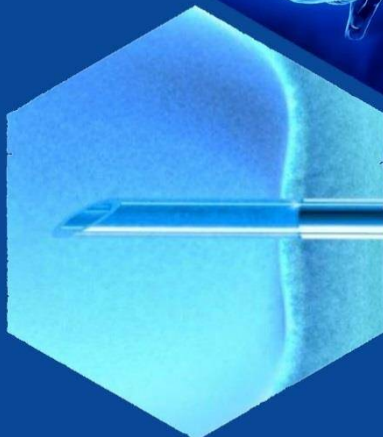
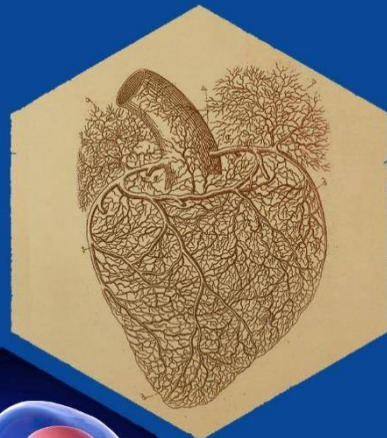


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CLINICAL AND ANAMNESTIC CHARACTERISTICS OF PATIENTS
AFTER MENISCECTOMY<https://doi.org/10.5281/zenodo.22076595>**Latipov Ulmasjon Shaykhiddinovich**

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E-mail: shuchrat_66@mail.ru**Abstract****Objective:**

To evaluate anthropometric, clinical, and functional characteristics of patients in the early postoperative period after meniscectomy, taking into account age and gender differences. **Materials and Methods:** The study included 132 patients aged 18–60 years who underwent arthroscopic partial or total meniscectomy for traumatic or degenerative meniscal injuries between 2021 and 2024. A retrospective analysis of medical records was performed. Anthropometric parameters, lower limb muscle strength, functional activity, pain intensity, and motor function recovery were assessed one week after surgery. Patients were divided into three age groups: 18–29 years ($n = 48$), 30–44 years ($n = 45$), and 45–60 years ($n = 39$). Statistical analysis was conducted using IBM SPSS Statistics 26.0. **Results:** One week after meniscectomy, a significant decrease in thigh circumference and muscle strength of the quadriceps femoris and calf muscles was observed on the operated side. Functional performance in balance, mobility, and endurance tests was reduced, while pain intensity increased, particularly in older patients and women. Age and gender significantly influenced the rate of functional recovery and pain severity ($p < 0.05$). **Conclusion:** Early postoperative changes after meniscectomy are characterized by reduced muscle strength, impaired functional activity, and increased pain intensity. Age and gender are important factors affecting early recovery. These findings highlight the necessity of individualized early rehabilitation programs to accelerate knee joint function recovery and prevent post-traumatic arthropathy.

Keywords: meniscectomy, early rehabilitation, knee joint, muscle strength, functional activity, pain syndrome, motor function recovery, age-related characteristics

КЛИНИЧЕСКИЕ И АНАМНЕСТИЧЕСКИЕ ХАРАКТЕРИСТИКИ
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Аннотация

Цель: Оценить антропометрические, клинические и функциональные характеристики пациентов в раннем послеоперационном периоде после менискэктомии с учётом возрастных и гендерных различий. **Материалы и методы:** В исследование включены 132 пациента в возрасте от 18 до 60 лет, которым в период 2021–2024 гг. была выполнена артроскопическая частичная или тотальная менискэктомия по поводу травматических и дегенеративных повреждений мениска. Проведён ретроспективный анализ медицинской документации. Через одну неделю после операции оценивались антропометрические показатели, сила мышц нижних конечностей, функциональная активность, интенсивность болевого синдрома и восстановление двигательной функции. Пациенты были распределены на три возрастные группы: 18–29 лет ($n = 48$), 30–44 года ($n = 45$) и 45–60 лет ($n = 39$). Статистическая обработка данных выполнена с использованием пакета **IBM SPSS Statistics 26.0**. **Результаты:** Через одну неделю после менискэктомии выявлено достоверное уменьшение окружности бедра и снижение силы четырёхглавой мышцы бедра и икроножных мышц на оперированной стороне. Отмечено снижение функциональных показателей в тестах на равновесие, подвижность и выносливость, а также усиление болевого синдрома, особенно у пациентов старших возрастных групп и у женщин. Возраст и пол оказывали значимое влияние на темпы функционального восстановления и выраженность болевого синдрома ($p < 0,05$).

