

Clinical practice and post-operative rehabilitation after knee arthroscopy varies according to surgeon's expertise: a survey among Polish Arthroscopy Society members.

Paweł Bąkowski (✉ pawel.bakowski@rehasport.pl)

Rehasport Clinic <https://orcid.org/0000-0001-8661-7754>

Kamilla Bąkowska-Żywicka

Institute of Biorganic Chemistry, Polish Academy of Science

Tomasz Piontek

Rehasport

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Abstract

Background: Meniscal repair has received increasing attention. Currently, there is a variety of arthroscopic methods of meniscus repair available. The purpose of this study was to determine a consensus in meniscus tear treatment in the environment of Polish orthopedists.

Methods: 205 registered orthopedic surgeons took part in surveys. The survey consisted of 35 questions regarding general arthroscopy and postoperative management, including physician's level of expertise, arthroscopy anesthesia, postoperative treatment, rehabilitation and procedures performed. Comparisons were made between knee arthroscopy experts (> 100 arthroscopies performed per year) and non-experts (\leq 100 cases) on aspects of patient care.

Results: The most important finding of this study is an agreement in almost all aspects of knee arthroscopy approach. A consensus between Polish surgeons was noticed in choosing regional anesthesia for knee arthroscopy, no need for knee braces nor knee medications, using LMW heparin as thromboprophylaxis, 1-2 days hospitalization, recommendation of rehabilitation and magnetic resonance as a diagnostic test for meniscus damage. Surgical expertise was significantly associated with the performance of meniscus sewing procedures ($p = 0.009$). Experts recommended starting rehabilitation already on the day of surgery ($p=0.007$) and more likely used objective physical tests ($p=0.003$). Non-expert surgeons recommended longer period from meniscus suture to a full range knee motion ($p=0.001$) and admitted that patient's age does matter for meniscus repair qualification ($p=0.002$).

Conclusions: There is a consensus in almost all issues of meniscus tear treatment in the environment of the Polish orthopedists, however the rehabilitation issues and the use of advanced meniscus repair techniques is associated with surgical expertise.

Background

The menisci injury is a common ailment of the knee injury [1]. Due to its hypovascularity and hypocellularity, a meniscus tear does not heal spontaneously [2,3,4] and prolonged untreated damage may lead to the development of osteoarthritis [5,6,7]. Current orthopedic practice aims to preserve meniscal integrity and restore its function [8,9,10,11]. A variety of arthroscopic methods of meniscus repair is used, including different meniscus suturing techniques, which are often modified to increase the effectiveness of the surgery [12,13,14,15]. Therefore, studies aimed at analysis of the existing meniscus repair methods are very actual. Recently, the European Society for Sports Traumatology, Knee Surgery and Arthroscopy (ESSKA) European consensus provided recommendations for the treatment of meniscus tears based on both, scientific evidence and the clinical experience of knee expert surgeons [16,17]. Other studies have shown that the surgeon's level of expertise significantly affects the clinical outcomes in patients undergoing knee arthroscopy [18,19]. Therefore, the main goal of the study was to determine a consensus in meniscus tear treatment in the environment of the Polish orthopedists. We have

hypothesized that the clinical practice differs among the Polish Arthroscopy Society community members, according to the level of surgeon's expertise.

Methods

For this study, a questionnaire was presented to 205 orthopedists with various levels of clinical expertise in arthroscopy during Polish Arthroscopy Society Congress, which was held on 24-26 October 2019 in Katowice, Poland. The questionnaire consisted of six sections with a total of 35 questions regarding knee arthroscopy and postoperative management. The six sections of the questionnaire included: (A) physician's level of expertise (4 questions), (B) anesthesia during arthroscopy (1 question), (C) postoperative treatment (3 questions), (D) hospital stay (3 questions), (E) rehabilitation protocols (11 questions) and (F) procedures in arthroscopy (13 questions). The complete survey is available in Appendix 1.

A pilot survey was conducted before the meeting. The questionnaire was distributed to 10 orthopedic surgeons and a biostatistician to ensure that it was scientifically sound and the question stems were easy to understand. We defined experts as any participating orthopedist who had performed > 100 knee arthroscopies per year. Orthopedists who had performed 100 or fewer knee arthroscopies per year were classified as non-experts for this study.

Statistical analysis

Statistics were conducted using Prism8 software (GraphPad Software, San Diego, CA). Power analysis was conducted to identify the minimum number of participants required in each group to detect statistical significance. The sample size calculation showed that with a power of 80% (2-sided testing at a significance level of 0.05), a sample size of 43 participants was needed. To test proportional differences in categorical variables, a Chi square test was performed. Fisher exact tests were used when cells contained less than five subjects. Statistical significance was determined as $p < 0.05$.

Results

205 participants were questioned by 5 hostesses. All survey forms were used for the analysis. Table 1 presents the educational background of the participating surgeons in the field of knee arthroscopy. 55 orthopedists (28%) performed more than 100 knee arthroscopies per year independently and were classified as experts for this study. The remaining 150 orthopedists (72%) performed up to 100 knee arthroscopies per year and therefore were classified as non-experts.

