



The formal EU-US Meniscus Rehabilitation Consensus.

An ESSKA-AOSSM-AASPT Initiative.

Chairpersons: Airelle Giordano, Benjamin Ma, Robert Prill, Nicolas Pujol.

Consensus Advisor: Philippe Beaufils.

This brochure is a summary of the formal consensus on meniscus rehabilitation. It does not contain every statement, and some of the included content may be summarized.

To access the complete material of this project, please visit:
<https://www.esska.org/page/Consensus>

GRADING DESCRIPTION

- *Grade A: high scientific level*
- *Grade B: scientific presumption*
- *Grade C: low scientific level*
- *Grade D: expert opinion*

PRESIDENTIAL FOREWORD

There is great variation across Europe and USA when it comes to medical praxis. Agreeing a common approach to pathologies or procedures has always been a challenge.

But some such agreement is important if we are to ensure standards. For years now, ESSKA has developed a strict and painstaking methodology. We call it ESSKA's European Consensus. Mixing scientific evidence and clinical expertise, this format aims to facilitate the dissemination of knowledge among the daily practitioners. One must underline the scientific value of such a project which should not be regarded as a simple expert opinion but as the result of a complex process based on high level scientific criteria such as pluralism (large regional representativeness), iterative process, independence of the different involved groups.

Five ESSKA consensuses have already been delivered. More information is available on <https://www.esska.org/page/Consensus>.

This year, at ESSKA 2024 Milan Congress, we are delighted to launch the formal EU-US Meniscus Rehabilitation Consensus - an ESSKA-AOSSM-AASPT Initiative.

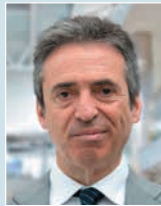
This project was initiated by Roland Becker (ESSKA President) and Mark Miller (AOSSM Past President) two years ago as an added bridge between US and EU scientific knowledge. It has been conducted under the umbrella of three scientific societies, and is the first worldwide consensus devoted to this musculoskeletal pathology.

We thank Airelle Giordano (USA) current AASPT president, Benjamin Ma (USA), Robert Prill (Germany) and Nicolas Pujol (France) - the Project leaders-, as well as the members of the Steering, Rating, and Peer Review Groups for their tremendous efforts and dedication.

A special acknowledgement also for our staff, and particularly Mrs Anna Hansen Rak (ESSKA) and Dr. Lynette Craft (AOSSM), without whom this would not have been possible.



Roland Becker
ESSKA President
2022-2024



Joan Carles Monllau
ESSKA President
2024-2026



Mark Miller
AOSSM Past President
2022-2023



Philippe Beaufils
Consensus Projects
Advisor

CHAIRPERSONS FOREWORD

The concept of meniscal preservation has progressed over the years with more clear indications: non-operative management of some degenerative meniscus lesions, repair of many traumatic meniscus tears, and meniscus replacement if needed. Two ESSKA consensuses are already available (degenerative meniscus lesions and traumatic meniscus tears, released in 2016 and 2019). However, the rehabilitation management of meniscus lesions or tears (operated or not) was not covered by these consensuses.

Thus, the aim of this consensus is to provide recommendations for the usage of rehabilitation (including physical therapy) of patients undergoing either conservative or surgical treatment for degenerative meniscus lesions or acute meniscus tears. Do concomitant pathologies have an impact on the management of degenerative meniscus lesions or acute meniscus tears? Prevention programs usefulness and return to sports modalities will also be discussed.

To address these questions, a multinational expert group has conducted a formal consensus combining both expert opinion and literature-based evidence. For the first time in these consensuses, surgeons and physiotherapists were involved. For the first time again, three main societies participated together: ESSKA, AOSSM, AASPT.

This provides a strong European and American consensus on the formerly mentioned areas around rehabilitation and meniscus.

Clear guidelines for surgeons and physiotherapists are given, in order to improve the outcomes of our patients.

