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Conservative Treatment for Meniscus Rehabilitation

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Conservative Treatment for Meniscus Rehabilitation

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Introduction

The meniscus is a crescent-shaped piece of cartilage that is located between the femur and the tibia⁷. There are two menisci, the lateral menisci and the medial menisci. These function to assist in shock absorption, lubrication, reduce friction, as well as to increase the contact area between the femur and the tibia. Meniscus tears are very common in athletics. The most common mechanism of injury for a torn meniscus is the twisting of a bent knee. Common signs and symptoms include: pain, swelling, tenderness, popping/clicking sensation, and limited range of motion¹⁻⁶. There are 2 special tests that can be performed to evaluate if the meniscus is torn, called McMurray's Test, and Apley's Compression and Distraction Test⁶. Conservative treatment for a torn meniscus includes rest, ice, compression, elevation, NSAID's, physical therapy, and the patient may be given a knee brace to wear. Meniscus tears can be recurrent, however a surgical treatment may help prevent the recurrence of the tears.

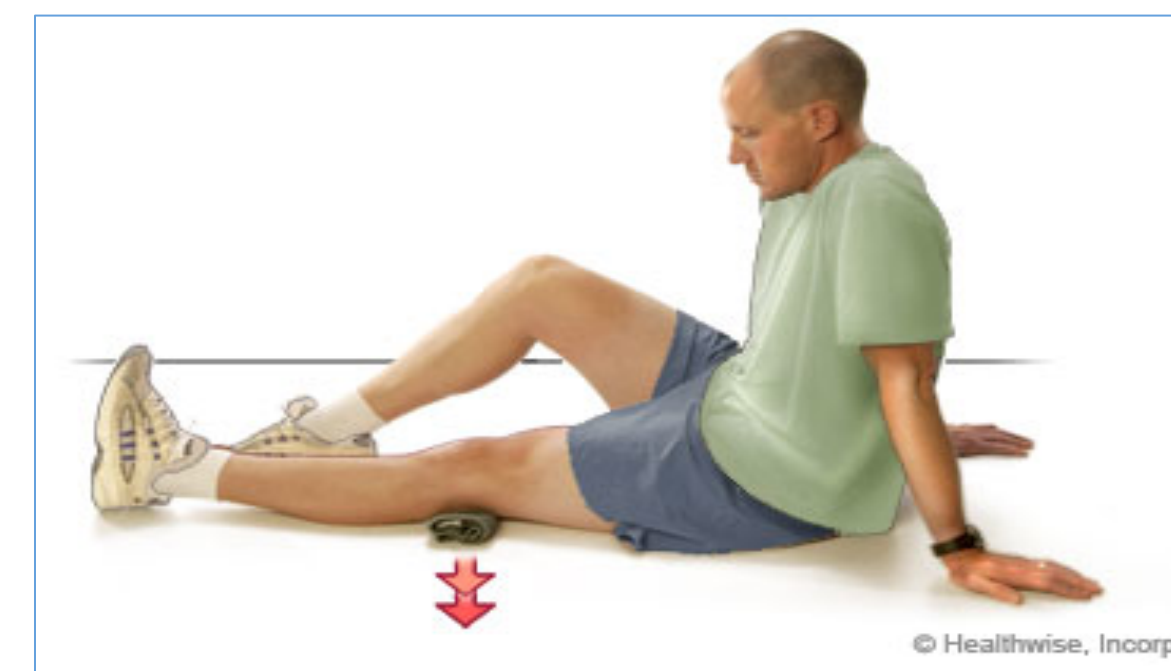
Purpose

The purpose of this review is to produce a non-surgical treatment plan for meniscus injuries using therapeutic exercise, to eventually prepare the athlete for return to play after the sustained injury. Using therapeutic exercises, a rehabilitation program can be created for athletes who do not wish to pursue surgery. The treatment plan was designed for a soccer player who had a partially torn meniscus.