The comparison of the clinical practice between expert and non-expert surgeons who perform knee arthroscopy is shown in Table 2. Regional anesthesia (spinal/epidural) was favored by 172 (84%) orthopedists (48 experts and 124 non-experts). Only 27 (13%) orthopedists (4 experts and 23 non-experts) recommended using an orthosis to their patients immediately after knee arthroscopy. Only 22 (10%) of orthopedists (8 experts and 10 non-experts) used knee medications in the first 24 h after arthroscopy. The

most commonly reported pain medications were local anaesthetic drugs belonging to the amino amide group (8 surgeons) or hyaluronic acid (7 surgeons). Experts and non-experts answered almost equally when asked about anti-thrombotic prophylaxis administered to the patients. Low molecular weight heparin (LMH) was recommended by 181 (88%) surgeons (51 experts and 130 non-experts). Both, knee arthroscopy experts (85%) and non-experts (75%) recommended one day of hospitalization after non-reconstructive arthroscopy. 1 or 2 days of hospitalization were most frequently recommended after reconstructive arthroscopy.

Comparison of the rehabilitation recommendations are shown in Table 3. 203 (99%) surgeons (55 experts and 148 non-experts) reported that they always discuss the importance of the rehabilitation with the patients. 135 (64%) surgeons always recommend rehabilitation (excluding physical therapy) and 43 (21%) - mostly. There was a statistically significant difference noticed ($p=0.032$) when surgeons were asked about their patients' compliance with the rehabilitation recommendations. 22% of experts and 14% of non-experts admitted their patients mostly follow the rehabilitation recommendations. 124 (60%) of the recommended beginning of the rehabilitation within one day after the surgery. Knee arthroscopy experts more frequently recommended the beginning of the rehabilitation procedure at the day of surgery (14 of 55 experts, 25%, $p=0.007$). A standardized rehabilitation protocol was recommended by 84 (42%) surgeons. 176 (86%) surgeons reported that the rehabilitation protocol was dependent on procedures performed. 189 (92%) surgeons reported that the physical therapist was the key person responsible for patient rehabilitation. Cryotherapy was recommended by 77% orthopedists (42 experts and 113 non-experts) and physical therapy – by 65%. Within this group, lasertherapy and magnetotherapy were most frequently used.

Table 4 shows factors considered when recommending return to the sport after knee arthroscopy. In most cases either surgeon or surgeon together with a physical therapist were responsible for the decision whether a patient is ready to return to sport. The most important factor in a decision process was a functional state of the patient (93% of experts and 74% non-experts, $p=0.002$). Objective measurements were used to aid in the decision whether to return to sport by 159 (78%) surgeons (50 experts and 109 non-experts, $p = 0.003$). Among them, functional tests were preferred by experts ($p=0.006$).

Comparison of knee arthroscopic procedures performed by expert and non-expert surgeons is shown in Table 5. Both, experts and non-experts used a broad spectrum of the arthroscopic procedures (Fig. 1). Non-experts had significantly less experience with meniscus suturing ($p=0.005$) and more experience with meniscus removal ($p=0.009$) (Fig. 2). Experts were using significantly more meniscus repair techniques than non-experts (Fig. 3). Diagnostic tests used by experts and non-experts were similar, with magnetic resonance as a preferred diagnostic method.

Comparison of post-arthroscopic procedures performed by expert and non-expert surgeons is shown in Table 6. Both experts and non-experts recommended similar time of using elbow crutches after meniscus removal (2 weeks) or orthosis after meniscus suture (6 weeks). The answers were however different when

surgeons were asked about how soon after meniscus sewing they recommend a full range of knee motion. Experts recommendation was 4 weeks and non-experts – 6 weeks ($p=0.001$).

Comparison of the factors influencing the decision on arthroscopic procedures between expert and non-expert surgeons is shown in Table 7. Experts and non-experts named similar factors when they considered whether to remove or to repair the meniscus – damage type, damage zone and patient's age. However, when it comes to meniscus repair qualifications, experts stated that age does not matter significantly more frequently than non-experts ($p=0.002$).

At the end of the survey, participating orthopedist were asked to choose the recommended procedure for traumatic meniscus tear in 18-year-old and in 30-year-old professional football players. 179 (87%) orthopedists decided to repair the damaged part of the meniscus in an 18-year-old patient: 53 (97%) experts and 126 (84%) non-experts. 166 (81%) surgeons decided to repair the damaged part of the meniscus in an 30-year-old patient: 44 (80%) experts and 122 (81%) non-experts.

Discussion

The most important finding of the present study was the agreement between expert and non-expert arthroscopic knee surgeons in most aspects of clinical care. This survey explored numerous aspects of the peri-operative and postoperative care of patients undergoing knee arthroscopy.

A consensus between polish orthopedists was reached in a preferential use of the regional anesthesia for knee arthroscopy. This is in agreement with world standards [20,21,22,23]. Regional anesthesia, in contrast to the general one, is a simple, safe technique, well accepted by patients and reducing hospital stay. Therefore experts and non-experts agreed on short duration of hospital stay after knee arthroscopy (1-2 days). Polish surgeons also agreed to no need for routine recommendation of using a knee orthosis, which is in agreement with previous studies, showing no beneficial effect of bracing after knee arthroscopy [24, 25] or even indirect prevention of ACL reruptures in case of rehabilitation without a knee brace [26].

Pain control after knee arthroscopy is an important aspect of the patient experience. In this survey all surgeons agreed that there is no need for intraarticular knee medications immediately after knee arthroscopy. This did not differ between the expert and non-expert surgeons. The presentation of pain is determined by the procedure of knee surgery and previous studies showed that a significant proportion of patients have only very mild or mild pain after knee arthroscopic procedures [27]. Polish experts and non-experts are well-educated on pain control.

