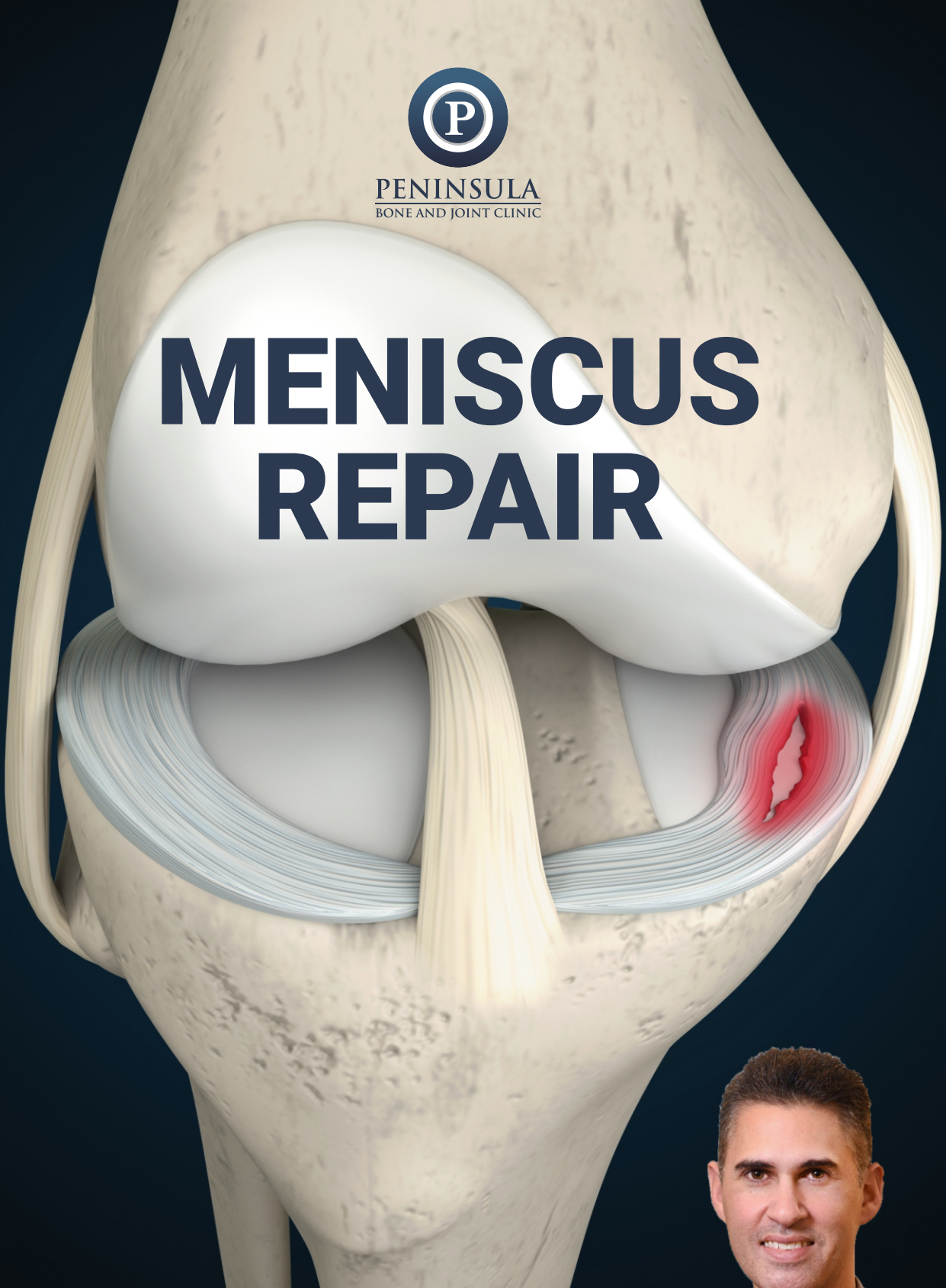




PENINSULA  
BONE AND JOINT CLINIC

# MENISCUS REPAIR



**DR. PAUL ABEYTA**  
ORTHOPEDIC SURGEON

**Burlingame Center**

1501 Trousdale Drive, 1st Floor  
Burlingame, CA 94010

P: 650-652-8700  
F: 650-652-8701

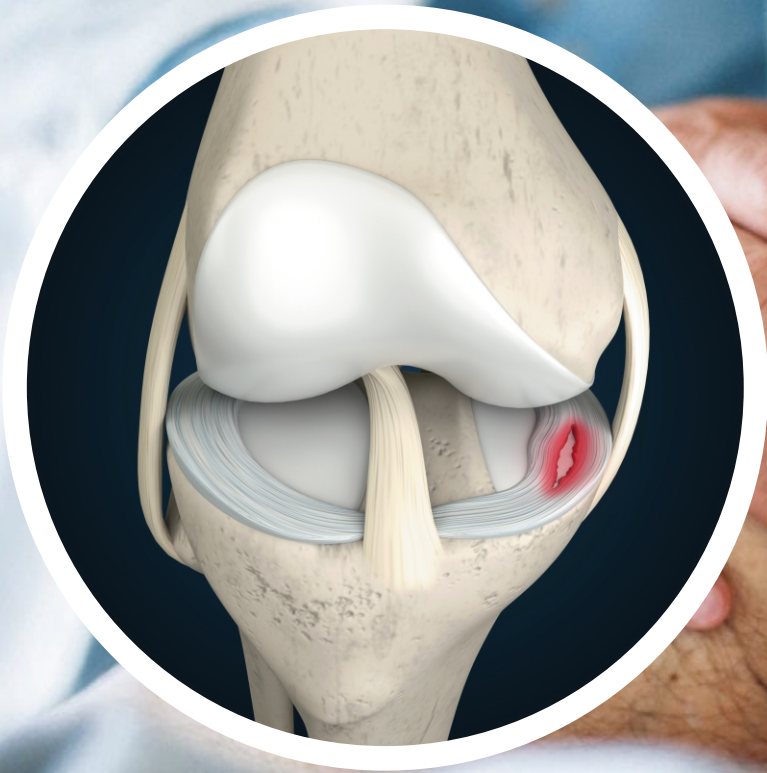
[www.peninsulaboneandjoint.com](http://www.peninsulaboneandjoint.com)







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## ORTHOPEDIC SURGEON



# MENISCUS REPAIR



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## Anatomy and Biomechanics

The knee joint is one of the largest and most complex joints in the body. It is constructed by 4 bones and an extensive network of ligaments and muscles. It is a bi-condylar type of synovial joint, which mainly allows for flexion and extension (and a small degree of medial and lateral rotation).

The menisci are crescent-shaped, fibrocartilaginous structures with wedge-like cross sections that function to deepen the tibial plateau, transmit load through the joint, provide shock absorption, and increase knee joint stability.

Anatomic repair of meniscal pathology is important for restoring native joint biomechanics and kinematics for patients who suffer from meniscal tears.