References

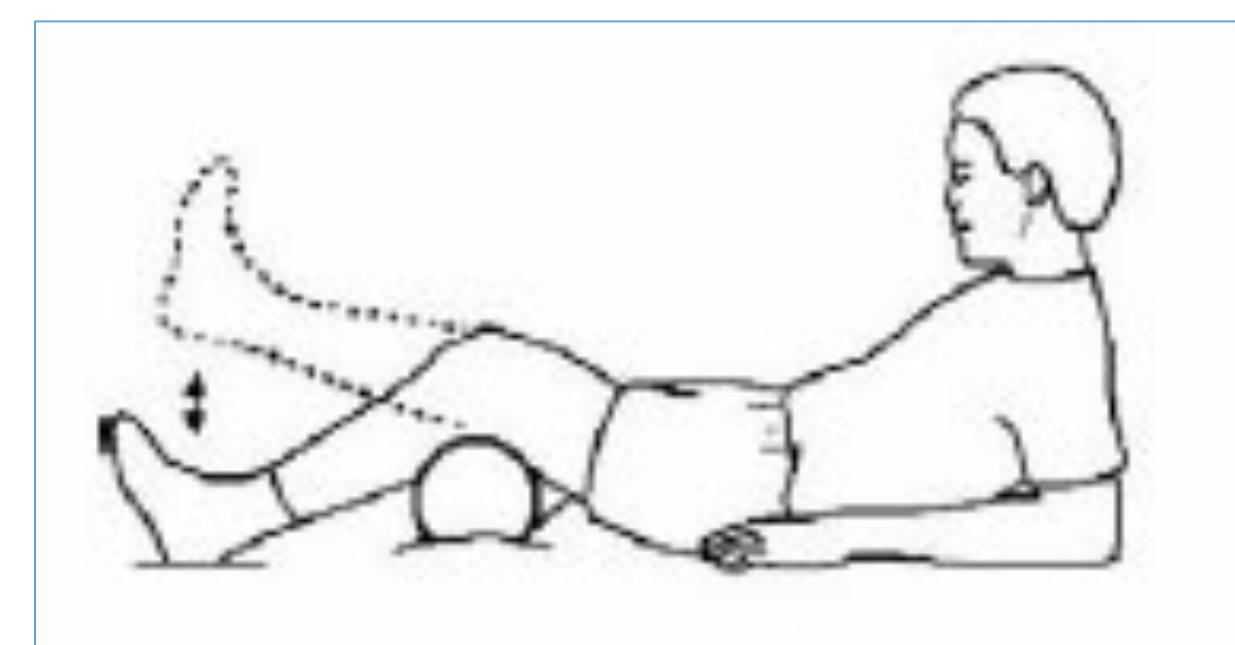
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Exercises



Quad Sets

With the injured leg fully extended, place a small towel under the back of the knee. Contract the quadriceps muscle by pushing the knee towards the ground.