Current guidelines for thromboprophylaxis recommend the use of vitamin K antagonists (e.g. warfarin), low-molecular-weight heparins (LMW heparin) or aspirin [28,29,30]. Polish experts and non-experts agreed on the use of LMW heparin, following the recommendations regarding venous thromboembolism prevention in orthopedic surgery and traumatology developed by Polish orthopedic surgery experts under

the auspices of the national consultant for orthopedic surgery and traumatology and the chairman of the Polish Society for Orthopedic Surgery and Traumatology [31].

Post-operative rehabilitation is crucial to achieve successful outcomes in patients undergoing knee arthroscopy [32]. The surgeon plays a key role in educating the patient about the importance of post-surgical rehabilitation. Polish surgeons agreed that proper post-operative rehabilitation of the knee is essential for a return to active lifestyle. In our survey, 99% of the surgeons reported that they discussed the importance of compliance with the rehabilitation protocol with the patient. However, there is still a room for an improvement, since 1% of surgeons never recommends rehabilitation, 5% - rarely and 7% - only sometimes. Experts admitted that their patients comply with the rehabilitation protocol to high extend, in contrast to non-experts. This might be explained by greater authority of more experienced surgeons. Polish experts recommended starting rehabilitation already on the day of surgery. Surgeons from all over the world have increasingly emphasized early mobilization, which may produce favorable post-operative outcomes [33,34,35]. Most surgeons (92%) reported that they always recommended their patient a rehabilitation with a physiotherapist after knee arthroscopy, which is now considered as a gold standard and its effectiveness was showed by a number of control studies [36,37,38,39]. Expert surgeons did not use physical therapist as much as non-experts in making the decision on return to activity. This may be due to the newer surgeon being more conservative, relying on the physical therapist for another opinion. Evidence Based Medicine (EBM) does not exist in physical therapy, in contrary to the physiotherapy. In this survey experts and non-experts recommended a physical therapy less frequently (65%) than the rehabilitation with a physiotherapist (92%). More research is needed, and a consensus should be determined by the polish National Health Fund on recommendations of physical therapy after knee arthroscopy.

There is a lack of consensus regarding the optimal postoperative protocol following meniscal repair [32]. Diverse treatment methods require individual and various rehabilitation approach, which is why individual cooperation between the physiotherapist and the patient is so important [40]. Only 42% of polish surgeons recommend standardized rehabilitation and 86% confirm the dependence of rehabilitation program on performed procedure. Additional studies are needed to better clarify the interplay between tear type, repair method and optimal rehabilitation protocol.

Magnetic resonance imaging (MRI) is considered to be the most accurate method of imaging of the internal knee joint structure, with sensitivity in detecting medial meniscus lesions ranging from 83% to 94% [41,42,43]. The ESSKA European meniscus consensus group recommended using MRI when arthroscopy would be considered to identify concomitant pathologies [17]. Magnetic resonance as a diagnostic test for meniscus damage was recommended by 97% orthopedists in this study. However, 50% of surgeons recommended ultrasounds as a diagnostic method and this should not be practiced, since it is not recommended by ESSKA European meniscus consensus group for traumatic nor degenerative damage. Experts and non-experts should be educated on this.

Surgical expertise was significantly associated with the performance of the reconstructive procedures, in comparison to the diagnostic arthroscopy performed more often by non-experts. Experts were significantly more likely to perform meniscus sewing procedures than non-experts, which are considered advanced and challenging techniques. The clinical experience of participating in this survey orthopedists was correlated with the using of newly established methods. Experts were deciding to use bone marrow cells, biomaterials or autologous adipose tissue as meniscus repair methods. All of these approaches that involve the use of cells and biomaterial scaffolds have gained an increasing attention as potential regenerative therapies in the field of musculoskeletal medicine very recently [4]. Therefore the observation that non-experts are less frequently choosing these options could be explained with their less experience with new therapeutic options for patients, as they still gain experience with traditional meniscus treatment methods.

Non-expert surgeons less likely used objective physical tests, recommended longer period from meniscus suture to the full range knee motion and admitted that patient's age does matter for meniscus repair qualification. All of these issues might be correlated with less experience.

Both expert and non-expert preferred to perform suturing of traumatic meniscus tears in 18-year old and 30-year old football player. That proves the willingness of meniscal repair and awareness of its role in knee arthritis prevention.

This study had limitations. The questionnaire included 35 questions, which is a prominent number and could cause a potential weariness and careless or ill-considered answers. However, during the pilot study the average time for completion did not exceed 10 minutes and it would be difficult to collect detailed information about the post-operative aspects of care with fewer questions. Defining the level of expertise at a cutoff of more than 100 arthroscopies performed per year could be considered a biased decision for this study. Further studies are required to demonstrate clinical comparisons or second-look arthroscopy outcomes.

Conclusions

This was the first such developed survey study among Polish Arthroscopy Society members. The agreement was found in almost all issues of meniscus tear treatment between expert and non-experts, however the rehabilitation issues differed in both groups. Surgical expertise was associated with the performance of advanced meniscus repair techniques.

Declarations

- Ethics approval and consent to participate: According to the Bioethical Committee of Karol Marcinkowski Medical University in Poznań, the consent of the bioethics commission is not required for "surveys involving the use of standardized surveys - used for their intended purpose, and the study will develop

statistically selected elements of the survey" (ordinance No. 113/17 of the Rector of Karol Marcinkowski Medical University in Poznań, October 2nd, 2017).

