Return to Play Following Lateral Ankle Ligament Repair: A Systematic Review

Matthew D Civilette [1], Trevor J Wyand [2], Heath P Gould HP [3], Gregory P Guyton [3]

[1] Walter Reed National Military Medical Center, Bethesda, MD; [2] Georgetown University Medical Center, Washington, DC; [3] MedStar Union Memorial Hospital, Baltimore, MD

Introduction

Lateral ankle ligament repair is typically indicated for active individuals with chronic ankle instability that is refractory to non-operative management. Although multiple surgical techniques have been described to address lateral ankle instability, the gold standard is the Brostrom procedure with or without the Gould modification (inferior extensor retinaculum reinforcement). However, few studies have investigated return to play (RTP) following lateral ankle ligament repair and the most appropriate criteria for postoperative RTP have not been established. The purpose of this systematic review was to identify studies that have examined RTP in the setting of lateral ankle ligament repair and to aggregate their results regarding RTP protocol characteristics and postoperative outcomes.

Methods

A systematic review of original research articles was performed using PRISMA guidelines. To qualify for study inclusion, articles were required to be published in English, Level 4 evidence or higher, and had to examine RTP following either Brostrom repair or modified Brostrom-Gould repair. Open and arthroscopic surgical procedures were included. No restrictions were made regarding publication date and methodological quality. RTP data were extracted to assess return to pre-injury level of competition and criteria for RTP following lateral ankle ligament repair.

Results

Of 2,593 articles, 37 were included for analysis

- 23 articles (62.0%) utilized the modified Brostrom-Gould technique,
- 5 (14%) utilized the Brostrom-Gould technique,
- 8 articles (22.0%) examined the Brostrom technique exclusively, and
- 3 (8%) reported the Karlsson modification of the Brostrom.

11 of the included articles (30%) reported using any RTP criteria

- Only 2 (5%) described a specific RTP criteria based on objective, quantitative criteria such as functional scales or radiographic measurements (Table I).

The three most commonly used functional scales to measure surgical outcomes were:

- AOFAS in 17 (46%) studies,
- VAS in 11 (30%) studies, and
- KAFS in 11 (30%) studies.

Postoperative RTP timeline varied widely, ranging from 4-16 weeks.

Average time to RTP was 13.7 weeks

- The overall rate of RTP was 86.6% (Table II)
- 78.9% of patients returning to play at the pre-injury activity level (Table II)

Table 1

Criteria which authors are using to return patients to sport following lateral ligament repair

Author	Year	Criteria for RTP
Cho	2015	1. Physical exam at 2 months; 2. Stress radiograph at 2 months
Cho	2015	1. Physical exam at 3 months; 2. Stress radiograph at 3 months
Hanada	2020	When patients had no discomfort and no recurrence of swelling and effusion
Petrera	2014	1. Full pain-free ROM; 2. >90% of ankle strength compared to contralateral side; 3. Ability to pass sport-specific tests
Samejima	2021	When patient felt no uneasiness during their sport-specific drills greater than 4 weeks after surgery
Takao	2012	When patient felt no uneasiness during their sport-specific drills
Karlsson	1999	When patient regained full functional stability and range of motion
Matsui	2016	When the patient felt no uneasiness during sport-specific drills 6 weeks or more after surgery
May	2022	When the ankle is functionally stable
Karlsson	1988	Sports activities allowed after 10-12 weeks, when ankle is stable
Karlsson	1989	When the ankle is functionally stable

Conclusions

- One-quarter of athletes who underwent Brostrom repair or modified Brostrom-Gould, or Karlsson repair failed to return to their pre-injury level of activity.
- RTP criteria varied widely among the included articles and were based upon disparate factors including subjective patient symptoms, rigid postoperative timelines, physical exam findings, various functional scales, and radiographic measurements.
- Standardized, evidence-based RTP criteria are needed in order to maximize athletic performance and minimize risk of re-injury following lateral ankle ligament repair.
- This is the first study to review return to play criteria following lateral ligament repair and demonstrate the lack of consensus which criteria physicians should use to determine when patients return to play.
- Our study is a baseline for future studies aimed at producing standardized postoperative protocols and standardized objective criteria guiding return to play following lateral ligament repair.

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Corresponding Author

Matthew Civilette, MD
PGY1, Walter Reed National Military Medical Center
E: Matthew.D.Civilette.mil@health.mil