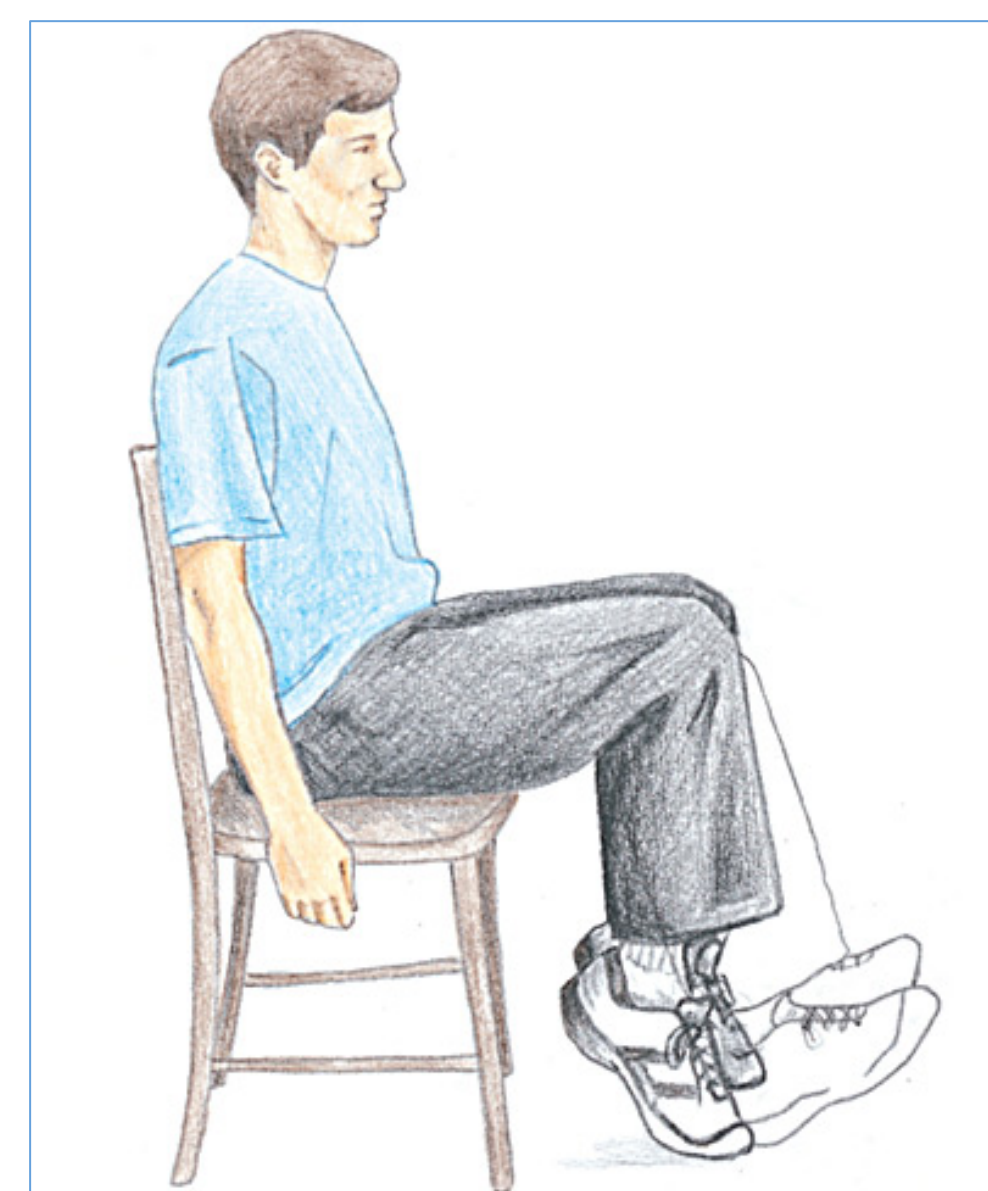
Short-Arc Quad Extensions

Place a towel under the injured knee, so the knee is bent at about 45°. Extend the knee and hold for about 10 seconds then relax back in the resting position.



Straight Leg Raises

Lying flat on your back, bend your uninjured leg 90°, leaving your injured leg straight. Lift your injured leg about 12 inches off the ground, keeping your thigh muscles contracted and hold for about 5 seconds, then lower the leg slowly back to the ground.