Take care of the meniscus



Robert Prill
ESSKA



Nicolas Pujol
ESSKA



Airelle Giordano
AASPT



Benjamin Ma
AOSSM

COMPOSITION OF STEERING GROUPS

Philippe Beaufils

ESSKA Consensus Projects
Advisor (EU)

Juan Carlos Monllau Garcia

ESSKA Consensus Projects
Advisor (EU)

Elanna Ahros (US)

Roland Becker (EU)

Francesco Della Villa (EU)

Jonathan Goodloe (US)

James Irrgang (US)

Jitka Klugarová (EU)

Emma Klostermann (US)

Aleksandra Królikowska (EU)

Aaron Krych (US)

Robert LaPrade (US)

Rob Manske (US)

Nicky van Melick (EU)

Jill Monson (US)

Marko Ostojic (EU)

Mark Paterno (US)

Tomasz Piontek (EU)

Simone Pirelli (EU)

Alexandre Rambaud (EU)

James Robinson (EU)

Laura Schmitt (US)

Eric Hamrin Senorski (EU)

Thorkell Snaebjornsson (EU)

Adam Tagliero (US)

Stephanie Wong (US)

PREVENTION OF MENISCUS INJURIES

Are any promising attempts to reduce TRAUMATIC meniscus tears currently available?

Lower extremity injury risk reduction programs focusing on neuromuscular control exercises can be used to prevent overall lower extremity injury, however it is not specific to acute meniscal tears.

GRADE C

What activities including ADL and sporting activities may increase the risk of meniscus tears or lesions?

Participation in repetitive cutting, pivoting and landing activities increases risk of meniscal injury in athletes. Work related lifting and carrying (over 10 pounds/ 4.5 Kilograms), kneeling, deep squatting, and a high volume of climbing has increased risk of meniscus injury.

GRADE A

REHABILITATION MANAGEMENT OF NON-OPERATED ACUTE MENISCUS TEARS

Does non-operative management benefit the treatment of TRAUMATIC meniscus tears?

Yes: Research investigating non-operative interventions for TRAUMATIC meniscus tears is rare. While allocation to conservative treatment for acute meniscus tears might be an option, allocation criteria for conservative versus surgical interventions are not well established. Two studies, focusing on self-reported patient outcomes suggest that both surgery and exercise therapy are viable treatment options for TRAUMATIC AND NON-TRAUMATIC meniscus tears.

GRADE B

Is there an evidence-based non-operative treatment protocol for treating TRAUMATIC meniscus tears?

A 12-week supervised neuromuscular exercise program that includes lower extremity

strengthening, balance, hip and core strengthening along with patient education has been found to have similar outcomes to those that underwent surgery for TRAUMATIC meniscus tears with the same rehabilitation protocol.

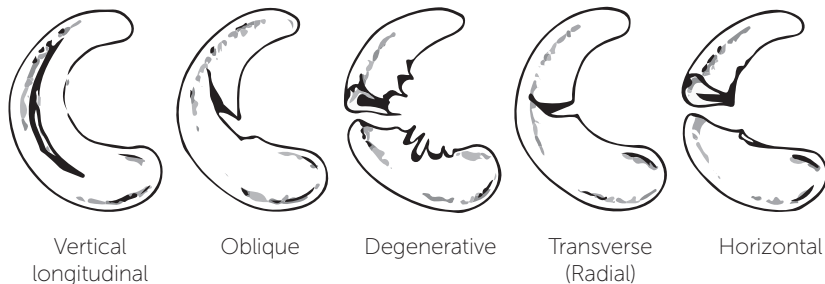
GRADE B

Is outpatient rehabilitation superior to home exercise programs for non-operatively managed TRAUMATIC meniscal tears?

There is no current evidence comparing outpatient rehabilitation programs to home exercise programs after TRAUMATIC meniscus tears. Supervised rehabilitation for range of motion, effusion management, lower extremity and quadriceps strength and function and neuromuscular control, in addition to a home exercise program may be recommended.

GRADE D

CLASSIFICATION OF MENISCUS TEARS. (Fu FH, Harner CD, Vince KG. Knee surgery. 1994)



REHABILITATION MANAGEMENT OF NON-OPERATED DEGENERATIVE MENISCUS LESIONS

Is non-operative management as beneficial as arthroscopic partial meniscectomy for treating symptomatic DEGENERATIVE meniscus lesions?

YES, therefore it should be the first line treatment approach.