Verbal informed consent was obtained from study participants before completing the survey (based on the opinion of Rehasport Clinic Scientific Council).

- **Consent to publish:** Not applicable

- **Availability of data and materials:** The datasets used during the current study are available from the corresponding author on reasonable request.

- **Competing interests:** Not applicable

- **Funding:** Not applicable

- **Authors' Contributions:** PB conceived and designed the study. PB and TP participated in the setup of the study, participants recruitment, and data collection. KBŻ conducted the analysis. KBŻ drafted the first version of the manuscript. All authors helped in revising the manuscript and gave their final approval of the submitted version. All authors had full access to the data and take responsibility for the integrity of the data and the accuracy of the data analysis.

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- **Authors' Information:** **Paweł Bąkowski, MD, PhD** - Department of Orthopedic Surgery, Rehasport Clinic, Poznan, Poland (pawel.bakowski@rehasport.pl); **Kamilla Bąkowska-Żywicka, PhD** - Institute of Bioorganic Chemistry Polish Academy of Sciences, Noskowskiego 12/14, 61-704 Poznań, Poland (kamilla.bakowska-zywicka@rehasport.pl); **Tomasz Piontek, MD, PhD** - Department of Orthopedic Surgery, Rehasport Clinic, Poznan, Poland and Department of Spine Disorders and Pediatric Orthopedics, University of Medical Sciences Poznan, Poznan, Poland (tomasz.piontek@rehasport.pl)

Additional files

- **File name:** Additional file 1
- **File format:** .pdf
- **Title of data:** A survey on orthopedists opinion for an arthroscopic treatment of meniscus injuries
- **Description of data:** A survey which was presented to orthopaedists. The questionnaire contains 35 questions regarding general arthroscopy and postoperative management

Abbreviations

AAT – autologous adipose tissue

BMC – bone marrow cells

EBM - Evidence Based Medicine

ESSKA - European Society for Sports Traumatology, Knee Surgery and Arthroscopy

LMW heparin - low-molecular-weight heparine

MRI - Magnetic resonance imaging

PRP – platelet rich plasma

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Tables

Table 1. Physician’s level of education and experience.

Parameter:	Parameter value:	Surgeons (n=205)
Participation in the knee arthroscopy during residency or specialization	0	8 (4%)
	1-30	28 (14%)
	>30	169 (82%)
The independent knee arthroscopies performed per year	0-50	98 (47%)
	50-100	52 (25%)
	>100	55 (28%)
The independent knee arthroscopies performed during career	0-500	127 (62%)
	>500	78 (38%)
The joints currently subjected to arthroscopy procedures	shoulder	83 (41%)
	elbow	28 (14%)
	wrist	9 (4%)
	spine	1 (0.5%)
	hip	41 (20%)
	knee	200 (98%)
	ankle	82 (40%)

Table 2. Comparison of the clinical practice between expert and non-expert surgeons who perform knee arthroscopy.

Parameter:	All (n=205)	Experts (n=55)	Non- experts (n=150)	p value
Use of regional anesthesia	172 (84%)	48 (87%)	124 (83%)	n.s.
Recommend orthosis	27 (13%)	4 (7%)	23 (15%)	n.s.
Use of a knee drain	189 (92%)	50 (91%)	139 (72%)	0.012
Use of knee medications	22 (10%)	8 (15%)	10 (7%)	n.s.
Recommend LMW as thromboprophylaxis	181 (88%)	51 (94%)	130 (87%)	n.s.
One day hospitalization after non-reconstructive arthroscopy	160 (77%)	47 (85%)	113 (75%)	n.s.
One day of hospitalization after reconstructive arthroscopy	81 (39%)	29 (52%)	52 (35%)	n.s.
Two days of hospitalization after reconstructive arthroscopy	90 (44%)	17 (31%)	73 (49%)	n.s.

p value is presented to establish statistical significance between expert and non-expert treatment. n.s. - not significant, LMW heparin - low molecular weight heparin.

Table 3. Comparison of post-surgical rehabilitation recommendations between expert and non-expert surgeons who perform knee arthroscopy.

Parameter:	All (n=205)	Experts (n=55)	Non- experts (n=150)	p value
Talk about the need for rehabilitation	203 (99%)	55 (100%)	148 (99%)	n.s.
Always recommend rehabilitation	135 (64%)	41 (75%)	94 (63%)	n.s.
Mostly recommend rehabilitation	43 (21%)	8 (14%)	35 (23%)	n.s.
Patients mostly follow the rehabilitation recommendations	28 (14%)	12 (22%)	16 (14%)	0.032
Patients sometimes follow the rehabilitation recommendations	122 (60%)	30 (55%)	92 (61%)	n.s.
Beginning of rehabilitation on the day of surgery	22 (11%)	14 (25%)	8 (5%)	0.007
Beginning of rehabilitation one day after the surgery	124 (60%)	33 (60%)	91 (61%)	
Recommend standardized rehabilitation	84 (42%)	21 (38%)	63 (43%)	n.s.
Dependence of rehabilitation program on performed procedure	176 (86%)	47 (85%)	129 (63%)	n.s.
Recommend rehabilitation with a physiotherapist	189 (92%)	49 (89%)	140 (93%)	n.s.
Recommend cryotherapy	158 (77%)	45 (82%)	113 (75%)	n.s.
Recommend physical therapy	133 (65%)	29 (53%)	104 (69%)	0.04
Recommend lasertherapy	69 (34%)	16 (29%)	53 (35%)	n.s.
Recommend magnetotherapy	71 (34%)	7 (13%)	51 (34%)	n.s.
Recommend ultrasounds	58 (28%)	18 (32%)	53 (35%)	n.s.
Recommend ionophoresis	39 (19%)	8 (14%)	31 (20%)	n.s.
Recommend TENS	38 (19%)	7 (13%)	31 (20%)	n.s.

p value is presented to establish statistical significance between expert and non-expert treatment. n.s. - not significant.