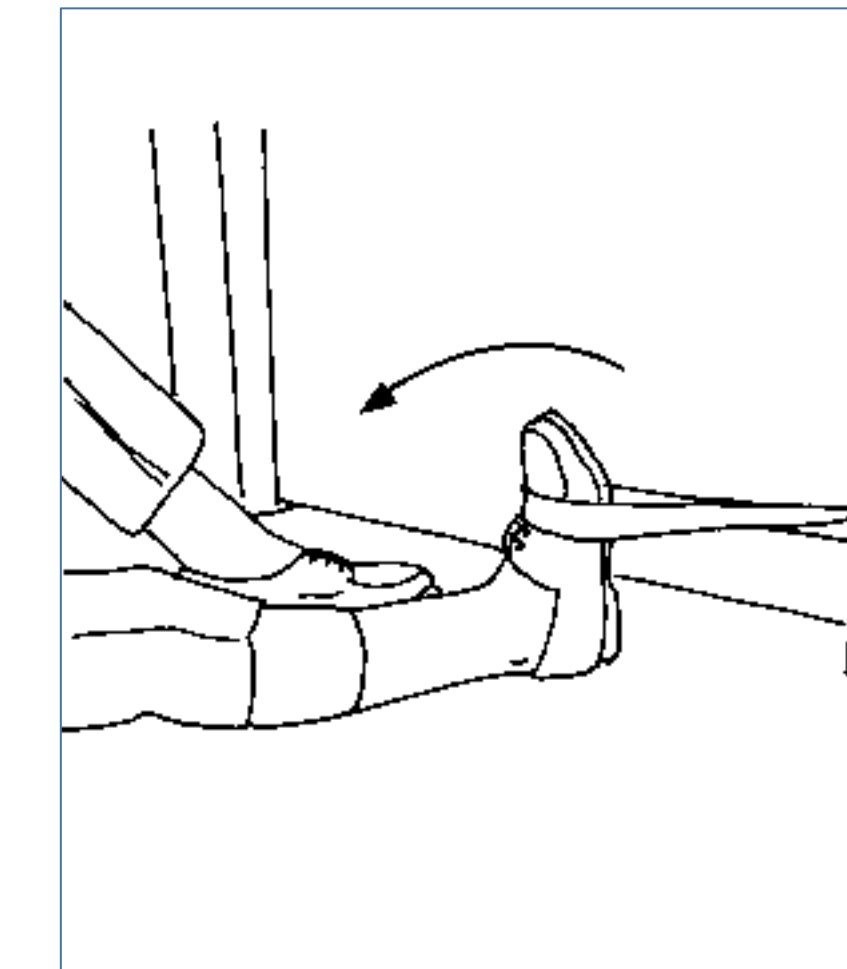


Toe Raises (Seated)

In a seated position with the legs relaxed, slowly flex your foot at the ankle and then bring the toes back to the relaxed position.

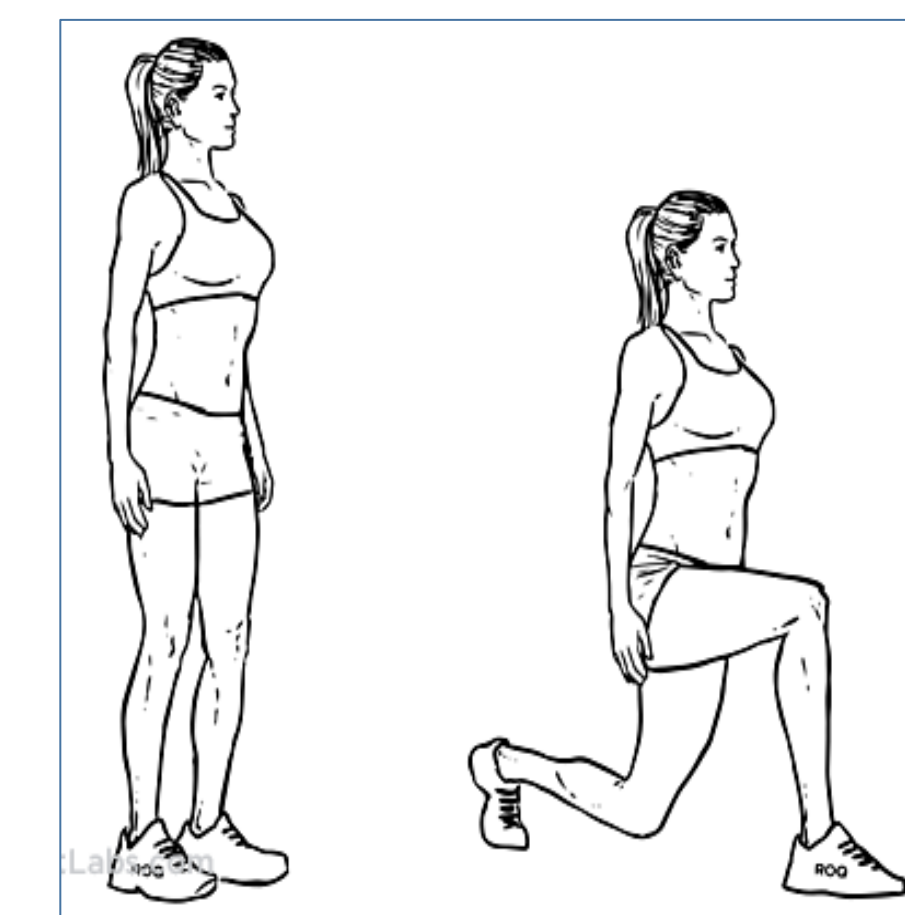
Toe Raises (With Tubing)

In a seated position with the injured leg fully extended, tubing can be placed around the top of the foot (either held by the clinician or tied to a table), and the athlete can perform toe raises with resistance.



