# SUPPLEMENTARY SECTION

Supplement 1: Patient profiles

Supplement 2: Survey content

Supplement 3: Characteristics of surgeons

Supplement 4: Opinion towards the literature

Supplement 5: Results of the treatment choice affecting patient

# **Supplement 1: Patient profiles**

Profile 1 Unemployed



BMI 23

Consultation		
Complaints		
Pseudo-locking	-	
VAS rest (0-100)	1	
VAS weight bearing (0-100)	7	
IKDC score (0-100)	85	
Physical exam		
Flexion	140°	
Extension	+5°	
Joint effusion	-	
Joint line tendemess	-	
McMurray	pain medial	
Thessaly	-	
Physical therapy in last 3 m	onths	
No		

MRI Medial meniscus Horizontal Intact

tear

Lateral Lawrence (OA) meniscus

Grade 1



X-ray

Kellgren-

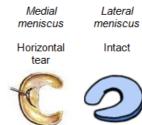
Profile 2

Professional cook



BMI 23

Consultation		
Complaints		
Pseudo-locking	-	
VAS rest (0-100)	56	
VAS weight bearing (0-100)	85	
KDC score (0-100)	57	
Physical exam		
Flexion	120°	
Extension	+10°	
Joint effusion	+	
Joint line tenderness	medial	
McMurray	-	
Thessaly	pain medial in 20°	
Physical therapy in last 3 m	onths	
No		



MRI



Grade 0







Functional manager



BMI 24

Consultation	
Complaints	
Pseudo-locking	17
VAS rest (0-100)	52
VAS weight bearing (0-100)	60
IKDC score (0-100)	67
Physical exam	
Flexion	140°
Extension	0°
Joint effusion	12-1
Joint line tenderness	medial and lateral
Mc Murray	pain lateral
Thessaly	pain lateral in 5°
Physical therapy in last 3 m	onths
No	

M	RI
Medial	Lateral
meniscus	meniscus
Intact	Complex tear

000000

Kellgren-Lawrence (OA)



X-ray





Profile 4 Administrative assistant



BMI 23

Consultation		
Complaints		
Pseudo-locking	-	
VAS rest (0-100)	1	
VAS weight bearing (0-100)	7	
IKDC score (0-100)	63	
Physical exam		
Flexion	140°	
Extension	0°	
Joint effusion	-	
Joint line tendemess	pain lateral	
McMurray	-	
Thessaly	pain lateral in 5°	
Physical therapy in last 3 m	onths	
No		

## MRI Medial

meniscus

Intact

Lateral

meniscus

Complex

tear

Lateral

meniscus

Intact

Lateral

meniscus

X-ray Kellgren-Lawrence (OA)

Grade 2



io	n			

Fuel operator



Profile 5

BMI 23.8

Consultation		
Complaints		
Pseudo-locking	-	
VAS rest (0-100)	84	
VAS weight bearing (0-100)	100	
IKDC score (0-100)	51	
Physical exam		
Flexion	135°	
Extension	0°	
Joint effusion	-	
Joint line tenderness	-	
McMurray	-	
Thessaly	pain medial in 5°	
Physical therapy in last 3 m	onths	
Yes, 11 session		

MRI Medial

meniscus

Horizontal

tear

X-ray Kellgren-Lawrence (OA)

Grade 0







Profile 6 Hotel manager



60 y

BMI 31

No

Consultation	
Complaints	
Pseudo-locking	+
VAS rest (0-100)	45
VAS weight bearing (0-100)	77
IKDC score (0-100)	40
Physical exam	
Flexion	130°
Extension	0°
Joint effusion	+
Joint line tenderness	medial
Mc Murray	pain medial
Thessaly	pain medial in 5°
Physical therapy in last 3 months	

	MRI
Medial meniscus	
Horizontal tear	







X-ray

Profile 7

Taxi driver



Profile 8

Sculptor

.

50 y

BMI 23

Complaints	
Pseudo-locking	+
VAS rest (0-100)	66
VAS weight bearing (0-100)	51
IKDC score (0-100)	38
Physical exam	
Flexion	120°
Extension	0°
Joint effusion	-
Joint line tenderness	medial
Mc Murray	pain medial
Thessaly	-
Physical therapy in last 3 m	onths
No	

Consultation

l	MRI
Medial	Lateral
meniscus	meniscus

Horizontal

tear

X-ray Kellgren-Lawrence (OA)

Grade 1



Intact



Consulta	tion
	_

69

91

37

130°

**0°** 

+

medial

pain medial

pain medial in 20°

Medial meniscus	
Complex	

tear

X-ray Kellgren-Lawrence (OA)