GRADE A

What rehabilitation treatment is best indicated for the management of non-operated degenerative meniscus lesion?

Manual therapy, joint mobilization techniques, range-of-motion exercises, progressive knee

and hip musculature strength training, and neuromuscular training may be applied. Also, neuromuscular stimulation can be added. Homebased exercise programs should be added to supervised physical therapy.

GRADE B

Is pre-rehabilitation recommended prior to planned surgery of the meniscus?

YES, Pre-rehabilitation may be beneficial prior to meniscus surgery for those that have a joint effusion, limited range of motion, pain or quadriceps inhibition.

GRADE D

REHABILITATION MANAGEMENT AFTER PARTIAL MENISCECTOMY

What rehabilitation treatment is best indicated for the management of patients after isolated partial meniscectomy?

No evidence-based treatment protocol exists. A criterion-based rehabilitation protocol, based on milestones, is recommended. Following partial meniscectomy, immediate full weight-bearing and full range of motion are permitted as tolerated per symptoms. To address quadriceps strength and neuromuscular control deficits, the use of NMES, OKC, and CKC strengthening is recommended as is seen in similar patient populations (i.e. after ACLR).

GRADE C

Is there any difference between traumatic meniscus tears and degenerative meniscus lesions in terms of rehabilitation after partial meniscectomy?

There is no comparative data to support any difference between rehabilitation protocols for partial meniscectomy for degenerative lesions and traumatic tears. Rehabilitation protocols can vary based on patient factors and the status of the knee post-operatively. Partial meniscectomy for degenerative lesions may require slower rehabilitation progression.

GRADE D

Should non-weight-bearing or partial weight-bearing be recommended after arthroscopic partial meniscectomy?

After arthroscopic partial meniscectomy full weightbearing is allowed early after surgery.

GRADE A

MENISCUS REHABILITATION AFTER SURGERY (MENISCECTOMY, REPAIR, RECONSTRUCTION)

Is rehabilitation recommended after meniscus surgery?

YES

GRADE D

Is there a difference between rehabilitation proposed after medial or lateral meniscus surgery?

NO

There are no specific rehabilitation protocols after medial or lateral partial meniscectomy. More adverse events (Persisting swelling and pain, risk of early chondrolysis) may happen after lateral partial meniscectomy which may result in delayed return to higher impact activities and sports compared to medial partial meniscectomy.

GRADE D

Medial and Lateral meniscal repairs may be rehabilitated similarly, with the tear type (radial, root, vertical) influencing rehabilitation rather than laterality.

GRADE C

Similar rehabilitation protocols can be used for medial or lateral meniscus reconstruction.

GRADE D

Weight-bearing, use of crutches, range of motion restriction, knee brace: protocols are different depending on the type of surgery and lesion.

GRADE C

For how long rehabilitation is recommended after meniscus repair?

Rehabilitation after meniscus repair should be both criterion and time based according to the healing process. A minimum of 4 months of rehabilitation may be advised for repaired vertical meniscus tears. Complex, radial, root, horizontal tears may require a longer rehabilitation, up to 6 to 9 months.

GRADE D

What are the criteria-based recommendations after meniscus repair?

Rehabilitation following meniscal repair should be divided into protective, restorative, and preparation to return to activity and sports phases, with additional criterion-based goals recommended. Criteria for progression to the restorative phase of rehabilitation include full or nearly full passive ROM, no effusion, and neuromuscular control of the quadriceps. Initiation to return activity phase of rehabilitation begins once the patient demonstrates full active ROM, strength (larger or equal to 80% of contralateral leg would be ideal), and adequate single leg dynamic knee control.

Progression of quadriceps strength is recommended to be tested at each phase of rehabilitation via the use of isokinetics or appropriately stabilized handheld dynamometry.

GRADE D

SYNTHESIS OF REHABILITATION AFTER MENISCUS REPAIR, MENISCECTOMY AND MENISCUS RECONSTRUCTION. Part 1.

