard surgical treatment.[8]

HIGH-GRADE ACROMIOCLAVICULAR SEPARATION

SINGLE AND DOUBLE CLAVICLE TUNNEL TENDON GRAFT CONSTRUCT

A systematic review compared the outcomes and complications of two techniques for treating high-grade acromioclavicular separation: single and double clavicle tunnel ten-

don graft construct.[9] The authors also compared autograft with allograft for augmentation during acromioclavicular joint reconstruction, observing that the double clavicle tunnel technique was employed more frequently but had higher complication rates than the single clavicle tunnel technique. The allograft group had a higher reoperation incidence but less reduction loss than the autograft group. Complications were high, regardless of technique or graft used, with an overall reoperation rate of 8% and a complication rate of 21%. The authors suggested that, to decrease the risk of re-intervention, trauma to the clavicle during reconstruction must be minimized and that an autograft tendon is employed.[9]

EARLY SURGICAL INTERVENTION VERSUS LATE SURGICAL INTERVENTION

The clinical outcomes were similar in a study comparing the results of early reconstruction (mean 1.1 weeks) with those of late reconstruction (mean 84 weeks). Therefore, early surgical intervention was unnecessary and delayed reconstruction remained a good option for high-grade acromioclavicular separation.[10]

PATHOLOGY OF THE LONG HEAD OF THE BICEPS TENDON

BICEPS TENODESIS VERSUS BICEPS TENOTOMY

A prospective, double-blinded RCT compared biceps tenodesis and biceps tenotomy after a minimum follow-up of two years. No differences were found in the subjective and objective outcome scores, including cramping, elbow flexion strength, and supination strength. The only significant difference between the groups was the incidence of cosmetic Popeye deformity, which was associated with a 3.5-fold higher risk after tenotomy than after tenodesis.[11]

Table 1 summarizes the essential information on sports shoulder injuries treated by orthopedic surgery.

HIP INJURIES

FEMOROACETABULAR IMPINGEMENT (FAI)

HIP ARTHROSCOPY VERSUS NON-SURGICAL TREATMENT

A meta-analysis of 650 patients with femoroacetabular impingement (FAI) compared surgical treatment (hip arthroscopy) and non-surgical treatment (physiotherapy) after a mean follow-up of ten months. The postoperative International Hip Outcome Tool-33 scores showed more remarkable improvement in the surgical group. The conclusion was that patients with FAI treated with hip arthroscopy had superior short-term outcomes than those treated with physiotherapy alone.[12]

A systematic review and meta-analysis analyzed the rate of return to sport (RTS) for athletes who engaged in sports classified according to hip mechanics (cutting, impingement, contact, endurance, flexibility, and asymmetric/overhead) who underwent hip arthroscopy for FAI. The authors also analyzed the possible differences in patient characteristics, intraoperative procedures, and time to return to play among the six classifications. Flexibility athletes had the highest rate of RTS after FAI hip arthroscopy. However, endurance athletes had the fastest RTS. No statistically significant differences existed between the six classifications in the rate and time of RTS and the intraoperative procedures performed.[13]

A literature review on athletes who did not have RTS after FAI hip arthroscopy found that 12% of athletes did not have RTS after surgery and that most were unable to RTS due to persistent hip pain.[14]

Another systematic review of level 4 evidence found that athletes undergoing arthroscopic hip surgery for FAI not only had significant functional improvement but also had a high rate of RTS at the same or greater competitive level compared with the preinjury level. The most frequently performed interventions were femoroplasty and labral management. The RTS rate ranged from 73% to 100%, and 74% to 100% of athletes returned to pre-injury levels or higher.[15]

In a retrospective cohort study (level 3 evidence) of patients (mean age 21 years) who underwent hip arthroscopy for FAI, the postoperative alpha angle was identified as a predictor of RTS. The likelihood of RTS was 6.3-fold higher for the athletes with postoperative alpha angles ⩽46° than those with angles >46°.[16]

A recently published study showed that, compared with elite male athletes, elite female athletes who underwent primary arthroscopic hip surgery for FAI had greater improvements in the following scales: modified Harris Hip Score, Nonarthritic Hip Score, and VAS. In addition, female athletes had a higher rate of RTS.[17] **Table 2** summarizes the most important information on hip sports injuries treated by orthopedic surgery.