Grade 2



Lateral

meniscus

Intact

MRI



Physical therapy in last 3 months No

Complaints

Pseudo-locking

Physical exam

Joint effusion

Joint line tenderness

Flexion

Extension

McMurray

Thessaly

VAS rest (0-100)

IKDC score (0-100)

VAS weight bearing (0-100)

Consultation

Profile 9 Upholsterer



BMI 25

-	
4	
93	
26	
110°	
0°	
-	
-	
-	
pain lateral in 5°	
Physical therapy in last 3 months	

м	RI	X-ray
Medial meniscus	Lateral meniscus	Kellgren- Lawrence (OA)
Intact	Radial tear	Grade 2





### Profile 10 Teacher

primary school



BMI 27

Consultation	
Complaints	
Pseudo-locking	-
VAS rest (0-100)	14
VAS weight bearing (0-100)	68
IKDC score (0-100)	26
Physical exam	
Flexion	130°
Extension	0°
Joint effusion	+
Joint line tenderness	medial
McMurray	-
Thessaly	pain medial in 5°
Physical therapy in last 3 months	
Yes, 20 sessions	

# MRI Medial meniscus

Horizontal

tear

\_

meniscus Intact

Lateral

Kellgren-Lawrence (OA)

X-ray







Composer / musician



BMI 33

Consultation	
Complaints	
Pseudo-locking	+
VAS rest (0-100)	19
VAS weight bearing (0-100)	61
IKDC score (0-100)	41
Physical exam	
Flexion	130°
Extension	0°
Joint effusion	-
Joint line tenderness	medial
McMurray	pain medial
Thessaly	pain medial in 5°
Thessaly	pain lateral in 20°
Physical therapy in last 3 months	
No	

M	RI	X-ray
Medial meniscus	Lateral meniscus	Kellgren- Lawrence (OA)
Horizontal tear	Intact	Grade 2
R	$\bigcirc$	

MRI



Profile 12

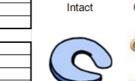
Unemployed



BMI 23

Consultation		
Complaints		
Pseudo-locking	+	
VAS rest (0-100)	48	
VAS weight bearing (0-100)	11	
IKDC score (0-100)	32	
Physical exam		
Flexion	140°	
Extension	+5°	
Joint effusion	-	
Joint line tenderness	lateral	
McMurray	pain lateral	
Thessaly	pain lateral in 5°	
Physical therapy in last 3 months		

Yes, 4 sessions



Medial

meniscus





X-ray

#### Profile 13 Unemployed



Profile 14

Pharmacy

assistant

46 y

BMI 24

Complaints

Pseudo-locking

Physical exam

Flexion

Extension

Thessaly

No

Joint effusion Joint line tenderness McMurray

VAS rest (0-100)

KDC score (0-100)

VAS weight bearing (0-100)

Physical therapy in last 3 months

Consultation	
Complaints	
Pseudo-locking	-
VAS rest (0-100)	67
VAS weight bearing (0-100)	90
KDC score (0-100)	13
Physical exam	
Flexion	130°
Extension	+5°
Joint effusion	+
Joint line tenderness	medial
McMurray	pain medial
Thessaly	-
Physical therapy in last 3 months	
Yes, 2 sessions	

Consultation

+

61

57

63

140°

0°

pain lateral

pain lateral in 5°

MRI		
Medial meniscus	Lateral meniscus	
Horizontal	Intact	

tear

X-ray Kellgren-Lawrence (OA)

Grade 2





MRI		X-ray
Medial	Lateral	Kellgren-
meniscus	meniscus	Lawrence (C

Intact Horizontal







Profile 15

Civil servant



**BMI 22** 

#### Consultation

Complaints	
Pseudo-locking	-
VAS rest (0-100)	25
VAS weight bearing (0-100)	81
IKDC score (0-100)	36
Physical exam	
Flexion	145°
Extension	0°
Joint effusion	+
Joint line tenderness	medial
McMurray	pain medial
Thessaly	pain medial in 5°

Physical therapy in last 3 months Yes, 3 sessions



tear

Lateral meniscus

Horizontal

tear

X-ray Kellgren-Lawrence (OA)

Grade 1





Profile 16

Saleswoman



Profile 17

Unemployed

66 y

BMI 26

Com plaints

Pseudo-locking

VAS rest (0-100)

Physical exam

Flexion

Extension

McMurray

Thess aly

No

No

Joint effusion

KDC score (0-100)

Joint line tenderness

Physical therapy in last 3 months

VAS weight bearing (0-100)