Заключение:

Ранний послеоперационный период после менискэктомии характеризуется снижением мышечной силы, нарушением функциональной активности и усилением болевого синдрома. Возраст и гендерные особенности являются важными факторами, влияющими на раннее восстановление. Полученные данные подчёркивают необходимость разработки индивидуализированных программ ранней реабилитации для ускорения восстановления функции коленного сустава и профилактики посттравматической артропатии.

Ключевые слова: менискэктомия, ранняя реабилитация, коленный сустав, мышечная сила, функциональная активность, болевой синдром, восстановление двигательной функции, возрастные особенности.

CLINICAL AND ANAMNESTIC FEATURES OF PATIENTS AFTER MENISCECTOMY

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Abstract

Purpose: From meniscectomy next early from the operation last in the period of patients anthropometric , clinical and functional indicators young and gender factors into account received without assessment .

Material and Methods: Research period 2021–2024 during traumatic and degenerative meniscus injuries because of arthroscopic partially or complete meniscectomy conducted , age 18–60 years 132 people in the range patient Medical of documents retrospective analysis done increased . From the operation one week pass anthropometric indicators , bottom extremities muscles strength , functional activity , pain intensity and the movement function recovery level Patients were evaluated . three young to the group divided into : 18–29 years (n = 48), 30–44 years (n = 45) and 45–60 years (n = 39). Statistical analysis Using **IBM SPSS Statistics 26.0** software was performed. **Results :** From meniscectomy one week passing by operation made hip circumference on the side noticeable at the level decrease , four hamstring and it is a child muscle of strength decrease determined . Balance , mobility and endurance in tests functional indicators deterioration , as well as pain syndrome increase record Pain intensity , especially large aged patients and in women higher It was . Age and gender factors functional recovery pace and pain to the level noticeable impact showed ($p < 0.05$).

Conclusion: From meniscectomy next early from the operation last period muscle of strength decline , functional activity violation and pain syndrome increase with Described . Age and gender of patients recovery to the process important impact provider factors is obtained . results knee joint function faster recovery provide and post-traumatic arthropathy prevent to take individual early in order rehabilitation programs working exit the necessity shows .

Key words : meniscectomy , early rehabilitation , knee joint , muscle strength , functional activity , pain syndrome , motor function recovery , age related Features .

Importance . Meniscectomy various etiologies meniscus injuries for executable the most wide widespread knee from operations one become remains [1, 2]. The process relatively technician simplicity despite the operation next early period of the thigh muscles tone and of strength decrease , movement of the circle limitedness and of pain development with described [3, 4], which and functional recovery slows down . From surgery next initial in days of patients anthropometric

and clinical-functional features determination early rehabilitation programs optimization and from trauma next arthropathy prevent to take for key is [5-7].

The research purpose from meniscectomy next initial from the operation next in the period in patients knee of the joint anthropometric, clinical and functional parameters gender and age into account received without assessment was.

Research materials and methods. The study will be conducted in 2021 and 2024. between orthopedics and traumatology at the clinic seen traumatic and degenerative meniscus injuries because of meniscectomy 132 patients treated included. Join Criteria: 18 to 60 years old, arthroscopic confirmed medial or lateral meniscus damage, standard partially or complete meniscectomy and complete clinical, anamnestic and instrumental observation. Exception criteria the following was: repeated knee operations, systematic binder tissue diseases presence, inflammatory arthropathies, severe obesity ($BMI \geq 35 \text{ kg/m}^2$) and additional surgery requiring intervention neighbor injuries. Medical of records retrospective analysis was held, in which following parameters indicated: age, gender, injury mechanism, meniscus injury type, additional injuries presence, body mass index (BMI), injury side and from the operation previous injury time. All patients three young to the group divided into: group I — 18–29 years old ($n = 48$), group II — 30–44 years old ($n = 45$), group III — 45–60 years old ($n = 39$). Meniscus of injury type arthroscopic findings (medial, lateral or combined) based classified. Related injuries magnetic resonance tomography and operation at the time inspection (previous) cruciate ligament rupture, cartilage and capsular-ligamentous injuries) based on evaluated. Statistics information again working with IBM SPSS Statistics 26.0 package using done increased. Descriptive Statistics ($M \pm SD$, %, frequencies) were used. Groups between quantitative variables comparison Student's t-test for and categorical variables Pearson χ^2 test for Differences were statistically significant at $p < 0.05$. in terms of considered significant.