KNEE INJURIES

ANTERIOR CRUCIATE LIGAMENT (ACL) RUPTURE

WHAT IS THE OPTIMAL CHOICE FOR GRAFTS? THE RESULTS IN TERMS OF IPSILATERAL AND CONTRALATERAL REVISION ACL RECONSTRUCTION (ACLR) AND RTS

Regarding the ideal graft for ipsilateral and contralateral revision ACLR, a study with high school and college-aged athletes compared the revision rates after primary ACLR with bone-patellar tendon-bone (BTB) autograft versus hamstring tendon autograft. After six years of follow-up, 9.2% of the patients underwent ipsilateral revision ACLR. The likelihood of an ACL graft revision was 2.1-fold higher for the athletes with hamstring tendon autografts than those with BTB autografts. Thirteen percent of the hamstring tendon group and 7.1% of the BTB autograft group required revision ACLR. The frequency of ACLR of the contralateral knee was 11% in the entire series, with no significant differences between the two graft types. High-grade knee laxity and younger age were predictors of ipsilateral revision ACLR.[18]

Table 1. Relevant information on sports injuries of the shoulder treated by orthopedic surgery.

AUTHORS	YEAR	TYPE OF INJURY	RELEVANT INFORMATION
Boksh et al.[1]	2022	Arthroscopic rotator cuff tears	Suture tapes are biomechanically superior. However, their re-tear and postoperative function rates were similar to conventional sutures.
Song et al.[2]	2020	Large-to-massive rotator cuff tears	The non-surgical treatment yielded better results at three months, although surgical patients achieved better outcomes over time.
Jeong et al.[3]	2020	Large-to-massive rotator cuff tears	Partial repair (posterior interval slide and partial repair) appears to be more advisable than complete repair (arthroscopic rotator cuff repair).
Lin et al.[4]	2020	Large-to-massive rotator cuff tears	Clinical outcomes were better using graft bridging than using superior capsular reconstruction.
Randelli et al.[5]	2022	Large-to-massive rotator cuff tears	Arthroscopic rotator cuff repair with or without (n=21) the addition of platelet-rich plasma (PRP) over the tendon-bone interface at the end of the surgical procedure gave similar results.
Yapp et al.[6]	2020	First-time shoulder dislocation	Arthroscopic Bankart repair provided superior results to arthroscopic washout.
Khalil et al.[7]	2021	First-time shoulder dislocation	Non-surgical treatment was associated with a faster return to play; however, surgical treatment was associated with fewer recurrent instability events, a longer time between recurrent instability events, and greater career longevity.
Aurich et al.[8]	2021	Recurrent shoulder instability	Longitudinal splitting of the subscapularis is a safe technique that results in faster functional recovery and returns to sporting activity than vertical tenotomy.
Pill et al.[9]	2020	High-grade acromioclavicular separation	To reduce the risk of re-intervention, trauma to the clavicle needs t be minimized during reconstruction, and autograft tendons should be used.
Ladermann et al.[10]	2020	High-grade acromioclavicular separation	Early surgical intervention is not necessary. Late reconstruction remains a good option.
MacDonald et al.[11]	2020	Pathology of the long head of the biceps tendon	Biceps tenodesis and biceps tenotomy yielded similar results.

Table 2. Relevant information on sports injuries of the hip treated by orthopedic surgery.

AUTHORS	YEAR	TYPE OF INJURY	RELEVANT INFORMATION
Dwyer et al.[12]	2020	FAI	Patients treated with hip arthroscopy had superior short-term results than those treated with physiotherapy alone.
Bolia et al.[13]	2021	FAI	Flexibility athletes had the highest return-to-sport rate after FAI hip arthroscopy. However, endurance athletes had the fastest return to sport.
Weber et al.[14]	2021	FAI	After FAI hip arthroscopy, it was observed that 12% of athletes did not return to sport after surgery.
Annin et al.[15]	2021	FAI	The return-to-sport rate of arthroscopic hip surgery for FAI was 73%–100%.
Monahan et al.[16]	2021	FAI	After hip arthroscopy for FAI, the likelihood of returning to sport was 6.3-fold higher for the athletes with a postoperative alpha angle ≤46° than those with an angle >46°.
Glein et al.[17]	2021	FAI	Elite female athletes who undergo primary arthroscopic hip surgery for FAI have superior results to elite male athletes and a higher return-to-sport rate.

