Meniscal Repair

Using the MENISCUS MENDER II Repair System

A knee technique guide as described by

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MENISCUS
MENDER II
Repair System

This surgical technique was prepared with the guidance of Drs. Charles H. Brown, Jr., MD and Nicholas A. Saglione, MD and contains a summary of techniques and opinions based upon their training and expertise in the field, along with their knowledge of Smith+Nephew products.

S+N does not provide medical advice and recommends that surgeons exercise their own professional judgement when determining a patient's course of treatment. This surgical technique is presented for informational and educational purposes only. **For more information on the products in this surgical technique, including indications for use, contraindications, effects, precautions and warnings, please consult the products' Instructions for Use (IFU).**

Introduction

The Smith+Nephew Meniscus Mender II (MMII) Meniscal Repair System is designed for repairing the meniscus under arthroscopic visualization through an outside-in technique which is considered to be ideally suited for anterior horn tears.[1] The MMII system allows the surgeon to work from the outside of the knee into the joint, instead of starting sutures inside the capsule and exiting less predictably out the back.*[1]

The MMII system utilizes curved and straight needles and a patented suture capture loop. Depending on the patient's anatomy, the surgeon may use a combination of curved or straight needles in order to best access the tear. These components allow the surgeon to use the outside-in approach, which is considered to minimize the risk of damage to neurovascular structures during meniscal repair.*[1,2]

The Smith+Nephew Suture Circle and Suture Passer (reusable) are optional for this technique. The suture circle arthroscopically assists the surgeon in stabilizing the meniscus during needle placement, and the straight or curved suture passer assists in passing suture material through the loop.

*compared to inside-out approach

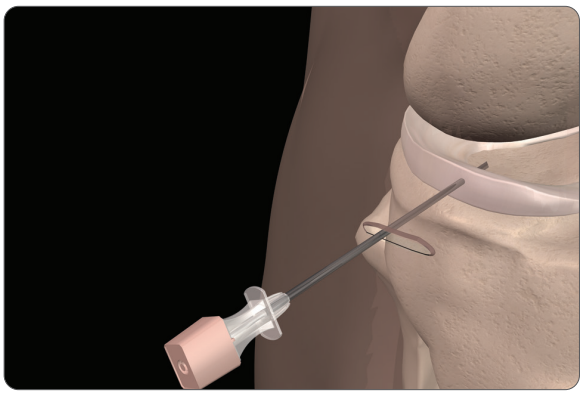

Figure 1

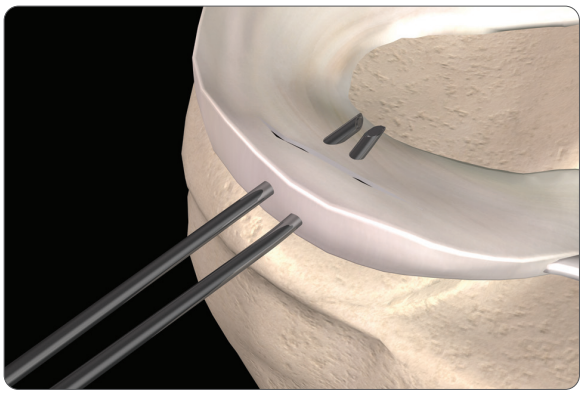

Figure 2

Meniscal repair of the lateral meniscal tear

1. Flex the knee to relax neurovascular structures. Palpate and transilluminate to locate the joint line plus other anatomical landmarks, e.g., peroneal nerve, fibular head, etc.
2. With the knee in flexion and internal visualization from the most advantageous portal (medial or lateral), place a straight or curved needle with stylet outside-in across the meniscal tear (**Figure 1**).
   This is achieved by external palpation and internal visualization. Advance the needle with stylet into the side wall of the meniscus through the tear. A suture circle may be used to stabilize the meniscus. After safe skin placement, the knee can be extended.
3. Make a 1cm skin incision adjacent to the first needle, encompassing the needle in the incision. The first needle must be free in the incision. This is confirmed by moving the head of the needle to ensure it is free from the skin.
4. Use a regular hemostat to spread the small incision down to the capsule in order to provide an opening for placement of the second needle. Subsequent ligature will be tied over the capsule and not the subcutaneous fat. This maneuver also mobilizes small veins, cutaneous nerves, etc., to the side of the portal.
5. Pass the second needle (straight or curved) parallel to the first needle through the skin opening and into the joint to allow placement of suture to secure the meniscus (**Figure 2**).