Results. Research from meniscectomy one week later, the patients condition, including anthropometric parameters, bottom limbs muscles strength, functional activity, pain weight and of movement recovery dynamics wide comprehensive analysis did. Obtained information to us from the operation next early changes determination and knee of the joint recovery to the speed young and of the sex the impact assessment opportunity gives.

Table 1.

Anthropometric characteristics of patients 1 week after meniscectomy

Age group	Gender	Hip circumference (healthy limb), cm ($M \pm SD$)	Hip circumference (operated limb), cm ($M \pm SD$)	Difference, cm	p
Me (ages 18–29)	Men	55.0 ± 3.1	53.8 ± 3.3	-1.2	<0.05
	Women	53.2 ± 3.0	52.0 ± 3.1	-1.2	<0.05
II (30–44 years old)	Men	56.1 ± 3.2	54.5 ± 3.4	-1.6	<0.05
	Women	54.0 ± 3.1	52.3 ± 3.3	-1.7	<0.05
III (45–60 years old)	Men	57.0 ± 3.5	55.0 ± 3.8	-2.0	<0.01
	Women	55.4 ± 3.4	53.5 ± 3.7	-1.9	<0.01

Table 1 shows the anthropometric characteristics of the patients one week after meniscectomy, adjusted for age and gender. In all participants, the hip circumference on the surgical side was significantly reduced compared to the healthy limb ($p < 0.05$), indicating early signs of muscle weakness due to limited physical activity and immobilization of the limbs. The mean difference in hip circumference in the 18–29 age group was -1.2 cm, indicating relatively rapid adaptation of muscle tissue in younger patients. In the 30–44 and 45–60 age groups, the decrease was -1.6 and -2.0 cm, respectively, and was especially significant in men, which is associated with an increase in initial muscle mass and an age-related decrease in regenerative capacity. A similar trend was observed in women - the decrease in hip circumference became more pronounced with age. One week after meniscectomy, all patients had a significant decrease in soft tissue volume on the surgical side, which was especially pronounced in the older age groups. This reflects the rapid progression of muscle atrophy due to limited mobility and indicates the need for early initiation of active rehabilitation aimed at restoring trophism and tone of the quadriceps muscles of the thigh.

Table 2.

Lower limb muscle strength 1 week after meniscectomy

Age group	Floor	Quadriceps muscle strength (healthy limb), kg (M ± SD)	Quadriceps muscle strength (operated limb), kg (M ± SD)	Difference, kg	p	Calf muscle strength (healthy limb), kg (M ± SD)	Calf muscle strength (operated limb), kg (M ± SD)	Difference, kg	p
I (ages 18–29)	Men	37.2 ± 3.9	29.0 ± 4.0	-8.2	<0.05	27.0 ± 2.9	21.8 ± 3.0	-5.2	<0.05
	Women	35.8 ± 4.0	27.2 ± 4.2	-8.6	<0.05	26.5 ± 3.0	20.9 ± 3.1	-5.6	<0.05
II (30–44 years old)	Men	37.5 ± 4.1	28.3 ± 4.5	-9.2	<0.05	27.1 ± 3.1	21.3 ± 3.2	-5.8	<0.05
	Women	36.0 ± 4.0	27.0 ± 4.3	-9.0	<0.05	26.8 ± 3.0	21.0 ± 3.1	-5.8	<0.05
III (45–60 years old)	Men	38.0 ± 4.2	27.5 ± 4.5	-10.5	<0.01	27.5 ± 3.1	21.0 ± 3.2	-6.5	<0.01
	Women	36.5 ± 4.1	26.8 ± 4.4	-9.7					