### Diagnosis

A torn meniscus is one of the most common knee injuries. Any activity that causes you to forcefully twist or rotate your knee, especially when putting your full weight on it, can lead to a torn meniscus. Torn knee cartilage generally produces pain in the region of the tear and swelling in the knee joint. These symptoms are made worse with pivoting motions, squatting, and vigorous activities. Torn meniscus fragments can get caught in the knee joint and cause a catching sensation. If a large enough fragment becomes lodged between the bearing surfaces, the knee may “lock” and become unable to be fully bent or extended.

Each of your knees has two C-shaped pieces of cartilage that act like a cushion between your shinbone and your thighbone. A torn meniscus causes pain, swelling and stiffness. You also might feel a block to knee motion and have trouble extending your knee fully.

If you've torn your meniscus, it might take up to 24 hours or more for pain and swelling to begin, especially if the tear is small. You might develop the following signs and symptoms in your knee:

- A popping sensation
- Swelling or stiffness
- Pain, especially when twisting or rotating your knee
- Difficulty straightening your knee fully
- Feeling as though your knee is locked in place when you try to move it
- Feeling of your knee giving way



A torn meniscus often can be identified during a physical exam. Dr. Abeyta might move your knee and leg into different positions, watch you walk, and ask you to squat to help pinpoint the cause of your signs and symptoms.

