Meniscus Tears in Young Athletes: Is Surgery the Only Option?

By: Rachel Amos

Introduction:

One of the biggest challenges athletes face is avoiding injuries. Injuries can be devastating to athletes, especially if they are season ending and require surgical repairs. Some of the most common injuries seen in athletes involve the knee, the largest joint in the human body (Roza, Anastasika, Daniela, Milan, Zoran, Jasminka, & ... Marija, 2016). The knee is a hinge joint meaning it can only bend front to back, making it very vulnerable to injury. One structure within the knee that is commonly injured by athletes is the meniscus. There are many types of meniscal tears, and there is also a wide variety of repair options. One question many athletes who suffer a meniscus tear have is "Is surgery my only option?" The answer to this question remains an ongoing debate in the medical world today, but literature suggests surgery is not the only option, although it may be most the most common.

Results:

Anatomy. The meniscus is a piece of cartilage made up of three zones, each with a different vascularity (Bochyńska et al., 2016), that sits on top of the tibia just below the femur (Goldblatt and Richmond, 2003). As only the very inner red-red zone has a plentiful blood supply, a good portion of the meniscus cannot repair itself if torn. The role of the menisci is to help stabilize, lubricate and cushion the knee joint during compressive and shearing forces (Roza et al., 2016). The location of the menisci makes them quite susceptible to tears as they can easily be pinched and torn in athletes (Goldblatt and Richmond, 2003).

Types of Tears. Meniscus tears can occur in many ways, but with younger athletes the most common ways are traumatic tears, which include bucket-handle and radial tears. A radial tear is at a 90-degree angle to the meniscal axis, and a bucket-handle is "vertical and oblique to the meniscal axis but does not reach the meniscal axis" (Tekin et al., 2017, p. 2). Bucket-handle tears are often very unstable as they are usually longer tears that cause a displaced portion of meniscus cartilage (Kramer et al., 2019).


Radial tear

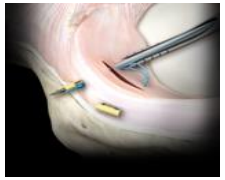

Bucket handle tear

Mechanism of Injury. The most common way athletes tear their meniscus is the well-known plant and twist motion of the knee (Donohoe, Solomon, & Aslanian, 2005). This twisting motion is often accompanied by extension or flexion of the knee which causes the femur to compress either the medial or lateral meniscus. Once compressed it has nowhere to go causing it to tear when the knee is suddenly twisted. It was shown in the American Journal of Sports Medicine that athletes in sports with a higher impact had a greater chance of tearing their meniscus (Terzidis et al., n.d.).

Examination. The main chief complaint associated with meniscus tears is a feeling of catching or locking. Other signs and symptoms include swelling, pain, stiffness, clicking, popping, and instability in the knee ("Surgery Not the First Choice", 2015). Many special tests are used by clinicians to rule a tear in or out. Once a tear is suspected imaging is done to confirm, with the most convenient test being an MRI (Tekin et al.,).

Treatment. Athletes may choose between conservative or non-conservative treatments depending on which is recommended and possible for their type of tear. Common surgical treatments include inside-out and all-inside sutures, allografts and meniscectomies (Giuliani et al., 2011). The all-inside method is used most often as it results it little to no exterior incisions which reduces the risk of infection (Vaquero & Forriol, 2016). Meniscectomies, or the removal of the meniscus can be used to treat athletes, but many athletes have partial meniscectomies in order to preserve as much as possible (Giuliani et al., 2011). Allografts, the replacement of the torn meniscus with a donor meniscus, are mostly used in elite athletes who perform with a lot of force. Conservative treatment consists of a rehabilitation program focusing on strength, range of motion, proprioception and decreasing pain and swelling. This treatment is not suitable for all athletes but has been shown to have similar outcomes as the surgical option in many athletes (Brody et al., 2015).

Vs.



Recovery. The recovery process for a meniscus tear can look different for every athlete as it solely depends on the type of tear, type of repair, and the physician's protocols. Non-conservative treatment often results in a short period of immobilization and different phases of physical therapy ("Torn Meniscus & Meniscal Tears", 1985). An athlete's physical therapist or athletic trainer monitors their progress regularly and progresses them to the next phase when they meet the goals of each one. This occurs until the athlete has met the goal of the last phase and been released by the physician back to their sport. Conservative treatment focuses primarily on rehabilitation with similar exercise and outcomes as non-conservative.

Conclusions:

The meniscus can cause many problems to young athletes. A tear can happen in a variety of ways, and every tear is unique. It was found in the literature that athletes do have other options besides surgery such as conservative treatment. Surgery remains the most common choice among younger athletes because of their high level of activity and long life ahead of them. Younger athletes should consider all the options and consider which one is best for them and their future before jumping to the thought of surgery.

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