NOTE: Parallel placement of the needles can be difficult because of space constraints. Therefore, the needles may cross on the outside of the joint in order to achieve the proper positioning on the inside for placement of vertical, horizontal, or oblique mattress stitches.

6. Perform this procedure using either braided or monofilament suture.

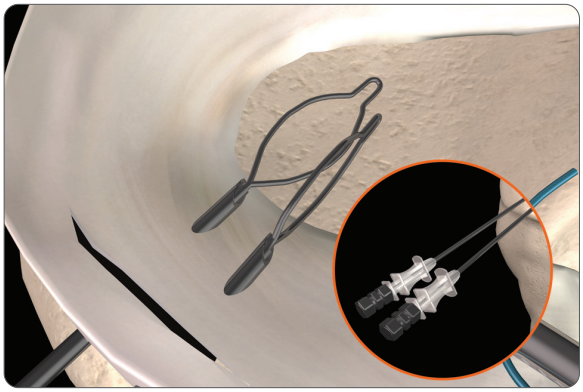

Figure 3

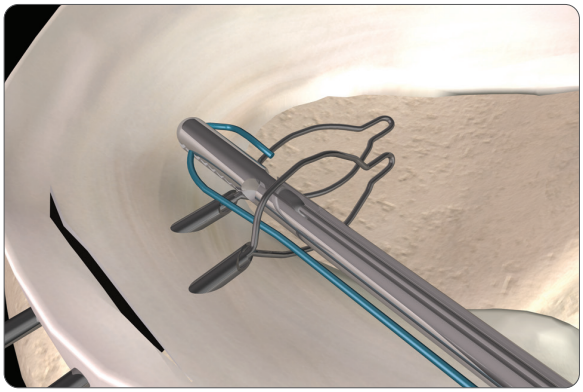

Figure 4

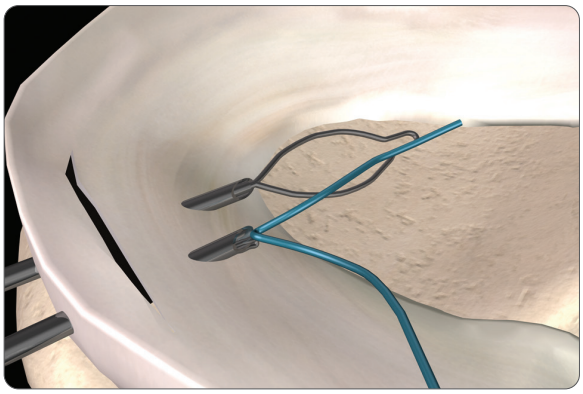

Figure 5

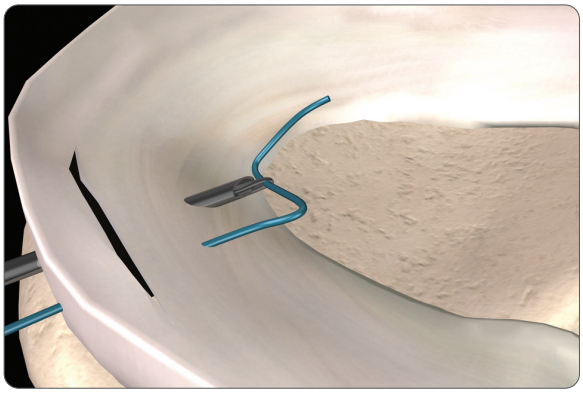

Figure 6

Using Braided Suture:

1. Remove both stylets and insert loops through the needles. Rotate the loop to accept the suture (**Figure 3**).
2. From the opposite portal, use a low profile linear grasper or a straight or curved suture passer to introduce the suture into the joint.

NOTE: The selection of a straight or curved suture passer depends upon the patient's anatomy. The curved suture passer is used for most lateral repairs and some posterior medial repairs.