FAI, femoroacetabular impingement

In another study, using a BTB autograft reduced the risk of graft rupture compared with using a hamstring tendon autograft. However, the authors also observed that the choice of BTB graft was associated with higher rates of contralateral ACLR.[19]

The ability to RTS depending on the chosen ACLR graft is a topic of great interest. A study by DeFazio et al. observed that the RTS rate for patients who underwent surgery with autograft BTB was 81%, with a 50% return to preinjury levels of play and a re-rupture rate of 2.2%. However, the RTS rate for the patients who underwent surgery with hamstring tendon autograft was 71%, with 49% returning to preinjury levels of play and a re-rupture rate of 2.5%. Higher RTS rates were observed in the patients who under-

went surgery with BTB autografts than in those with hamstring tendon autografts.[20]

SHOULD PRIMARY ACLR BE AUGMENTED WITH LATERAL EXTRA-ARTICULAR TENODESIS (LET) OR ANTERO-LATERAL LIGAMENT (ALL) RECONSTRUCTION?

LET, or ALL reconstruction (ALLR), is becoming increasingly popular. A comparative study found a graft failure rate of 11% in the isolated ACLR group and 4% in the combined ACLR and LET group. However, based on the Marx Activity Rating Scale, the sporting activity level was similar in the two groups two years after surgery. The conclusion was that adding LET to ACLR (single-bundle hamstring autograft) reduced the rate of ACLR failure two years after surgery.[21]

Getgood et al. found that adding LET to ACLR was associated with a slight increase in pain scores, a reduction in self-reported function scores, and a decrease in quadriceps strength up to six months after surgery. However, the results were similar for both groups one year after surgery. Furthermore, there were no differences between the groups at 6, 12, and 24 months with respect to the hop test limb symmetry index.[22]

A recent systematic review and meta-analysis compared the clinical outcomes of isolated ACLR and combined ACLR with ALLR. ACLR combined with ALLR tended to have superior clinical outcomes to isolated ACLR, especially in the absence of residual laxity. However, the other parameters were not significantly different. ACLR combined with ALLR was not routinely performed in all patients who underwent ACLR but was considered more appropriate for patients with chronic rotatory instability.[23]

BRIDGE-ENHANCED ACL REPAIR TECHNIQUE TO TREAT COMPLETE MID-SUBSTANCE INJURIES

Murray et al. found that the BEAR (bridge-enhanced ACL repair) technique yielded similar postoperative results to those of autograft ACLR.[24]

DOES PRP IMPROVE THE RESULTS OF ACLR?

A recently published systematic review demonstrated no long-term effects for PRP use in ACLR.[25] Another systematic review and meta-analysis by Davey et al. demonstrated that, with the best currently available evidence, PRP does not improve the results of ACLR with autograft or allograft.[26]

ALLOGRAFT VERSUS AUTOGRAFT TENDONS IN ACLR

In a retrospective case-control study, patients were divided into two groups: those who received allografts and those who received autografts. Both groups had almost the same functional outcomes after a mean follow-up of ten years, indicating that fresh-frozen allografts appear to be a reasonable alternative for ACLR.[27]

MENISCAL TEARS

MENISCAL REPAIR AUGMENTED WITH PRP VERSUS STANDARD TECHNIQUE WITHOUT AUGMENTATION

A systematic review by Haunschild et al. compared the results of meniscal repair augmented with PRP with those of the standard technique without augmentation. The results were controversial (several articles found significant differences while others did not).[28]

REPAIR OF BUCKET HANDLE MENISCAL TEARS: ALL-INSIDE ARTHROSCOPIC TECHNIQUE VERSUS STANDARD INSIDE-OUT TECHNIQUE

A systematic review by Ardizzone et al. compared all-inside arthroscopic techniques for the repair of bucket-handle meniscal tears with standard inside-out repairs. After a mean follow-up of one year, an overall failure rate of 29% was observed, but no significant differences between the two study groups were evident. Certain specific devices, male sex, and longer follow-up were factors associated with failure.[29]