Complaints	
Pseudo-loc king	+
VAS rest (0-100)	12
VAS weight bearing (0-100)	64
IKDC sc ore (0-100)	49
Physical ex am	
Flexion	135°
Extension	0°
Joint effusion	+
Joint line tendemess	medial
McMurray	pain medial
Thessaly	pain medial in 5°
Physical therapy in last 3 months	
Yes, 9 sessions	

Consultation

+

67

90

33

130°

-5°

+

medial

pain medial pain medial in 5°

Consultation

MRI Medial Lateral

meniscus

Intact

meniscus

Complex

tear

#### X-ray Kellgren-Lawrence (OA)

Grade 2









meniscus

X-ray Kellgren-Lawrence (OA)

Horizontal Intact tear

Lateral

meniscus

Grade 1









Profile 18



processor



**BMI 28** 

·					
Complaints					
Pseudo-locking	+				
VAS rest (0-100)	6				
VAS weight bearing (0-100)	8				
IKDC score (0-100)	29				
Physical exam					
Flexion	140°				
Extension	5°				
Joint effusion	-				
Joint line tenderness	medial and lateral				
McMurray	click lateral				
Thessaly	pain medial in 5°				
Physical therapy in last 3 months					

Consultation

MRI X-ray Kellgren-Medial Lateral Lawrence (OA) meniscus meniscus Horizontal Intact Grade 1 tear



# Profile 19 Agent / salesman



Profile 20 Unemployed

51 y

Consultation					
Complaints					
Pseudo-locking	-				
VAS rest (0-100)	10				
VAS weight bearing (0-100)	11				
IKDC score (0-100)	68				
Physical exam					
Flexion	135°				
Extension	0°				
Joint effusion	+				
Joint line tenderness	lateral				
McMurray	pain lateral				
Thessaly	-				
Physical therapy in last 3 months					
No					

## MRI

Medial

meniscus

Horizontal

tear

Medial

meniscus Horizontal

tear

X-ray Kellgren-Lawrence (OA)

Grade 3





Lateral

meniscus

Intact

Lateral

meniscus Horizontal

tear

X-ray

Kellgren-Lawrence (OA)

Grade 1



MRI



BMI 28

Com plaints

Pseudo-locking	-				
VAS rest (0-100)	42				
VAS weight bearing (0-100)	42				
IKDC score (0-100)	60				
Physical exam					
Flexion	120°				
Extension	0				
Joint effusion	-				
Joint line tendemess	medial				
McMurray	-				
Thessaly	pain medial in 20°				
Physical therapy in last 3 months					
No					

Consultation

### Supplement 2: Survey content

### **Biographics**

Years of experience as orthopaedic surgeon:

- Less than 5 years
- Between 5 and 15 years
- More than 15 years

Field of expertise (more options possible):

- Knee surgery
- Hip surgery
- Shoulder/elbow surgery
- Back surgery
- Foot/ankle surgery
- Trauma surgery
- Arthroscopic surgery
- Sports injuries
- Infectiology
- Other: .....

In clinical decision making, what relative weighting do you give to evidence from your personal experience and of those around you, compared to evidence from clinical research?

Experience based								Published clinico					ical	al research:											
1	1	1	1	I.	I.	1	1	1	I.	1	I.	1	1	1	1	1	I.	I.	1	I.	1	1	1		

#### The evidence

The following statements concern treatment (meniscectomy versus physical therapy) in patients between 45 and 70 years old with a non-obstructive meniscal tear

I am completely up to date with the literature on this topic

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

I think the evidence on this topic is very strong

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

I feel very confident in choosing between both treatment options

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

In my opinion, <u>meniscectomy</u> is a good option for the initial treatment of patients between 45 and 70 years old with a non-obstructive meniscal tear

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

In my opinion, <u>physical therapy</u> is a good option for the initial treatment of patients between 45 and 70 years old with a non-obstructive meniscal tear

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

# Patient profiles 1-20 (example profile 1)

In the next section you will be presented 20 patient profiles. On the basis of every profile we kindly ask you to answer 3 questions.

# Explanation of terms and abbreviations used:

Complaints

• Pseudo-locking

- A "catching" sensation which inhibits moving but quickly disappears. No true (irretrievable) knee locking.
- VAS pain (0-100)
  - Visual analogue scale to express pain. A score of 0 corresponds to no pain at all and a score of 100 reflects the worst possible pain. This score is divided into a score at rest and one during weight bearing.
- IKDC (0-100)
  - International Knee Documentation Committee (IKDC) 'Subjective Knee Form'. The maximum of 100 points reflects no restrictions in daily and sports activities and the absence of symptoms. A change of more than 8.8 points in IKDC score is considered to exceed the smallest detectable change. The mentioned score in the patient profile corresponds to the baseline score (before treatment).

