

# Effectiveness and Safety of Knee Joint Arthroscopy for Treating Meniscus Tears

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**Annotation:** This study examines the effectiveness and safety of knee joint arthroscopy in treating meniscus tears. A retrospective analysis was conducted on 150 patients aged 18 to 65 years who underwent arthroscopic surgery for meniscus injuries. The study found significant postoperative improvements in pain reduction and joint mobility. Preoperative pain levels averaged 8.2 on the visual analog scale (VAS), which decreased to 2.1 post-surgery, with over 90% of patients reporting reduced pain. Range of motion improved from 60 degrees preoperatively to 120 degrees postoperatively. The average recovery time was 12 weeks, with faster recovery observed in patients adhering to rehabilitation protocols. Complications occurred in less than 5% of the patients and were successfully managed. This study highlights the minimally invasive nature of arthroscopy, its quick recovery times, and its safety profile, making it an effective treatment option for meniscus tears. Further research on long-term outcomes and personalized rehabilitation protocols is recommended.

**Keywords:** Knee joint arthroscopy, meniscus tears, pain reduction, joint mobility, postoperative outcomes, rehabilitation, complications, minimally invasive surgery.

## Introduction

Knee joint arthroscopy is a minimally invasive surgical technique widely used for diagnosing and treating various knee disorders, particularly meniscus tears. The meniscus, a crucial component of the knee joint, plays a significant role in providing stability, absorbing shock, and distributing load

across the joint surfaces. Injuries to the meniscus are common, often resulting from sports-related activities, degenerative changes due to aging, or traumatic events such as falls or accidents. The increasing prevalence of knee injuries, especially among athletes and active individuals, has prompted the need for effective treatment methods.

Meniscus tears can lead to significant pain, swelling, and restricted mobility, adversely affecting a person's quality of life and ability to perform daily activities. Conservative treatments such as rest, physical therapy, and medication may provide temporary relief; however, they do not always resolve the underlying issues. In cases where conservative management fails, surgical intervention becomes necessary. Arthroscopy has emerged as a preferred method due to its advantages, including reduced recovery time, minimal scarring, and less postoperative pain compared to traditional open surgery.

The existing literature highlights the effectiveness of arthroscopic surgery for treating meniscus tears, yet there remains a need for further investigation to better understand long-term outcomes and complications. Studies indicate that patients undergoing arthroscopy often experience improved pain levels and enhanced joint function. However, factors such as patient demographics, tear characteristics, and rehabilitation protocols can influence the overall success of the procedure.

This study aims to evaluate the effectiveness and safety of arthroscopic surgery for treating meniscus tears in the knee joint. Specifically, it will analyze postoperative outcomes, including pain reduction, joint mobility, recovery time, and complications. The findings of this study will contribute to the existing body of knowledge regarding arthroscopic interventions for meniscus injuries and provide insights for improving clinical practices. By assessing the outcomes and factors affecting recovery, this research aims to enhance patient care and inform future treatment strategies.

## Methods

This research was conducted as a retrospective clinical analysis focused on the effectiveness of knee joint arthroscopy for treating meniscus tears. Data were collected from patients treated between 2020 and 2024 at various surgical clinics. The outcomes were assessed based on the postoperative recovery and rehabilitation processes of the patients.

Participants included patients aged 18 to 65 years diagnosed with meniscus tears who underwent arthroscopic surgery. The selection criteria were as follows:

- Patients with confirmed meniscus tears, independent of other injuries. Those who underwent arthroscopic surgery were included.
- Patients with previous knee surgeries or chronic conditions that could affect the outcome were excluded. Individuals below 18 years and above 65 years were also excluded.

A total of 150 patients participated in the study, comprising 90 males and 60 females. The patients were monitored for up to 6 months post-surgery.

The surgical procedure for treating meniscus tears involved the following steps:

1. Small incisions (2-3) were made around the knee joint. An arthroscope equipped with a small camera was inserted to visualize the internal structures of the knee joint.
2. The location and type of meniscus tear were identified, and damaged sections were either repaired or removed using specialized surgical instruments.
3. Excess fluid and damaged tissue were cleared from the knee joint. After the procedure, small incisions were closed, and a bandage was applied to the knee.

The effectiveness of the surgery was evaluated based on the following criteria:

- The pre- and postoperative pain levels were measured using a visual analog scale (VAS).

- The range of motion of the knee joint post-surgery was assessed using medical instruments.
- The time taken for patients to return to normal activities was recorded.
- Postoperative complications, such as infections and swelling, were documented.

Data collected during the study were analyzed using statistical software. Chi-square tests and t-tests were applied for comparative analysis. A p-value of <0.05 was considered statistically significant. Clinical outcomes and results were presented through graphs and tables.

## Results

A total of 150 patients with meniscus tears underwent arthroscopic surgery. The overall outcomes were evaluated based on pain reduction, joint mobility, and recovery time.

The study included 90 male and 60 female participants, with an average age of 35 years (ranging from 18 to 65). The distribution of meniscus tear types was as follows:

- ✓ 95 patients (63.3%).
- ✓ 55 patients (36.7%).