POSTERIOR MENISCAL ROOT TEARS AND THEIR ASSOCIATION WITH THE DEVELOPMENT OF ARTHRITIS, BOTH WITH AND WITHOUT REPAIR

A study by Bernard et al. compared the outcomes of a group of patients with posterior meniscal root tears divided into three treatment groups: those treated non-surgically, those treated by partial meniscectomy, and those treated by root repair. Progression to knee arthroplasty and arthritic progression on radiographs differed among the groups. After a mean follow-up of approximately six years, 27% of the patients treated non-surgically progressed to arthroplasty, compared to 60% of the patients who underwent partial meniscectomy and 0% of the patients who underwent root repair. The root repair group had less arthritic progression, as demonstrated by a change of only 0.1 in the Kellgren-Lawrence grade (compared to a change of 1 in the non-surgery group and 1.1 in the partial meniscectomy group). However, the International Knee Documentation Committee (IKDC) and Tegner scores showed no significant differences.[30]

Dragoo et al. divided and compared patients over 45 years old into two groups: those who underwent root repair (medial or lateral root tears) and those treated non-surgically. The mean follow-up was 4.4 years, and the results were similar for both groups. However, the root repair group showed better patient-reported outcome measures (PROMs) and lower progression rates to arthroplasty.[31]

PATELLOFEMORAL INSTABILITY

ISOLATED MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION (MPFL) OR IMBRICATION AND/OR REPAIR

Puzzitiello et al. analyzed a group of knees divided into two groups: those that underwent isolated MPFL reconstruction

Table 3. Relevant information on sports injuries of the knee treated by orthopedic surgery.

AUTHORS	YEAR	TYPE OF INJURY	RELEVANT INFORMATION
Spindler et al.[18]	2020	ACL rupture	The odds for ACL graft revision were 2.1-fold greater for the athletes with hamstring tendon autograft than those with BTB autograft.
Rahardja et al.[19]	2020	ACL rupture	Compared with using a hamstring tendon autograft, a patellar tendon autograft reduced the risk of graft rupture.
DeFazio et al.[20]	2020	ACL rupture	Higher return-to-sport (RTS) rates were observed for patients with autograft BTB than those with an autograft hamstring tendon.
Getgood et al.[21]	2020	ACL rupture	Adding lateral extra-articular tenodesis to ACLR (single-bundle hamstring autograft) reduced the failure rate of ACLR two years after surgery.
Getgood et al.[22]	2020	ACL rupture	The addition of lateral extra-articular tenodesis to ACLR was associated with a slight increase in pain scores, a reduction in self-reported function scores, and a decrease in quadriceps strength up to 6 months after surgery. However, the results were similar for both groups one year after surgery.
Rhatomy et al.[23]	2022	ACL rupture	ACLR combined with ALL reconstruction tended to have better clinical outcomes than ACLR alone.
Murray et al.[24]	2020	ACL rupture	The BEAR technique yielded similar postoperative results to autograft ACLR.
McRobb et al.[25]	2022	ACL rupture	No long-term effects of PRP use on ACLR have been demonstrated.
Davey et al.[26]	2020	ACL rupture	PRP does not improve the results of ACLR with autograft or allograft.
Bistolfi et al.[27]	2021	ACL rupture	Fresh-frozen allografts seem a reasonable alternative to autografts for ACLR.
Haunschild et al.[28]	2020	Meniscal tears	The use of meniscal repair augmented with PRP compared with the standard technique without augmentation is still controversial.
Ardizzone et al.[29]	2020	Bucket handle meniscal tears	No differences have been found between the all-inside arthroscopic technique and the standard inside-out technique.
Bernard et al.[30]	2020	Posterior meniscal root tears	After a mean follow-up of approximately six years, 27% of patients treated non-surgically progressed to arthroplasty, compared to 60% of patients who underwent partial meniscectomy and 0% of patients who underwent root repair. In addition, the root repair group had less arthritic progression.
Dragoo et al.[31]	2020	Medial or lateral root tears	The results of root repair and non-surgically treated patients had similar outcomes after 4.4 years of follow-up. However, the root repair group showed better PROMs and lower progression rates to arthroplasty.
Puzzitiello et al.[32]	2019	Patellofemoral instability	MPFL reconstruction yielded better results than MPFL repair.