## Physical exam

- Flexion of the knee; in degrees.
- Extension of the knee; in degrees. +5° means hyperextension, and -5° means a limitation of extension.
- Joint effusion; the presence of joint effusion. + means yes, means no.
- Joint line tenderness; the presence of medial or lateral joint line tenderness during compression.
- McMurray; expressed as the presence of pain, a click, or both.
- Thessaly test; expressed for 5° or 20° knee flexion. If the Thessaly test is positive (e.g. pain) in 5°, it is assumed that it is positive in 20°. If 20° is presented, the test in 5° was negative.

## MRI

All MRIs were viewed by one radiologist and tears were classified according to the ISAKOS classification.

# X-ray (OA)

Osteoarthritis on Kellgren Lawrence scale. In this study patients with grade 4 were excluded. The miniature picture is a standardized image from the classification and does not represent the authentic X-ray of the described patient.

Profile 1	Consultat	ion	м	RI	X-ray
Unemployed	Complaints		Medial	Lateral	Kellgren-
	Pseudo-locking	-	meniscus	meniscus	Lawrence (OA)
<b>X</b>	VAS rest (0-100)	1			
	VAS weight bearing (0-100)	7	Horizontal	Intact	Grade 1
Π	IKDC score (0-100)	85	tear		
50 y	Physical exam				
BMI 23	Flexion	140°	1	(  )	
DIWIZJ	Extension	+5°			A
	Joint effusion	-			
	Joint line tendemess	-			
	McMurray	pain medial	1		
	Thessaly	-	]		
	Physical therapy in last 3 mo	onths	]		
	No		J		

Would you prefer meniscectomy or physical therapy as treatment in this particular patient?

- Arthroscopic partial meniscectomy (APM)
- Physical therapy (PT)

What would you think that will be the effect of your treatment of choice on knee function after two years?

- Strong deterioration (at least 20 points on IKDC)
- Mild deterioration (10-20 points on IKDC)
- No relevant difference (-10 to +10 points on IKDC)
- Some improvement (10-20 points on IKDC)
- Strong improvement (at least 20 points on IKDC)

What will the outcome be if the other treatment would be applied?

- Strong deterioration (at least 20 points on IKDC)
- Mild deterioration (10-20 points on IKDC)
- No relevant difference (-10 to +10 points on IKDC)
- Some improvement (10-20 points on IKDC)
- Strong improvement (at least 20 points on IKDC)

#### Patient characteristics

On this page we would like to ask you which of the following patient characteristics affect your treatment choice and if so, in which direction?

- Younger patients (approximately <45 years)</li>
  - o APM
  - o PT
  - o Unaffected

The same lay-out was used for all following characteristics:

- Older patients (approximately >45 years)
- Normal BMI (18,5 25 kg/m2)
- Obesity (BMI>25 kg/m2)
- Absence of obstructive/locking complaints
- Presence of obstructive/locking complaints
- Medial tear
- Lateral tear
- Longitudinal-vertical (ISAKOS)
- Horizontal tear (ISAKOS)
- Radial tear (ISAKOS)
- Vertical flap tear (ISAKOS)
- Complex tear (ISAKOS)
- Bucket handle tear
- No-mild osteoarthritis (Kellgren Lawrence 0 2)
- Moderate-severe osteoarhritis (Kellgren Lawrence 3 4)
- Lower education level
- Higher education level
- Poor baseline physical function (IKDC approximately < 30)
- Good baseline physical function (IKDC approximately > 50)
- Low activity level (Tegner 1-3)
- High activity levels (Tegner >3)
- Lower levels of pain (VAS < 7)</li>
- Higher levels of pain (VAS > 7)
- Male gender
- Female gender
- A patient's wish for practicing sports
- Traumatic etiology
- Degenerative etiology
- Failed conservative treatment

# Supplement 3: Characteristics of surgeons

Years of experience as orthopaedic surgeon	Number	Percentage
Less than 5 years	35	18.0
Between 5 and 15 years	57	29.4
More than 15 years	71	36.6
Resident orthopaedic surgery	30	15.5
Estimated number of performed knee arthroscop	ies	
during career:		
Less than 10	5	2.6
Less than 50	21	10.8
Between 50 and 150	33	17.0
More than 150	134	69.1
Fields of expertise (more options possible):		
Knee surgery	146	75.3
Hip surgery	107	55.2
Shoulder/elbow surgery	49	25.3
Back surgery	18	9.3
Foot/ankle surgery	35	18.0
Trauma surgery	79	40.7
Arthroscopic surgery	75	38.7
Sports injuries	69	35.6
Infectiology	11	5.7
Paediatric surgery	5	2.6
Hand/wrist surgery	5	2.6