### Imaging Tests

- **X-rays.** Because a torn meniscus is made of cartilage, it won't show up on X-rays. But X-rays can help rule out other problems with the knee that cause similar symptoms.
- **Magnetic Resonance Imaging (MRI).** This uses a strong magnetic field to produce detailed images of both hard and soft tissues within your knee. It's the best imaging study to detect a torn meniscus.

### Treatment Options

#### Conservative Treatment

Regardless of how the meniscus is torn, Dr. Abeyta will work with you to determine the best course of treatment. In many cases a small, partial thickness tear can be treated conservatively. This may include rest, ice and anti-inflammatory medication, Physical Therapy and activity modification.

#### Surgery

If your knee remains painful despite rehabilitative therapy or if your knee locks, your doctor might recommend surgery. It's sometimes possible to repair a torn meniscus, especially in children and younger adults.



## Recovery/Time Off From Activities

Meniscus repair surgery, and its recovery, is time consuming and the overall outcome is highly dependent on patient compliance with post-operative protocols. You should only have meniscus repair surgery if you are prepared to be an active participant during this process, resting and utilizing a brace and post-op instructions as directed by Dr. Abeyta and his team, and performing recommended exercises to ensure there is proper return of range of motion and strength. There is a large amount of variability in the time it takes to fully recover from this procedure. In general, the larger the tear and its severity, the longer the time it will take for overall recovery. It is usually estimated that it will take at least six months to feel as though you have completely regained the use of your knee. Some cases may take as long as a year to make a full recovery. Manual laborers will likely be out of work for approximately four to six months. Recovery is different in each case your individual timetable for return to activities and work will be discussed during post-operative office visits.

If the tear can't be repaired, the meniscus might be surgically trimmed, possibly through tiny incisions using an arthroscope. Arthroscopic procedures utilize a camera and specialized instruments designed to work through small incisions on the skin (portals) are used to repair the torn menisci. The procedure is an outpatient surgery so you will not have to spend the night in the hospital. If damage to the menisci is extensive, additional surgical interventions may be recommended by Dr. Abeyta.

## Anesthesia

General anesthesia will be required to perform the surgery. In addition, the anesthesiologist may discuss performing a nerve block in the pre-operative area prior to surgery. It is a highly effective way to decrease pain in the first 24-36 hours after surgery. It will help reduce the amount of pain medication required although we do advise starting pain meds prior to the block wearing off to smooth the transition.

## Post-Operative Visits

Your first post-op visit to our office will be approximately 7-10 days after the operation. At this visit your stitches will be removed and you will review the surgery with the Dr. Abeyta or his physician assistant. At this time you will most likely be cleared to make an appointment to begin rehab. You should also plan to check in with Dr. Abeyta at 6, 12, and 24 weeks after the operation.

## At Home

You may remove your post-op dressing two days after the operation and replace it with band aids over the incisions. You may shower after two days, but do not soak the incisions until your sutures are removed. It is best to keep the incisions covered during showering. You may wash around the affected knee area as cleared by Dr. Abeyta or his team.

## Knee Brace

Most often patients do not require a knee brace after a meniscectomy, but if you undergo a meniscus repair, a knee brace or a knee immobilizer is provided to prevent the bending of the knee while bearing weight which can cause retearing of the repaired meniscus. This will be worn for 6 weeks and will limit your bending to 90 degrees during this time frame.

## Medication

Dr. Abeyta will prescribe pain medicine for use after the operation. Typically, this will be sent electronically to your pharmacy at the pre-operative visit or prior to your scheduled surgery. We typically prescribe a combination of Norco (pain medication) and Ibuprofen (pain and inflammation) to be used in concert. Every patient has a different response to pain stimulus and we may adjust as needed. He wants to limit narcotic pain medication as much as possible. It can worsen nausea, constipation, and lead to dependency with long term use.