Table 2 shows the decrease in quadriceps and calf muscle strength in the operated limb compared to the healthy limb in patients of different ages and genders 1 week after meniscectomy. Age group I (18–29 years): quadriceps strength in men decreased from 37.2 ± 3.9 kg to 29.0 ± 4.0 kg (difference -8.2 kg, $p < 0.05$), calf muscle strength decreased from 27.0 ± 2.9 kg to 21.8 ± 3.0 kg (difference -5.2 kg, $p < 0.05$). In women, similar indicators decreased from 35.8 ± 4.0 kg to 27.2 ± 4.2 kg

and from 26.5 ± 3.0 kg to 20.9 ± 3.1 kg, respectively. Age group II (30–44 years): quadriceps strength in men decreased by 9.2 kg and calf muscle strength by 5.8 kg ($p < 0.05$). In women, quadriceps strength decreased by 9.0 kg and calf muscle strength by 5.8 kg ($p < 0.05$). Age group III (45–60 years): the greatest decrease was observed in men: quadriceps strength decreased by 10.5 kg and calf muscle strength by 6.5 kg ($p < 0.01$). In women, quadriceps strength decreased by 9.7 kg and hamstring strength decreased by 6.1 kg ($p < 0.01$). One week after meniscectomy, there was a significant decrease in muscle strength in the operated lower limb in all age groups, compared with the uninjured limb. The greatest loss of strength was observed in older patients, reflecting age-related differences in muscle regeneration and decreased functional reserve. These data emphasize the need for early active rehabilitation to prevent muscle loss and accelerate the recovery of knee joint function.

Table 3.

Functional activity of patients 1 week after meniscectomy

Age group	Floor	Standing in 30 seconds (M $\pm$ SD)	Step test, m (M $\pm$ SD)	Balance retention, s (M $\pm$ SD)	IKDC, scores (M $\pm$ SD)	Lysholm, scores (M $\pm$ SD)
Me (ages 18–29)	Men	17.5 ± 2.1	142.0 ± 12.5	18.5 ± 3.2	66.2 ± 5.8	73.5 ± 6.5
	Women	16.8 ± 2.2	138.5 ± 13.0	17.8 ± 3.3	64.8 ± 6.0	72.0 ± 6.8
II (30–44 years old)	Men	16.0 ± 2.0	134.0 ± 12.8	17.5 ± 3.5	63.5 ± 6.2	71.0 ± 7.0
	Women	15.5 ± 2.1	130.5 ± 13.5	16.8 ± 3.5	62.0 ± 6.5	69.8 ± 7.2
III (45–60 years old)	Men	15.2 ± 2.3	128.0 ± 13.0	16.0 ± 3.6	60.5 ± 6.8	68.5 ± 7.4
	Women	14.8 ± 2.4	125.0 ± 14.0	15.0 ± 3.7	58.2 ± 6.9	66.0 ± 7.5

Table 3 shows the decrease in functional activity in patients 1 week after meniscectomy according to various tests. Physical tests: The number of standing in 30 seconds, the distance of the step test and the time of balance decrease significantly with age, especially in women and elderly patients. Assessment by scale: The total scores on the IKDC and Lysholm scales indicate a decrease in knee joint function and quality of life during the early recovery period. In patients aged 45–60 years, the scores were significantly lower than in younger patients ($p < 0.01$). A significant decrease in functional activity is observed one week after meniscectomy, which requires early interventions to restore muscle strength, balance and overall quality of life. The greatest limitations are observed in women and elderly patients, which should be taken into account when planning an individual rehabilitation program.

Table 4.

Pain intensity in patients 1 week after meniscectomy (on a 10-point scale)

Age group	Floor	Pain during bending, points (M $\pm$ SD)	Pain on stretching, points (M $\pm$ SD)
Me (ages 18–29)	Men	3.0 ± 0.5	2.5 ± 0.4
	Women	3.2 ± 0.6	2.7 ± 0.5
II (30–44 years)	Men	3.6 ± 0.6	3.0 ± 0.5

old)	Women	3.8 ± 0.7	3.2 ± 0.5
III (45–60 years old)	Men	4.0 ± 0.7	3.5 ± 0.6
	Women	4.2 ± 0.7	3.5 ± 0.6

Table 4 shows the pain scores based on patient age and gender, measured on a 10-point scale. Pain was assessed separately during knee flexion and extension. Pain intensity increased with age in all age groups, both during flexion and extension. Women reported slightly more pain than men in each age group. The lowest pain scores were observed in patients in the younger group (I, 18–29 years), and the highest in the older group (III, 45–60 years). The difference between pain during flexion and extension remained in all groups: pain during flexion was slightly greater than pain during extension. Pain intensity after meniscectomy increases with age and is slightly more pronounced in women, which indicates the need for early pain control and individualization of the rehabilitation program depending on the patient's gender and age.