# Supplement 4: Opinion towards the literature

do you experi	ical decision making, what relative weighting a give to evidence from your personal ence and of those around you compared to nce from clinical research?	Chosen by all surgeons (%)	Chosen by experienced knee surgeons (%)	Chosen by other orthopaedic surgeons (%)	
Т	Experience based	0.5	0	1.1	
Ł		12.4	12.9	11.8	
ł		38.1	42.6	33.3	
Ŧ		44.3	37.6	51.6	
T	Published clinical research	4.6	6.9	2.2	

# I'm completely up to date with literature on this topic

Strongly disagree	0.5	0	1.1
Disagree	5.2	0	10.8
Neither agree nor disagree	17	13.9	20.4
Agree	64.4	71.3	57
Strongly agree	12.9	14.9	10.8

#### The evidence on this topic is convincing

Strongly disagree	0.5	0	1.1
Disagree	8.2	11.9	4.3
Neither agree nor disagree	17	14.9	19.4
Agree	63.9	63.4	64.5
Strongly agree	10.3	9.9	10.8

# I feel very confident in choosing between both treatment options

Strongly disagree	1	0	2.2
Disagree	6.7	5	8.6
Neither agree nor disagree	16.5	10.9	22.6
Agree	65.5	71.3	59.1
Strongly agree	10.3	12.9	7.5

#### In my opinion. meniscectomy is a good option for the initial treatment of patients between 45 and 70 years old with a non-obstructive meniscal tear

Strongly disagree	39.2	38.6	39.8
Disagree	49.5	47.5	51.6
Neither agree nor disagree	8.2	9.9	6.5
Agree	3.1	4	2.2
Strongly agree	0	0	0

In my opinion. physical therapy is a good option for the initial treatment of patients between 45 and 70 years old with a non-obstructive meniscal tear

Strongly disagree	1.5	2	1.1
Disagree	7.2	10.9	3.2
Neither agree nor disagree	13.9	16.8	10.8
Agree	48.5	48.5	48.4
Strongly agree	28.9	21.8	36.6

Experienced knee surgeons are orthopaedic surgeons with at least 5 years of experience in knee surgery.

Patient characteristics	Proportion of surgeons directed towards APM (%)	Proportion of surgeons directed towards PT (%)	Proportion of surgeons for whom characteristic did not influence treatment choice (%)
Higher education level	6	- 6	88
Lower education level	2	11	88
Male gender	10	5	85
Female gender	2	14	84
Medial tear	21	7	72
Lateral tear	11	26	63
A patient's wish for practicing sports	33	8	59
Normal BMI (18,5 - 25 kg/m2)	39	5	56
Higher levels of pain (VAS > 7)	29	15	56
Radial tear (ISAKOS)	26	20	54
Longitudinal-vertical (ISAKOS)	36	10	54
Good baseline physical function (IKDC approximately > 50)	30	19	52
Horizontal tear (ISAKOS)	7	42	51
Horizontal flap tear (ISAKOS)	38	16	46
High activity levels (Tegner >3)	49	6	45
Lower levels of pain (VAS < 7)	5	50	45
Vertical flap tear (ISAKOS)	51	7	43
Complex tear (ISAKOS)	26	31	43
Low activity level (Tegner 1-3)	1	63	36
Poor baseline physical function (IKDC approximately < 30)	10	56	34
No-mild osteoarthritis (KL 0 - 2)	61	8	31
Younger patients (approximately <45 years)	74	1	25
Traumatic aetiology	76	3	22
Obesity (BMI>25 kg/m2)	2	79	20
Presence of obstructive/locking complaints	82	3	15
Failed conservative treatment	82	3	15

# Supplement 5: Results of the treatment choice affecting patient characteristics

Older patients (approximately >45 years)	1	87	13
Absence of obstructive/locking complaints	1	88	11
Degenerative aetiology	1	92	7
Bucket handle tear	94	0	6
Moderate-severe osteoarthritis (KL 3 - 4)	1	96	3

The percentages were generated based on information from the section '*Patient characteristics*' from the survey (Supplement 2).

BMI = Body Mass Index; IKDC = International Knee Documentation Committee; ISAKOS = International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine; KL = Kellgren Lawrence; VAS = Visual Analog Scale