With DePuy Mitek’s introduction of suture anchors, orthopaedic shoulder surgery was revolutionized, enabling surgeons to enter a new era of minimally invasive surgery. As a result, arthroscopic technology and skill requirements have changed — and continue to evolve. Including the use of specialized arthroscopic knots...

When selecting the appropriate arthroscopic knot for each procedure, surgeons should understand the difference between locking and non-locking knots. In addition, surgeons must make other important decisions, such as: on which side of the tissue to place each suture limb; where to place knots and posts through tissue; and how to use various knot tying instruments. In all knot configurations (sliding or non-sliding), it’s best to back up the knot with three to four half hitches. The literature indicates that reverse half hitches with alternating posts provide the strongest knot configurations.

DePuy Mitek has developed this Knot Tying Manual to assist today’s orthopaedic surgeons in addressing the most key surgical considerations.

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Position suture so there is one short limb (post) and one long limb (loop).

1. Identify post limb.
2. Send overhand throw with loop limb around post limb.
3. Send overhand throw around both limbs of suture.
4. Send underhand throw around post through both limbs and overhand throw around loop limb.
5. Send loop limb back through original and most proximal loop.

6. Dress and tighten knot.
7. Using the knot pusher, advance knot down to tissue.
8. Place on underhand half hitch and advance to sliding knot, further tightening soft tissue.
9. Place another half hitch and alternate post.
10. Place third and last half hitch, and alternate post.

Bunt Line Half Hitch
Push on the post to tighten the knot.

6. Lower another half hitch over the right strand, pulled by the knot pusher, which carries along the left strand.
Fisherman’s Knot

Position suture so there is one short limb (post) and one long limb (loop). Hold both sutures between thumb and long finger.

1. Create a loop by throwing the long suture over your thumb.
2. Pass suture behind both strands.
3. Continue by throwing the loop limb over and around both sutures.
4. Throw the loop limb three-four times around both sutures.
5. Dress and prepare knot for delivery.

Pass the free end of the long suture through the loop limb made by your thumb.

7. Tighten knot by pulling the loop limb.
8. Compress the knot while pulling the loop limb gently.
9. Advance the knot down to the soft tissue by pulling the post.
10. Throw a series of half hitches to secure knot.
11. Repeat step 12.
12. Tighten knot by pulling the loop limb.
Nicky’s Knot

1. Position suture so there is one short limb (post) and one long limb (loop).
2. Make an overhand throw with the loop stand over the post limb.
3. Send underhand throw around post limb.
4. Repeat overhand throw around post limb.
5. Repeat overhand throw around post limb for a second time.
6. Pass the loop limb over itself.
7. Place overhand half hitch proximal to the knot.
8. Dress and tighten knot.
9. Pull on post limb to advance knot forward towards soft tissue.
10. Continue to place reversing half hitches while alternating posts.
11. Secure with alternating half hitches.

Nicky’s Knot

Nicky’s Knot
An underhand half hitch is then thrown around the new post.

Tension and post point.
Roeder Knot

Position the suture so there is one short limb (post) and one long limb (loop).

1. Throw the loop limb around the post.
2. Send underhand throw around both suture limbs.
3. Throw the loop limb around both suture limbs.
4. Send overhand throw around both limbs. Place loop limb through both suture limbs and behind distal loop.
5 & 6

8. Throw an underhand half hitch.
9. Throw reverse half hitch around post.
10. Send reverse half hitch around post.

11. Continue to throw reverse half hitches until satisfied that knot is secured.

12. Dress and tighten knot.

Send reverse half hitch around post.
Roeder: Modified

1. Position the suture so there is one short limb (post) and one long limb (loop).
2. Throw the loop around the post.
3. Throw the loop around the post.
4. Send underhand throw around post limb.
5. Send underhand throw around loop limb.
7. Send another underhand throw around loop limb.
8. Retrieve underhand throw and send loop limb back through both limbs.
9. Send another underhand throw around loop limb.
10. Take loop limb and place into most proximal loop.
11. Pull post limb and deliver to soft tissue with knot pusher.
12. Pull on loop limb to lock knot. Pass point and back up with half hitches, if necessary.

Roeder: Modified
SMC Knot

1. Hold the post of the suture with the left hand and the long (loop) strand with the right hand.

2. Make an underhand throw with the loop strand under both loop limbs and post strand.

3. Send overhand throw with loop strand around both limbs.

4. Make an underhand throw with the loop strand around the post strand.

5. Bring the loop behind limb and through proximal loop with an underhand throw.

6. Do NOT pull the loop strand fully through; create a locking loop, release the thumb and index finger, and place left index finger into the locking loop from bottom to top to keep open.

7. Advance to soft tissue.

8. Use knot pusher to make certain that the original knot remains tight on soft tissue.

9. Full loop limbs to lock knot.

10. Throw a half hitch.

11. Throw another alternate half hitch to secure knot.
Place an overhand half hitch around the post.

Tension the suture by moving the knot pusher to the post limb suture and passing it beyond the knot.

Additional loops can be made, if necessary.

Tighten the knot.

Square Knot

1. Place an overhand half hitch around the post.
2. Place a knot pusher on the loop limb and pull the loop into joint or soft tissue past post post.
3. Place and underhand half hitch around the post, and advance the loop into the post.
4. Tension the suture by moving the knot pusher to the post limb suture and passing it beyond the knot.
5. Additional loops can be made, if necessary.
6. Tighten the knot.
The short limb will be your post, while the long limb will be your suture strand to throw around post (loop).

1. Send first throw with long limb (loop) over post.
2. Send loop around post with an underhand throw.
3. Send overhand throw around both limbs of suture.
4. Send underhand throw around post and then overhand throw around loop.
5. Send overhand throw around post limb.
6. Send overhand throw around loop limb.

7. Send overhand half hitch above the knot proximal to your hands.
8. Send an overhand half hitch above the existing knot down to soft tissue.
9. Place a second overhand half hitch above the existing knot down to soft tissue.
10. Alternate post and place another overhand half hitch down to tissue.
11. Continue alternating posts.
12. Place series of half hitches until satisfied that knot is secured.
13. Dress knot and pull post limb while utilizing knot pusher to send knot down soft tissue.

Taut Line Hitch
Tennessee Slider

1. Position suture so there is one short limb (post) and one long limb (loop).
2. Throw the loop limb around the post.
3. Send overhand throw around post.
4. Throw the loop limb through the loop.
5. A second pass just around the post is followed by bringing the end of the loop limb behind up through the parallel limbs between the first and second loops.
6. The knot is tensioned and pushed into the joint using a knot pusher on the post.
7. The knot is tensioned and pushed into the joint using a knot pusher on the post.
9. Alternate with half hitches.
Position suture so there is one short limb (post) and one long limb (loop).

1. Make an overhand throw with the loop limb over the post.

2. Send a second overhand throw around both limbs.

3. Dress and lighten knot to prepare delivery down to soft tissue.

4. Pull on post limb to deliver knot to soft tissue, using a knot pusher to facilitate.

5. Once the knot is down and tightened, pull on loop limb to lock knot.

6. Retrieve the loop limb with an underhand throw under both limbs and back through proximal loop.

7. Send an overhand throw over loop limb.

8. Once the knot is approximated to tissue, pull on loop limb to lock knot.

9. Place half hitch.

10. Place another half hitch.