Table 5.

Restoration of motor activity in patients 1 week after meniscectomy

Age group	Floor	Recovery time after walking without crutches, days (M $\pm$ SD)	Distance in 6-minute test, m (M $\pm$ SD)
Me (ages 18–29)	Men	9.5 ± 2.0	$420 \pm -$
	Women	10.5 ± 2.2	$410 \pm -$
II (30–44 years old)	Men	11.0 ± 2.4	$370 \pm -$
	Women	12.0 ± 2.5	$360 \pm -$
III (45–60 years old)	Men	13.0 ± 2.8	$330 \pm -$
	Women	14.0 ± 3.2	0-

Table 5 shows the recovery time of independent walking without crutches and the distance in the 6-minute test in patients of different ages and genders 1 week after meniscectomy. The average recovery time of walking without crutches increased with age: in young men (18–29 years) it was 9.5 ± 2.0 days, and in young women - 10.5 ± 2.2 days. Patients in the middle group (30–44 years) recovered longer - 11.0 – 12.0 days, and in the older group (45–60 years) - 13.0 – 14.0 days, with the recovery period lasting the longest in women in the older group. The 6-minute test distance decreased with age: from 420 m in young men to 320 m in older women. This decrease in distance was accompanied by increased pain and fatigue, indicating an age-related slowdown in the recovery process and functional capacity of the knee joint after meniscectomy. A week after surgery, a significant decrease in motor activity is observed, which is expressed in a longer recovery time for walking and a decrease in the distance covered in the test, with more pronounced impairments in older patients and women.

Discussion. The results of our study show that patients experience significant changes in anthropometric, functional, and pain parameters one week after meniscectomy, reflecting the early effects of knee surgery. Anthropometric data revealed a decrease in hip circumference in all age and gender subgroups on the surgical side, indicating an early development of hip muscle loss due to

immobilization and limited weight-bearing. The greatest decrease was observed in patients aged 45–60 years, consistent with age-related changes in muscle regeneration and a decrease in muscle functional reserve. Dynamometric measurements confirmed a decrease in quadriceps and calf muscle strength, with the greatest decrease observed in older men. These data reflect both the effects of immobilization and age-related changes in muscle mass, which may delay the recovery of knee joint function. Functional tests (stand-up test, step test, balance test) and assessments using the IKDC and Lysholm scales revealed a significant decrease in functional activity in the early postoperative period. The scores were significantly lower in elderly patients, which indicates the need for individual rehabilitation programs adapted to age and gender. Pain syndrome, recorded on a 10-point scale, was also more pronounced in elderly patients and in women, which confirms the literature data on increased pain sensitivity and age-related changes in sensitivity to nociceptive stimuli in women. The prolonged recovery time for independent walking and the reduction in distance in the 6-minute test indicate the need for early introduction of targeted physical exercises aimed at restoring muscle strength, range of motion, and reducing pain. A comprehensive rehabilitation program should include progressive exercise, physiotherapy, and pain management to accelerate functional recovery. Thus, our data confirm the importance of early monitoring of anthropometric and functional parameters in patients after meniscectomy and emphasize the need for a personalized approach to rehabilitation, taking into account age, gender, and initial level of physical activity. The initial postoperative period after meniscectomy is characterized by muscle loss, decreased strength and functional activity, severe pain, and prolonged recovery time to walking. These changes are more pronounced in older patients and women, which requires customized rehabilitation strategies to optimize knee function.

Conclusion: Just one week after meniscectomy, patients showed significant improvements in anthropometric, strength, and functional parameters of the operated limb. Of changes weight young and to the sex dependency defined : most clear disorders women and old in patients is observed . Quadriceps muscles of strength decrease , movement of the circle limitation and of pain increase muscles the tone and knee joints mobility to restore aimed at active rehabilitation measures early requires starting . IKDC and Lysholm scales from meniscectomy then early rehabilitation efficiency dynamic monitoring for objective tools become service to do possible .

QUOTES | FOOTNOTES | REFERENCES:

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ЎЗБЕК ТИББИЁТ ЖУРНАЛИ

8 ЖИЛД, 1 СОН

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