***Pain medication can only be refilled during regular office hours as an electronic prescription. Do not call at the end of the day, evening or weekend expecting a pain medication refill. We are a surgery office and not a pain management clinic. We do not prescribe long-term use narcotic medication.***

## Ice

You must use ice on your knee after the operation for management of pain and swelling. Ice should be applied 3-5 times a day for 10-20 minutes at a time. Always maintain one layer between ice and the skin. Some patients prefer to use "ice machines" after surgery. These are not covered by insurance and do not require a prescription. They are an excellent convenience item but not deemed necessary. They can be purchased on-line, borrowed from a friend, or we can direct you to a vendor for direct purchase.

## Sleeping

Keep your knee straight and elevated when sitting or lying down. Do not rest with a towel placed under the knee. ***Do not attempt to sleep on your operated knee for at least 6 weeks.***

## Driving

**To drive you must no longer be taking narcotic pain pills (plain Tylenol is allowed). Also, you must feel strong and alert. Most people are able to start driving 1-2 weeks after surgery, but use your judgment as to when you feel ready and safe to drive. Crutches are required following surgery.**

## Risks and Complications

Risks of major complication from meniscus repair surgery are inherently low but all surgeries have risks of complication with anesthesia or medications, bleeding, and infection. Meniscus repair surgery may result in knee stiffness, failed repair, post operative blood clots, and complications related to the arthroscopic repair.



## Rehabilitation Protocol

Your rehab may be adjusted on an individual basis. These are basic guidelines and goals for each phase of recovery. Please share with your physical therapist as these are the general guidelines that we recommend.

### Goals:

- Protect repair
- Reduce swelling, minimize pain
- Restore patellar mobility
- Restore full extension
- **Flexion < 90 degrees**
- Minimize arthrogenic muscle inhibition, re-establish quad control, regain full active extension

### Precautions:

- Keep your knee straight and elevated when sitting or lying down. Do not rest with a towel placed under the knee.
- Do not actively bend your knee; support your surgical side when performing transfers (i.e. sitting to laying down)
- Do not pivot on your surgical side.

### Walking

- **Brace locked, crutches**
- **Partial weight bearing**
- When going up and down the stairs, make sure you are leading with the non-surgical side
- the stairs, make sure you are leading with the crutches and surgical side.





## PHASE I: IMMEDIATE POST-OP (0-3 WEEKS AFTER SURGERY)

### Goals

- Protect repair
- Reduce swelling, minimize pain
- Restore patellar mobility
- Restore full extension
- **Flexion < 90 degrees**
- Minimize arthrogenic muscle inhibition, re-establish quad control, regain full active extension
- **Patient education**
  - *Keep your knee straight and elevated when sitting or lying down. Do not rest with a towel placed under the knee.*
  - *Do not actively bend your knee; support your surgical side when performing transfers (i.e. sitting to laying down)*
  - *Do not pivot on your surgical side.*

### Weight Bearing

#### Walking

- **Brace locked, crutches**
- **Partial weight bearing**
- When going up the stairs, make sure you are leading with the non-surgical side, when going down the stairs, make sure you are leading with the crutches and surgical side.

## PHASE II: INTERMEDIATE POST-OP (3-6 WEEKS AFTER SURGERY)

### Goals

- Continue to protect repair
- Reduce pain, minimize swelling
- Maintain full extension
- Flexion < 90 degrees unless further direction from Dr. Abeyta

### Weight Bearing

#### Walking

- Continue partial weight bearing unless directed otherwise by Dr. Abeyta
- Consult with Dr. Abeyta regarding unlocking brace

### Additional Interventions

*\*Continue with Phase I interventions*

#### Range of Motion/Mobility

- Stationary bicycle: gentle range of motion only (see Phase III for conditioning) Cardio
- Upper body ergometer

#### Strengthening

- Calf raises
- Lumbopelvic strengthening: Sidelying hip external rotation clamshell in neutral, plank, bridge with feet elevated

#### Balance/proprioception

- Double limb standing balance utilizing uneven surface (wobble board)
- Joint position re-training





### PHASE III: LATE POST-OP (6-9 WEEKS AFTER SURGERY)

#### Goals

- Continue to protect repair
- Maintain full extension
- Normalize gait.
- Flexion within 10 degrees of contra lateral side.
- Safely progress strengthening.
- Promote proper movement patterns.
- Avoid post exercise pain/swelling.