		Weight bearing (WB)	Crutches	Range of motion (ROM) restriction	Knee brace
After Meniscus repair	Stable vertical meniscal tear	Full WB	No	No	*
	Complex vertical meniscal tear repairs	Full WB	Yes	Yes	*
	Complete oblique and radial tears	No WB for 4 to 6 weeks	Depending on WB	0-90° for 4 to 6 weeks	*
	Horizontal lesions in the young athlete	Partial or no WB for 4 weeks	Depending on WB	0-90° for 4 weeks	*
	Ramp lesions	*	*	*	*
	Root tears	No WB for 6 weeks	Depending on WB	0-90° for 4 weeks	*
After Meniscectomy		Full WB	Until gait is normalized	No	No
After Meniscus Reconstruction		No WB for 6 weeks	Yes	0-90° for 6 weeks	*

* No recommendation : The consensus group has no specific recommendation to advice

WHICH REHABILITATION IS RECOMMENDED AFTER MENISCUS SURGERY ?

Does concomitant ACL reconstruction have an impact on rehabilitation after medial or lateral meniscus repair when compared to meniscus repair on a stable knee?

Rehabilitation protocols for repaired menisci with concomitant ACL reconstruction are similar to protocols for isolated meniscal repairs;

however, return to sport may be delayed on account of the ACL reconstruction. Meniscus repairs requiring limitation of weight-bearing and/or ROM would affect ACL rehabilitation protocols. Most stable vertical meniscal tear repairs do not affect ACL rehabilitation protocols.

GRADE C

SYNTHESIS OF REHABILITATION AFTER MENISCUS REPAIR, MENISCECTOMY AND MENISCUS RECONSTRUCTION. Part 2.

	Phases	Criterion-based rehabilitation	Duration of rehabilitation	
After Meniscus repair	Protective phase	Until nearly full passive ROM, no effusion, and neuromuscular control of the quadriceps	4 months (at least)	<ul style="list-style-type: none"> Ramp lesions Stable vertical meniscal tear
	Restorative phase	until Full ROM, > 80% muscle strength, adequate single leg dynamic knee control	6 to 9 months	<ul style="list-style-type: none"> Complex vertical meniscal tear repairs Complete oblique and radial tears Horizontal lesions in the young athlete Root tears
	Return to activity and sports phase	Time and criterion-based rehabilitation protocols (see chapter return to sports)		
After Meniscectomy	Return to these activities requires meeting progressive milestones throughout rehabilitation (e.g., effusion, range of motion, quadriceps strength, neuromuscular control) and not just meeting healing time frames.	Referral to surgeon if: persistent pain, recurrence of stiffness and/or effusion, persistent functional instability, mechanical symptoms, any neurological symptoms, suspicion of infection or DVT, inability to reach clinical milestones related to knee symptoms	4 to 12 weeks	
After Meniscus Reconstruction	Depending on associated procedures	Time and criterion-based rehabilitation protocols	At least 9 months	RTS at least 12 months

ACKNOWLEDGEMENTS

To all members of the rating group.

European rating group: C. Bait (Italy), K. Briem (Iceland), P. Epinga (The Netherlands), Ch. Fink (Austria), D. Garcia German (Spain), A. Grassi (Italy), H. Gridem (Norway), G. Harput (Turkey), M. Iosifidis (Greece), C. Juhl (Denmark), E. King (Ireland), T. Lange (Germany), J. Menetrey (Switzerland), B.G. Moatshe (Norway), S. Mogos (Romania), L. Oleksy (Poland), G. Palmas (Italy), Th. Patt (The Netherlands), G. Samitier (Spain), A. Silva (Portugal), J. Stephen (United Kingdom), C. Toanen (France), T. Wörner (Sweden).

US rating group: L. Bailey, T. Chmielewski, S. Di Stasi, B. Forsythe, C. Garrison, J. Lamplot, D. Lansdown, A. Lynch, R. Ma, A. Momaya, V. Musahl, K. Okoroha, J. Schoenecker, B. Solie, A. Su, M. Tanaka, E. Wellsandt, G. Williams.

We would also like to thank the peer reviewers from all over Europe and US for their contribution to this consensus.

Contact Information

ESSKA Office

Anna Hansen Rak

Project Manager

Phone: +352 4411 7026

Fax: +352 4411 7678

e-mail: info@esska.org

www.esska.org