Table 4. Comparison of return to sport recommendations between expert and non-expert surgeons who perform knee arthroscopy.

Parameter:	All (n=205)	Experts (n=55)	Non- experts (n=150)	p value
Decision by surgeon	77 (37%)	23 (45%)	54 (36%)	n.s.
Decision by surgeon and physical therapist	87 (42%)	30 (54%)	57 (38%)	n.s.
Functional state as a decisive criterion	162 (80%)	51 (93%)	111 (74%)	0.002
Lack of discomfort as a decisive criterion	86 (42%)	19 (34%)	67 (45%)	n.s.
Time since arthroscopy as a decisive criterion	72 (35%)	24 (44%)	48 (32%)	n.s.
Correct image in examination as a decisive criterion	39 (19%)	12 (22%)	27 (18%)	n.s.
Use of objective physical tests	159 (78%)	50 (91%)	109 (66%)	0.003
Use of functional tests	119 (58%)	44 (80%)	75 (50%)	0.006
Use of dynamometer	58 (28%)	22 (40%)	36 (24%)	n.s.
Use of subjective surveys	35 (17%)	11 (20%)	24 (16%)	n.s.

p value is presented to establish statistical significance between expert and non-expert treatment. n.s. - not significant.

Table 5. Comparison of knee arthroscopic procedures performed by expert and non-expert surgeons.

Parameter:	All (n=205)	Experts (n=55)	Non- experts (n=150)	p value
KNEE ARTHROSCOPY PROCEDURES USED:				
ACL reconstruction	177 (86%)	55 (100%)	122 (81%)	0.003
Meniscus removal	173 (84%)	51 (93%)	122 (81%)	n.s.
Meniscus suturing all inside	171 (83%)	53 (96%)	118 (79%)	n.s.
Synovial folds removal	164 (80%)	40 (73%)	124 (83%)	n.s.
Meniscus suturing inside-out/outside-in	161 (79%)	48 (87%)	113 (75%)	n.s.
Microfractures	170 (83%)	49 (89%)	121 (81%)	n.s.
Diagnostic arthroscopy	119 (58%)	25 (45%)	94 (63%)	<0.001
Cartilage reconstruction	99 (48%)	41 (75%)	58 (39%)	<0.001
Simultaneous multi-ligament reconstruction	76 (37%)	33 (60%)	43 (29%)	<0.001
PCL reconstruction	66 (32%)	32 (58%)	34 (23%)	<0.001
Ramp lesion repair	66 (32%)	30 (55%)	36 (24%)	0.004
Pediatric multi-ligament reconstruction	36 (18%)	18 (33%)	18 (12%)	0.004
Meniscus transplant	32 (16%)	17 (31%)	15 (10%)	<0.001
KNEE ARTHROSCOPY PROCEDURES USED MOST FREQUENTLY:				
Meniscus removal	47 (23%)	10 (18%)	37 (25%)	0.009
Meniscus suturing	45 (22%)	21 (38%)	25 (17%)	0.005
ACL reconstruction	44 (21%)	9 (16%)	35 (23%)	n.s.
MENISCUS REPAIR METHODS USED:				
Suturing all inside	164 (80%)	47 (85%)	117 (78%)	0.009
Suturing inside-out	132 (64%)	44 (80%)	88 (59%)	0.006
Suturing outside-out	105 (51%)	34 (62%)	71 (47%)	0.006
Scarification	68 (33%)	21 (38%)	47 (31%)	n.s.
Platelet rich plasma	48 (23%)	19 (35%)	29 (19%)	0.009
Bone marrow cells	13 (6%)	11 (20%)	2 (1%)	<0.001
Biomaterials	12 (6%)	7 (13%)	5 (3%)	<0.001
Autologous adipose tissue	6 (3%)	4 (7%)	2 (1%)	<0.001
DIAGNOSTIC TESTS USED:				
Magnetic resonance	200 (98%)	54 (98%)	146 (97%)	n.s.
Ultrasonogram	101 (49%)	28 (51%)	73 (49%)	n.s.
X-ray	28 (14%)	7 (13%)	21 (14%)	n.s.

p value is presented to establish statistical significance between expert and non-expert treatment. n.s. - not significant.

Table 6. Comparison of post-arthroscopic procedures performed by expert and non-expert surgeons.

Parameter:	All (n=205)	Experts (n=55)	Non- experts (n=150)	p value
Recommend using elbow crutches for 2 weeks	57 (28%)	13 (24%)	54 (36 %)	n.s.
Recommend using elbow crutches for 1-6 days	34 (17%)	11 (20%)	23 (15%)	n.s.
Recommend using orthosis for 6 weeks	70 (34%)	19 (35%)	51 (30%)	n.s.
Recommend a full range of knee motion after 6 weeks	79 (39%)	19 (34%)	60 (40%)	0.001
Recommend a full range of knee motion after 4 weeks	48 (24%)	18 (33%)	30 (20%)	0.001

p value is presented to establish statistical significance between expert and non-expert treatment. n.s. - not significant.