Preoperatively, patients reported an average pain level of 8.2 on the visual analog scale (VAS). Postoperative assessments at one month indicated a reduction in pain levels to an average of 2.1. More than 90% of patients reported significant pain reduction following surgery. This result was statistically significant ( $p < 0.05$ ).

Post-surgery, the range of motion in the knee joint improved significantly. The average preoperative range of motion was measured at 60 degrees, which increased to 120 degrees post-surgery. 80% of patients achieved a full range of motion.

The full recovery time for patients varied between 8 weeks (2 months) to 16 weeks (4 months), depending on the medical follow-up and rehabilitation process. The average recovery time was noted to be 12 weeks (3 months). Patients who strictly adhered to rehabilitation procedures (physical therapy, exercises) showed significantly faster recovery.

Complications were observed in less than 5% of the patients. Among the complications:

- 3 patients experienced postoperative infections, which were successfully treated with antibiotics.
- 4 patients exhibited swelling in the knee joint, which was also resolved during the rehabilitation process.

Overall, the complication rate was minimal and did not significantly impact the success of the procedure.

## Discussion

This study evaluated the effectiveness and safety of knee joint arthroscopy for treating meniscus tears. The findings indicate that arthroscopic surgery significantly reduces pain levels and restores joint mobility. The observed preoperative pain level of an average of 8.2 highlights the severity of meniscus injuries. The pain reduction following surgery, which averaged 1.5 on the VAS, aligns with results from previous studies conducted in Uzbekistan and other countries.

The improvement in joint mobility, with a range of motion reaching 120 degrees post-surgery, further supports the positive outcomes of arthroscopic procedures. The importance of rehabilitation in the recovery process cannot be overstated. Existing research shows that consistent rehabilitation practices enhance recovery speed and effectiveness.

The observed complication rate of less than 5% reinforces the safety profile of arthroscopic surgery. Previous studies have reported similar rates of complications, underscoring the reliability of this surgical approach.

Future research should explore the individual characteristics of patients (age, gender, activity level) and their influence on surgical outcomes. Additionally, identifying the most effective rehabilitation protocols following arthroscopic surgery for meniscus tears remains an essential area for further investigation.

### Conclusion

This study highlights the effectiveness of knee joint arthroscopy for treating meniscus tears. The results indicate a significant reduction in pain levels and restoration of joint mobility among patients. The minimally invasive nature of arthroscopy and its associated quick recovery times position it as a preferred option for managing meniscus-related issues.

The minimal complication rates further affirm the safety of this surgical technique. Future studies should aim for broader and long-term investigations to enhance the understanding and outcomes of knee joint arthroscopy. These findings provide valuable insights for clinicians and rehabilitation professionals, contributing to improved patient care and recovery.

### References

1. Anterior Knee Pain Syndrome / M. Y. Karimov, K. P. Tolochko, K. M. Mamatkulov.// Journal of Advances in Medicine and Medical Research – 2019 30(3): 1-8, DOI: 10.9734/JAMMR/2019/v30i330178. Great Britan.
2. Arthroscopic restoration of the anterior cruciate ligament using the "All Inside" method with popliteal flexor ten dons or long fibular muscle tendon//Mamatkulov K.M., Xolxo'jayev F.I.//Problems of biology and medicine. 2023. Samarkand
3. Синдром Передней Боли Коленного Сустава/ Каримов М.Ю., Толочко К.П., Маматкулов К.М.//Вестник Ташкенсткой Медицинской Академии - 2017 №5. стр 9-13. Ташкент.
4. Тизза бўғимининг олдинги соҳасида оғриқлари бўлган беморлар учун u.m. Kujala сўровномаси/ Каримов М.Ю., Толочко К.П., Маматкулов К.М.// O'zbekiston Tibbiyot jurnali - 2019 №2 стр 111-113. Тошкент.
5. Пластика Передней Крестообразной Связки Сухожилиями Подколенных Сгибателей Или Сухожилием Длинной Малоберцовой Мышцы/ Маматкулов К.М., Холхужаев Ф.И., Рахмонов Ш.Ш.// The Journal Of Academic Research In Educational Sciences - Volume 2, Issue 2, February 2021 – 1214-1219. Scientific Journal Impact Factor (SJIF) 2021: 5.723/ DOI: 10.24411/2181-1385-2021-00326.
6. Зохидова С., Маматалиев А. Морфофункциональная и гистологическом строении эпителия языка крупного рогатого скота //евразийский журнал медицинских и естественных наук. – 2023. – т. 3. – №. 2. – с. 133-139.
7. Зохидова, С. Х., Маматалиев, А. Р., Тухтаназарова, Ш. И., Мусурмонов, А. М., Омонов, А. Т., & Мусурмонов, Ф. И. (2023). Возрастной особенности гистологического строения различных отделов аорты у плодов и новорожденных. Central asian journal of innovations on tourism management and finance, 4(5), 115-121.
8. Тухтаназарова Ш. И., Маллаходжаев А. А., Нурмурадов и. И. Роль селена в стимуляции противоопухолевого иммунитета //european journal of interdisciplinary research and development. – 2022. – т. 8. – с. 135-148.