

Meniscal Repair for Symptomatic Discoid Meniscus in Pediatric Patients Shows Excellent Outcomes and High Return to Sport

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INTRODUCTION: A discoid meniscus is a congenital morphological variant in meniscal size, quality and stability that patients to symptomatic instability and meniscal tears, often necessitating surgical intervention. Recently, optimal treatment has trended towards techniques that promote meniscal preservation, such as saucerization with or without repair. This study evaluates the clinical and functional outcomes of meniscal saucerization and repair in pediatric patients with symptomatic discoid lateral meniscus tears at mid-term follow up, with a focus on retear rates, patient-reported outcomes, and return to sport.

METHODS: A retrospective review was conducted of pediatric patients who underwent primary meniscal repair with or without saucerization for a symptomatic discoid meniscus between 2014 and 2022. Patient demographics, tear characteristics, surgical technique, and clinical outcomes were recorded. Patient-reported outcome measures (PROMs) included the Knee Injury and Osteoarthritis Outcome Score (KOOS), International Knee Documentation Committee (IKDC) score, and Lysholm score. Return to sport (RTS) and failure rates were analyzed, with failure defined as the need for revision surgery due to retear.

RESULTS: A total of 34 knees in 32 patients met the inclusion criteria, with a mean age of 12.3 ± 2.7 years and mean follow-up of 50.6 ± 21.9 months. The overall failure rate was 11.8%, with patients requiring revision surgery being significantly older at the time of initial repair (14.8 ± 1.5 vs. 11.9 ± 2.6 years, $p=0.044$) and having fewer sutures used in the primary repair (3.0 ± 2.5 vs. 7.0 ± 2.9 , $p=0.013$). At final follow-up, PROMs demonstrated significant functional improvement, with a mean IKDC score of 85.1 ± 14.1 and Lysholm score of 90.26 ± 12.6 . RTS was achieved in 80% of pre-injury athletes at a mean of 39 ± 30 weeks postoperatively, with 88% returning to their previous level of activity. At final follow-up, 70% of patients reported complete symptomatic resolution, and all patients indicated they would undergo the same procedure again.

DISCUSSION AND CONCLUSION: Meniscal repair in pediatric patients with symptomatic discoid meniscus tears results in excellent functional outcomes, high patient satisfaction, and a low retear rate at mid-term follow up. Older age and fewer sutures used at the time of surgery were associated with an increased risk of retear. These findings highlight the importance of meniscus preservation and robust repair techniques in optimizing clinical outcomes and ensuring long-term stability.

Table 1. Repair Techniques and Associated Suture Counts

Repair Technique	N (%)*	Number of Sutures*
All-Inside	7 (20.6%)	3.6 ± 2.6
Inside-Out	3 (8.8%)	5.33 ± 3.055
Hybrid	24 (70.6%)	7.5 ± 2.7

*Continuous Variables are reported as mean ± standard deviation; categorical variables are reported as n (%).

Table 2. Functional Patient Reported Outcome Scores

Measure	Mean Value*
Lysholm	90.26 ± 12.6
IKDC	85.08 ± 14.13
KOOS	
Symptoms	89.13 ± 10.3
Pain	94.44 ± 7.35
Activities of Daily Living	98.38 ± 2.33
Sports and Recreation	88.04 ± 16.36
Quality of Life	75 ± 26.4

IKDC, International Knee Documentation Committee; KOOS, Knee Injury and Osteoarthritis Outcome Score

Table 5. Tegner Activity Levels at Associated Timepoints

Time Point	Tegner Activity Scale*
Pre-Symptom Peak Activity Level	5.9 ± 2.4
Preoperative Activity Level	2.6 ± 1.9
Current Activity Level	6.0 ± 2.1

*Continuous Variables are reported as mean ± standard deviation