Table 7. Comparison of the factors influencing the decision on arthroscopic procedures between expert and non-expert surgeons.

Parameter:	All (n=205)	Experts (n=55)	Non- experts (n=150)	p value
FACTORS INFLUENCING THE REMOVE/REPAIR DECISION:				
Damage type	175 (85%)	50 (91%)	125 (83%)	n.s.
Damage zone	167 (76%)	46 (84%)	121 (82%)	n.s.
Patient's age	151 (74%)	37 (67%)	114 (76%)	n.s.
Time since injury	118 (58%)	30 (54%)	88 (59%)	n.s.
Physical activity	105 (51%)	24 (44%)	81 (54%)	n.s.
Accompanying damage	44 (23%)	14 (25%)	30 (20%)	n.s.
Damage representation in magnetic resonance	75 (36%)	22 (40%)	53 (35%)	n.s.
Sport discipline practiced by the patient	103 (50%)	23 (42%)	80 (54%)	n.s.
PATIENT'S AGE INFLUENCE ON MENISCUS REPAIR QUALIFICATION:				
Less than 50 years old	45 (22%)	10 (18%)	35 (23%)	n.s.
Less than 40 years old	34 (16%)	10 (18%)	24 (16%)	n.s.
Less than 60 years old	23 (11%)	2 (4%)	21 (14%)	0.009
Age does not matter	86 (42%)	31 (56%)	55 (36%)	0.002

p value is presented to establish statistical significance between expert and non-expert treatment. n.s. - not significant.

Figures

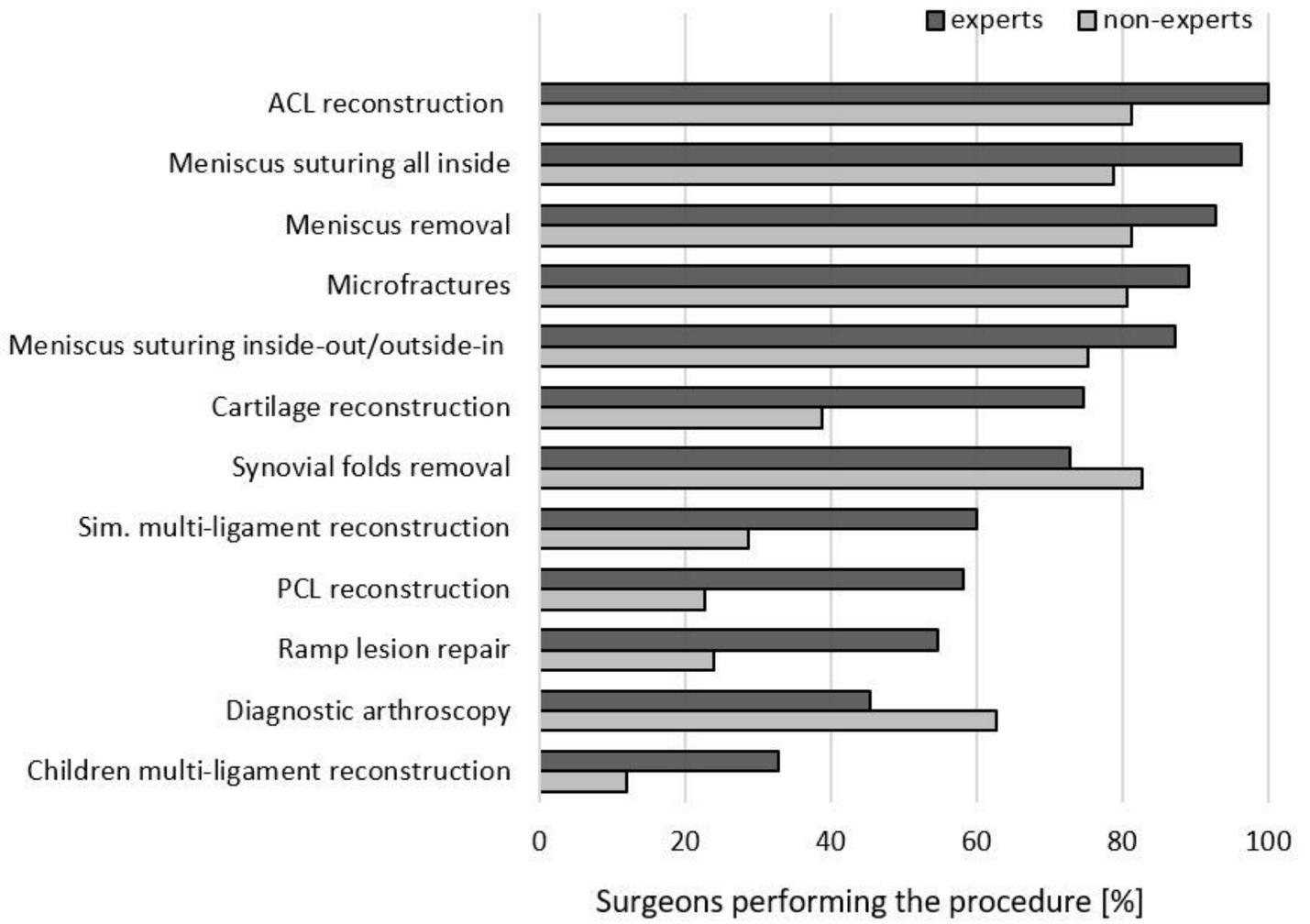


Figure 1

Procedures performed by the participating surgeons.