Hold one end of the braided suture with the grasper. Pass both the grasper and suture through the loop (**Figure 4**). Release the suture by carefully opening and withdrawing the grasper from the loop, then the joint, leaving the suture in the loop. Pull back on the loop, capturing the suture material and pull both loop and needle out of the joint together (**Figure 5**).

3. Repeat the previous step for the second needle (**Figure 6**).

NOTE: Place the opposite end of the suture through the same portal. Take care not to catch tissue in the portal. This can be avoided by clearing the portal with motorized instrumentation and increasing intra-articular fluid distention to create flow.

Figure 7

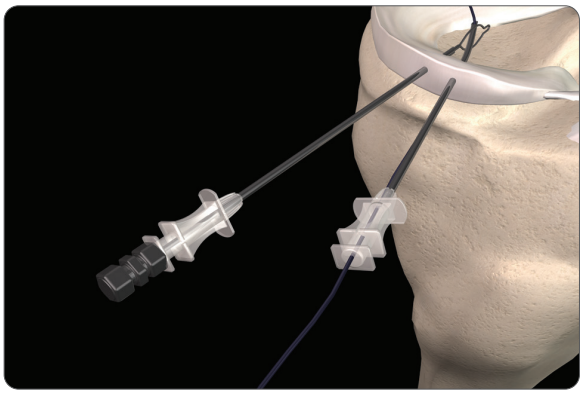

Figure 8

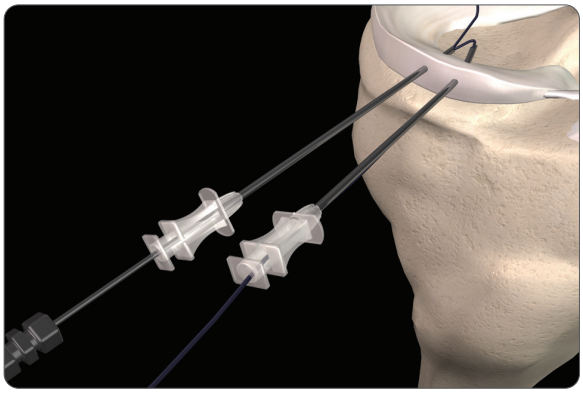

Figure 9

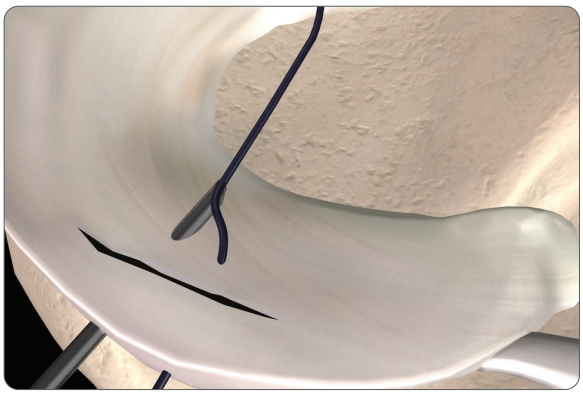

Figure 10

Using Monofilament Suture:

1. Remove the stylet from the first needle. Insert the loop through the needle until the loop opens in the joint. Rotate the loop to accept the second needle (**Figure 7**).
2. Advance the second needle through the loop opening and remove the stylet.
3. Turn off or minimize fluid flow into the joint to allow the suture to pass through the needle.
4. Introduce the suture into the joint by threading it through the second needle and, thus, the loop. Slowly pull back on the second needle, ensuring the suture remains in the loop (**Figure 8**).
5. Pull back on the loop, capturing the suture material (**Figure 9**).
6. Remove the second needle from the joint (**Figure 10**) under arthroscopic visualization.