#### Weight Bearing

May discontinue use of brace/crutches after 6 weeks per Dr. Abeyta and once adequate quad control is achieved and gait is normalized.

#### Additional Interventions

\*Continue with Phase I-II Interventions as indicated

#### Range of Motion/Mobility

- Supine active hamstring stretch
- Gentle stretching all muscle groups: prone quad stretch, standing quad stretch, kneeling hip flexor stretch, standing gastroc stretch and soleus stretch
- Rotational tibial mobilizations if limited ROM

#### Cardio

- Stationary bicycle, flutter kick swimming, pool jogging

#### Strengthening

- Partial squat exercise 0-60 degrees
- Ball squats, wall slides, mini squats from 0-60 deg
- Hamstring strengthening: prone hamstring curls, standing hamstring curls
- Lumbopelvic strengthening: bridges on physioball, bridge on physioball with roll-in, bridge on physioball alternating, hip hike
- Gym equipment: leg press machine, standing hip abductor and adductor machine, hip extension machine, roman chair, seated calf machine
- Progress intensity (strength) and duration (endurance) of exercises

#### Balance/proprioception

- Single limb balance progress to uneven surface including perturbation training



### PHASE IV: TRANSITIONAL (9-12 WEEKS AFTER SURGERY)

#### Goals

- Maintain full ROM.
- Safely progress strengthening.
- Promote proper movement patterns.
- Avoid post exercise pain/swelling.





### Additional Interventions

*\*Continue with Phase I-III interventions as indicated*

#### Cardio

- Elliptical, stair climber

#### Strengthening

**\*\***The following exercises to focus on proper control with emphasis on good proximal stability

- Squat to chair
- Lateral lunges
- Single leg progression: partial weight bearing single leg press, slide board lunges: retro and lateral, step ups and step ups with march, lateral step-ups, step downs, single leg squats, single leg wall slides
- Knee Exercises for additional exercises and descriptions
- Gym equipment: seated hamstring curl machine and hamstring curl machine
- Romanian deadlift



### PHASE V: EARLY RETURN TO SPORT (3-5 MONTHS AFTER SURGERY)

#### Goals

- Safely progress strengthening.
- Safely initiate sport specific training program.
- Promote proper movement patterns.
- Avoid post exercise pain/swelling.

#### Additional Interventions

*\*Continue with Phase II-IV interventions as indicated*

#### Interval running program

- Return to Running Program

Progress to plyometric and agility program (with functional brace if prescribed).

- Agility and Plyometric Program

#### Criteria to Progress

- Clearance from Dr. Abeyta and ALL milestone criteria below have been met
- Completion of jog/run program without pain/swelling
- Functional Assessment
  - Quad/HS/glut index  $\geq 90\%$ ; HHD mean preferred (isokinetic testing if available)
  - Hamstring/Quad ratio  $\geq 70\%$  with isokinetic testing if available)
  - Hop Testing  $\geq 90\%$  compared to contra lateral side
- KOOS-sports questionnaire  $>90\%$
- International Knee Committee Subjective Knee Evaluation  $>93$
- Psych Readiness to Return to Sport (PRRS)

### PHASE VI: UNRESTRICTED RETURN TO SPORT (6+ MONTHS AFTER SURGERY)

#### Goals

- Continue strengthening and proprioceptive exercises.
- Symmetrical performance with sport specific drills.
- Safely progress to full sport.

#### Additional Interventions

*\*Continue with Phase II-V interventions as indicated*

- Multi-plane sport specific plyometrics program
- Multi-plane sport specific agility program
- Include hard cutting and pivoting depending on the individuals' goals
- Non-contact practice = Full practice = Full play

#### Criteria to Discharge

- Quad/HS/glut index  $\geq 90\%$ ; HHD mean preferred (isokinetic testing if available)
- Hop Testing  $\geq 90\%$  compared to contra lateral side