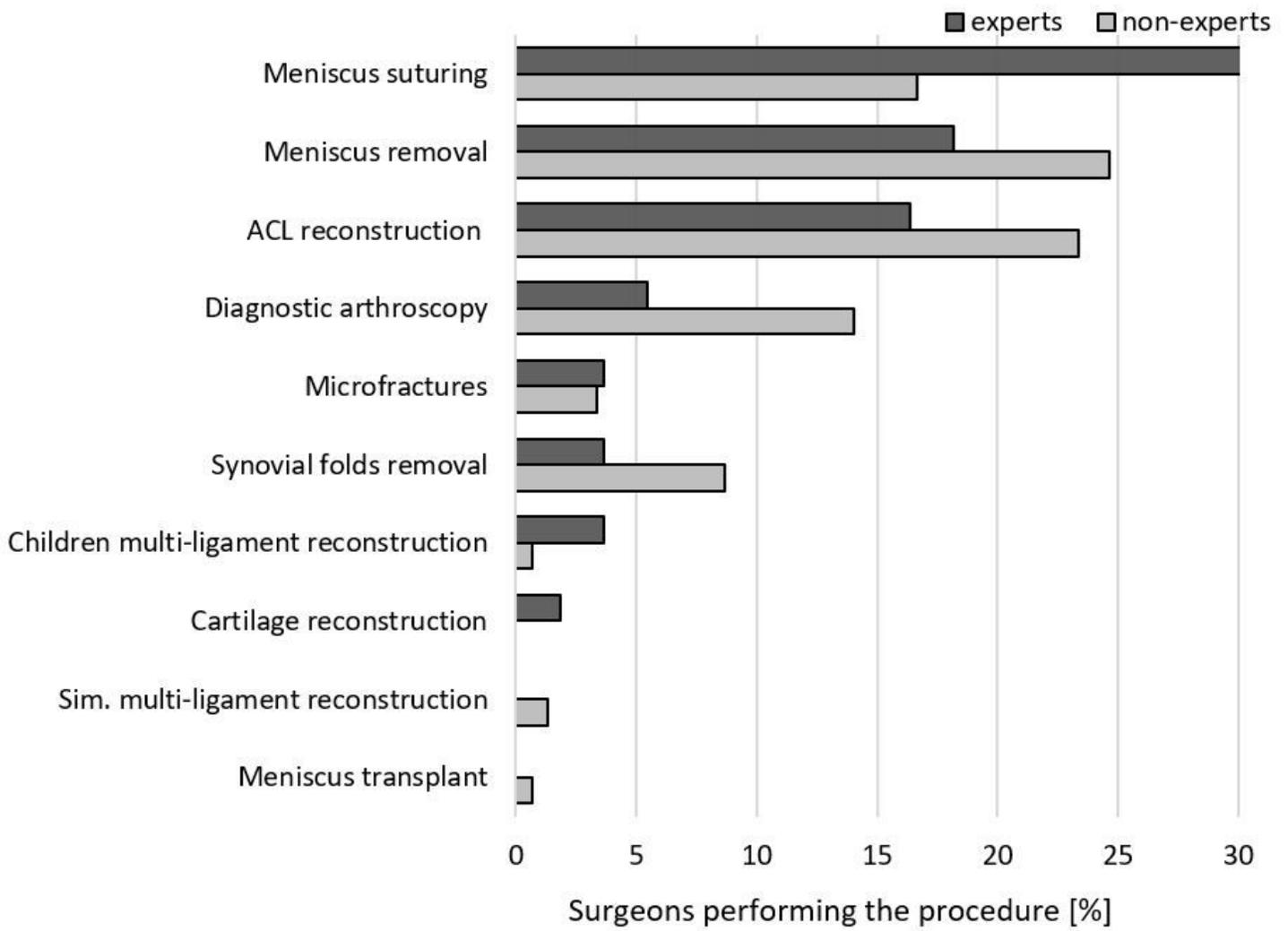


Figure 2

Procedures most frequently performed by the participating surgeons.