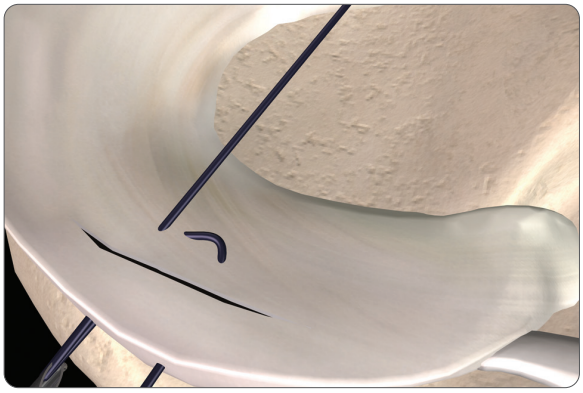

Figure 11

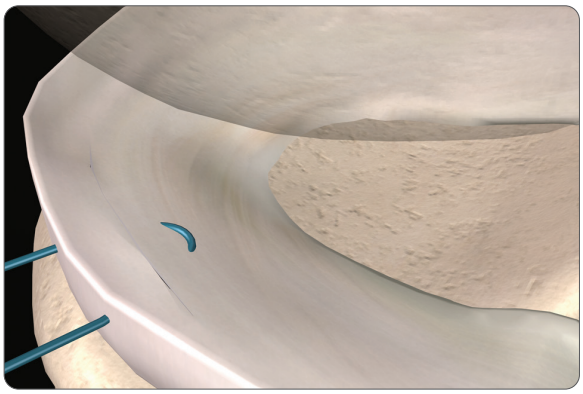

Figure 12

Figure 13

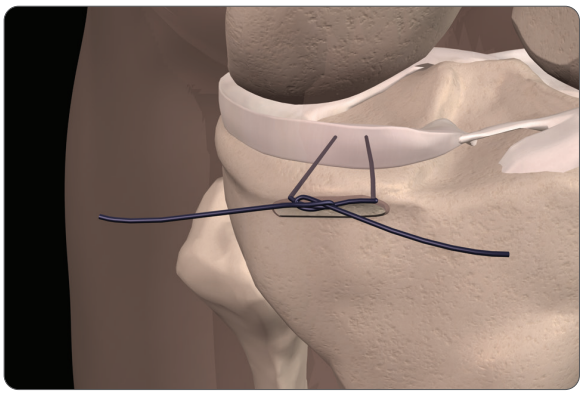

Figure 14

7. Remove the first needle with the loop from the joint (**Figure 11**).
8. Ensure that both suture ends are outside of the joint (**Figures 12 and 13**).
9. Relax the knee to a neutral position. Tie the suture subcutaneously, directly over the capsule (**Figure 14**). For multiple sutures, start anteriorly on the tear and work toward the posterior horn, beginning at step 2.

NOTE: If ACL reconstruction accompanies the meniscal repair, the sutures should be placed prior to ACL surgery but tied at the end of the case. The exposed sutures can be secured and held out of the way with skin tape.

Suture material is not included in the kit. #2-0 suture is preferred; however, the type of suture

Postoperative Management

- Four weeks modified bracing (0° to 90°) avoiding extreme terminal flexion.
- Partial weight bearing with knee in full extension.
- Full motion and full weight bearing is initiated by six weeks.
- Restriction from acceleration/deceleration sports for up to six months when clinically healed.
- The remainder of rehabilitation progression should be individualized.

Ordering information

MENISCUS MENDER II Repair System	
Reference #	Description
7209485	MENISCUS MENDER II Disposable Set
Optional Instrumentation	
7209477	Straight suture passer
7209478	Curved suture passer
7209481	Suture circle
7207357	Large sterilization tray with mat
Replacement Parts	
7209480	Set screw for suture passer, large
7209483	Set screw for suture passer, small

Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Smith+Nephew representative or distributor if you have questions about the availability of Smith+Nephew products in your area.

Additional instruction

To order the instruments used in this technique, call **+1 800 343 5717** in the U.S. or contact an authorized Smith+Nephew representative. Prior to performing this technique, consult the Instructions for Use documentation provided with individual components – including indications, contraindications, warnings, cautions and instructions.

CAUTION: U.S. Federal law restricts this device to sale by or on the order of a physician.

Learn more at **smith-nephew.com**

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References

1. Menge TJ, Dean CS, Chahla J, Mitchell JJ, LaPrade RF. Anterior Horn Meniscal Repair Using an Outside-In Suture Technique. *Arthrosc Tech*. 2016;5(5):e1111-e1116.
2. Elmallah R, Jones LC, Malloch L, Barrett GR. A Meta-Analysis of Arthroscopic Meniscal Repair: InsideOut versus Outside-In versus All-Inside Techniques. *J Knee Surg*. 2018 Aug 21. [Epub ahead of print].