Lunges

In a standing position, the athlete brings one foot forward and then bends at the knees keeping the back straight. The knee of the back leg should come close to the ground, and the knee of the front leg should not go past the toes. Both legs should form a 90° angle between the thigh and lower leg.



Squats

In a standing position, the athlete should spread the feet to be about shoulder width apart. The athlete should then bend at the knees to form a 90° angle. The knees should not go past the toes, and the athlete should make sure to maintain a flat back so as not to strain.



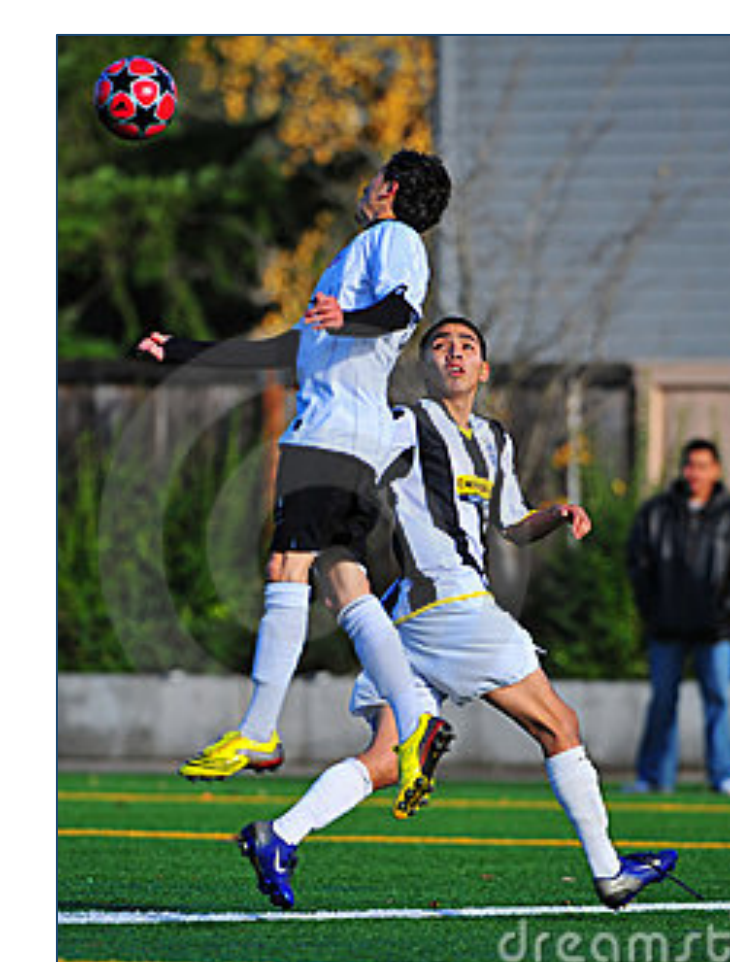
Sport-Specific Exercises



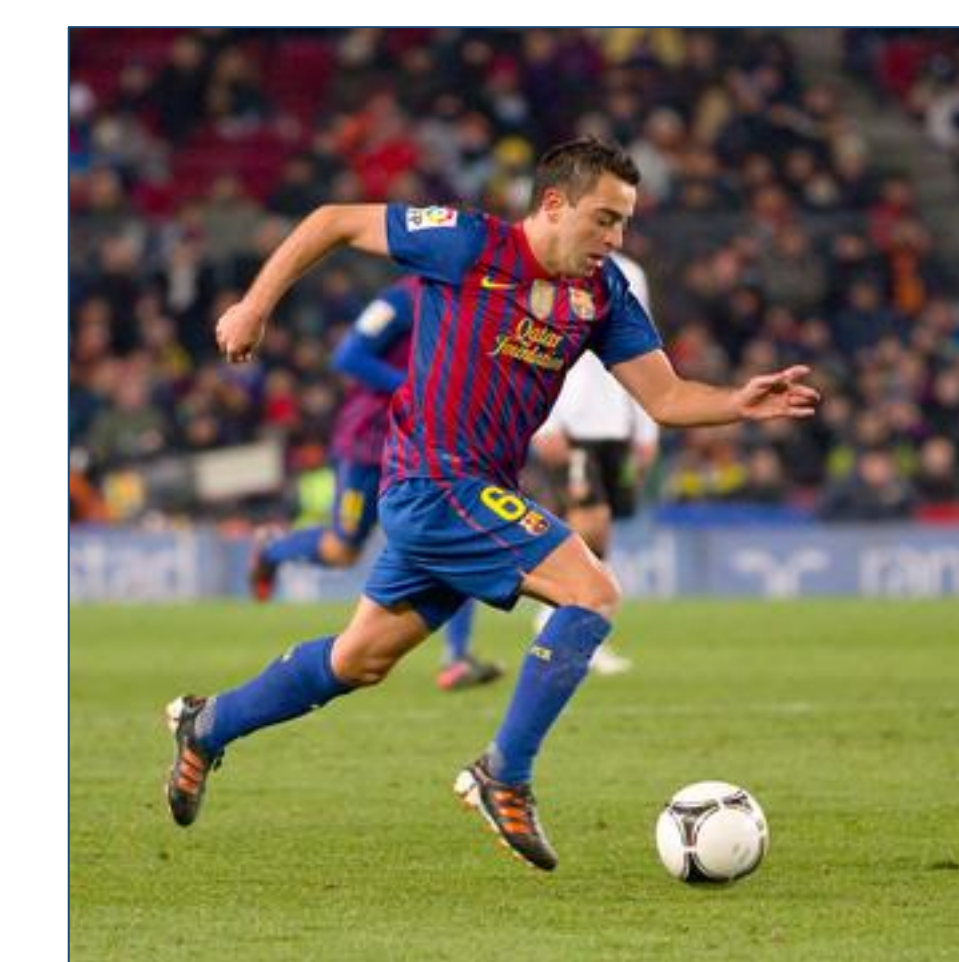
Cutting



Pivoting



Jumping



Sprinting

Discussion

The exercises increase in difficulty as pain levels decrease (difficulty increases with color). Initially after the injury, you want the athlete to rest, ice and elevate the knee, as well as wear a knee brace to help reduce swelling. Crutches may be advised for weight-bearing activities such as walking. Soon after, depending on the damage, you want the athlete to start working on range of motion exercises to help prevent further damage and further loss of range of motion. These exercises can be as easy as flexing and extending the knee, within pain-free limits. After the pain continues to decrease and the athlete can perform range of motion exercises without pain, the athlete can progress to the next stage of the rehabilitation process. The clinician can assist the athlete in stretching the hamstrings, quadriceps and iliotibial band to help prevent the surrounding muscles from becoming tight. If the athlete remains pain-free, then simple exercises can be introduced. These include quad sets, short-arc quad extensions, straight-leg raises, and toe raises from a seated position⁵. Once the athlete can perform these exercises with no pain, progression to the next phase of rehabilitation may be taken. In the next step are more advanced exercises that the athlete should not perform if pain occurs. These exercises include: toe raises with weights or tubing, lunges, and squats. The athlete should also be working on cardiovascular fitness as well, which could include pool running, swimming, and power walking⁵. Once these exercises can be performed without pain, sport-specific exercises should also be introduced, such as cutting, pivoting, jumping, and sprinting. Once the athlete is pain free, they can return to play with caution.

Conclusion

The purpose of these exercises is to help the athlete return to play, free of pain. Rehabilitation helps provide knee mobilization, strengthening muscles surrounding the knee, and no load restrictions. When improvement is shown and symptoms digress, the athlete may progress to more challenging exercises to help improve strength. These exercises can be done not only on athletes, but the general population as well. Exercises should not increase in difficulty until the previous ones can be performed pain-free, so as to prevent further injury. Once the patient understands the exercises and knows how to properly perform them, they can be given an at-home program. Certain cases may require surgery, so this rehabilitation plan could be performed post-surgery as well.