ACL, anterior cruciate ligament; ACLR, anterior cruciate ligament reconstruction; BTB, bone-tendon-bone; ALL, anterolateral ligament; BEAR, bridge-enhanced ACL repair; PRP, platelet-rich plasma; PROMs, patient-related outcome measures; MPFL, medial patellofemoral ligament.

and those that underwent MPFL imbrication and/or repair. The mean follow-up was five years. One of the study's conclusions was that MPFL reconstruction provided superior results to MPFL repair. Another conclusion was that, for patients undergoing MPFL repair, increased patellar height indicated by a higher Caton-Deschamps Index (CDI) might be a risk factor for recurrent patellar instability.[32] **Table 3** summarizes the most important information on sports injuries of the knee treated by orthopedic surgery.

ANKLE INJURIES

ACUTE ACHILLES TENDON RUPTURE

PLASTER CAST VERSUS FUNCTIONAL WALKING BOOT

Maempel et al. compared plaster cast and functional walking boots for immobilization of acute Achilles tendon ruptures and observed that the patients treated with the functional walking boot had superior results at six months than the patients treated with the plaster cast, although there were no differences at the 1-year follow-up.[33]

EARLY CONTROLLED MOTION OF THE ANKLE VERSUS IMMOBILIZATION FOR 8 WEEKS

Barfod et al. suggested that early controlled mobility offers no benefit in treating acute Achilles tendon rupture over immobilization for eight weeks.[34]

PRP INJECTIONS VERSUS PLACEBO INJECTIONS IN NON-SURGICALLY TREATED RUPTURES

In a prospective, double-blinded RCT, patients were treated with four injections (of PRP or saline solution placebo) on the first four days after injury and with subsequent injections at 2-week intervals. At the 1-year follow-up, PRP did not improve outcomes.[35]

CONCLUSIONS

Although this article has a significant limitation in that the methodology was based on a personal selection of topics and articles related to sports injuries commonly treated by orthopedic surgeons, the following conclusions have been drawn:

For large-to-massive rotator cuff tears, non-surgical treatment has produced superior results at three months, although surgical treatment produced superior results in the longer term. Arthroscopic partial repair without a posterior interval slide appears preferable to complete repair (arthroscopic rotator cuff repair with a posterior interval slide). Graft bridging produced better results than superior capsular reconstruction. There were no differences between arthroscopic rotator cuff repair with or without the addition of PRP over the tendon-bone interface at the end of surgery.

For first-time shoulder dislocation, arthroscopic Bankart repair produced superior results to arthroscopic washout.

In high-grade acromioclavicular separation, the single clavicle tunnel tendon graft construct was preferred to the double tunnel construct. There were no differences in results between early and late surgical intervention.

Regarding the pathology of the long head of the biceps tendon, there were no differences between biceps tenodesis and biceps tenotomy. For FAI, patients treated with hip arthroscopy had better short-term results than those treated with physiotherapy alone.

Regarding ACLR of the knee, the odds of needing ACL graft revision are 2.1-fold higher with hamstring autograft than patellar BTB autograft. The use of a patellar tendon graft reduces the risk of graft rupture. Patients who undergo BTB autograft have higher return-to-sport rates. Adding LET to ACLR (single-bundle hamstring autograft) decreases the risk of ACLR failure two years after surgery. The BEAR technique offers similar postoperative results to ACLR with autograft in complete mid-substance ACL injuries. Fresh-frozen allografts are a good alternative to allografts for ACLR.

Regarding bucket handle meniscal tears, there were no differences between all-inside arthroscopic and standard inside-out repair. In posterior medial meniscal root tears, root repair was associated with less arthritic progression than non-surgical treatment and partial meniscectomy.

In patellofemoral instability, MPFL reconstruction provides superior results to MPFL repair. In ankle fractures, early weight bearing was not inferior to non-weight bearing after surgical treatment.

DECLARATION OF CONFLICT OF INTEREST

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