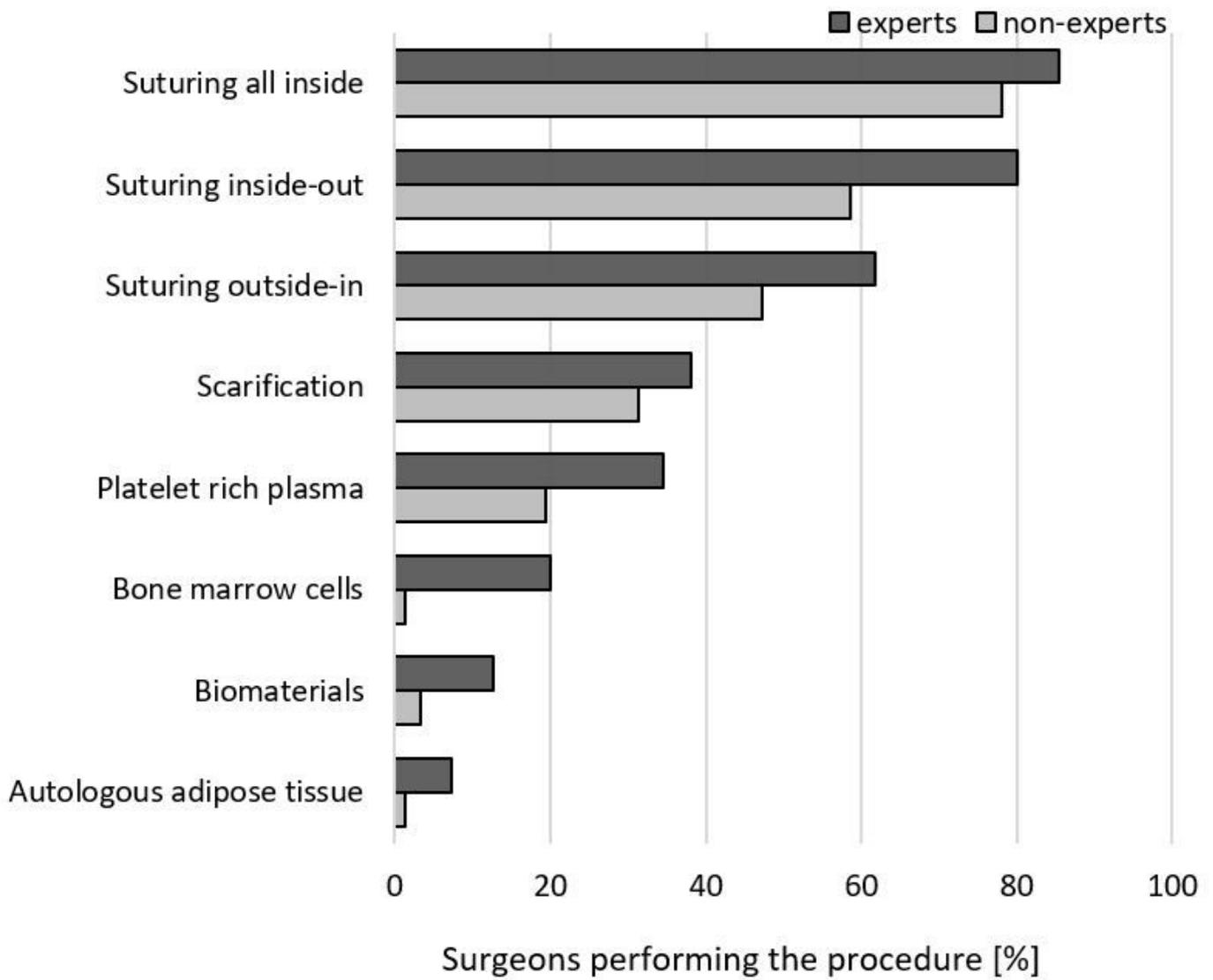


Figure 3

Meniscus repair methods performed by the participating surgeons.

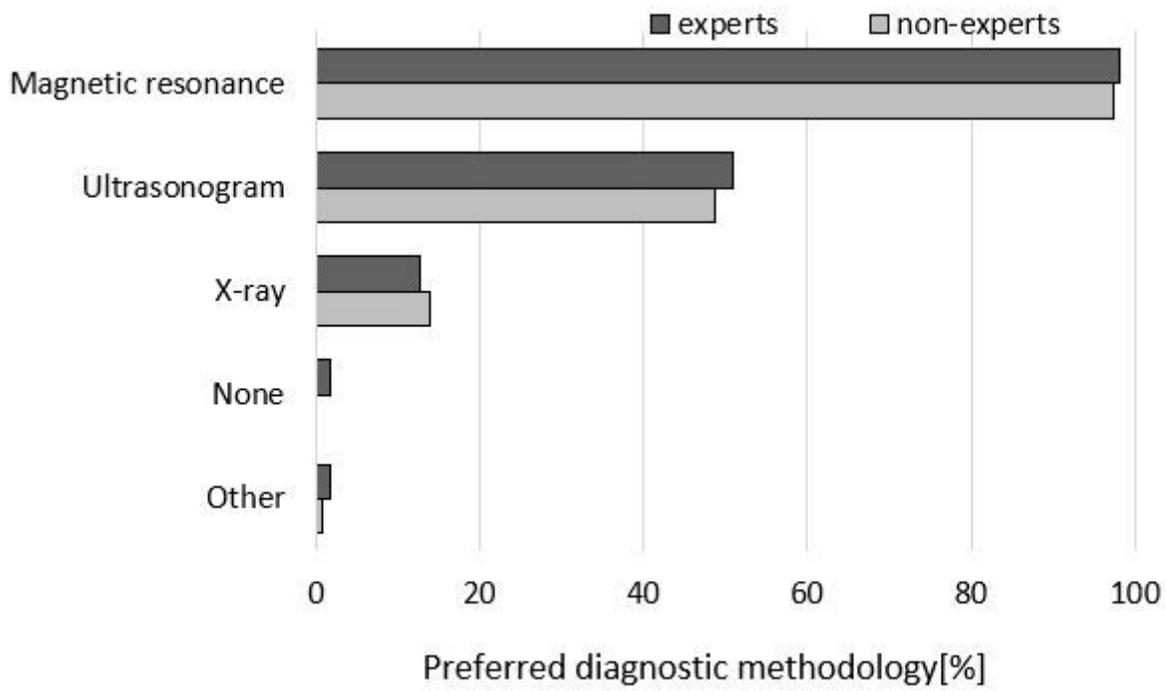


Figure 4

Diagnostic methods used by the participating surgeons.