Doubles Partners: Common Lower Extremity Tennis Injuries

You’ll find these on the professional tour and in your community.

By Alex Kor, DPM, MS

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Singles play receives publicity, notoriety, and fanfare on the Association of Tennis Professionals (ATP) and the Women’s Tennis Association WTA) tours as well as at every level of the United States Tennis Association (USTA). But many would argue that the game of doubles involves more strategy, intrigue and competition. Over the years, there have been many great doubles partners including the Bryan brothers, Stan Smith and Bob Lutz, John McEnroe and Peter Fleming, Martina Navratilova and Pam Shriver, etc. These partners selected each other because their styles complemented the other player and usually the “sum of its parts is greater than the whole.”

The game of tennis is a very physically demanding activity. The ballistic nature of the sport that involves sudden stops, starts, lateral movements, jumping, quickness, speed, etc., lends itself to lower extremity injuries. Whether you are competing for a local USTA team or trying to win a third round match at the French Open, injuries are obstacles that ALL tennis players are trying to avoid. Once such an injury is encountered, regardless of the level, his or her play will be adversely affected.

Fictional Doubles Teams

The fictional doubles teams of Gregg Wollard and Serena Williams, Gil Schuerholz and Kim Clijsters, Daniela Hantuchova and Ken Barnas, Jordan Corey and Rafael Nadal, and Alex Kor and John Isner are NOT “household names.” They would not strike much fear in the hearts of the world’s best. But for purposes of this article, these doubles “partners” have been created because each “team” has been affected by a similar lower extremity injury.

Calf Injuries

Doubles Team #1—Serena Williams and Gregg Wollard (Figure #1)

At the July 2007 Wimbledon Championships (in the fourth round), Serena Williams, the former #1 female player in the world, suffered a calf injury that contributed to her eventual loss in the next round to Justine Henin. The same week, Gregg Wollard, a 43 year old

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airport engineer from Reston, Virginia sustained the same injury. Having a history of a previous Achilles tendon rupture four years previously, Gregg promptly discontinued his 4.0 USTA tennis match. He was unable to walk, and was immediately concerned that he would need more surgery. Thus, whether you are a world class player or a local player trying to win a league match, this injury can hamper any tennis player.

In order to understand the degree of injury that Serena and Gregg experienced that summer, it is essential to review the anatomy of the calf and etiology of the injury. The calf musculature is comprised of the gastrocnemius muscle (more superficial and larger) and the soleus muscle (deeper). These two structures then join to comprise the Achilles tendon which attaches into the back of the calcaneus. When the foot is dorsiflexed during an impact activity, the two calf muscles will become taut. If the knee straightens during this moment, the gastrocnemius may become so taut that a strain, or a partial tear or a rupture may occur. This calf injury, known as “tennis leg”, most commonly affects the medial head of the gastrocnemius muscle.

Tennis Leg

The treatment for “tennis leg” depends on the severity of the injury. Most players will respond to three to six weeks of rest, frequent ice applications, no heat (unless the player wants to “warm up” the muscle before playing), compression of the calf, and a heel lift (to reduce tension along the gastrocnemius/soleus complex) in the shoe(s). Depending on the athlete’s skill level, motivation, pain threshold, and other factors, the response to treatment varies. Examination of the injured site will, at times, reveal a palpable defect near the medial head of the gastrocnemius. A MRI may allow for better visualization and, in very elite players, may provide more information in order to predict when the tennis player can return to the court. In 2007, Serena unsuccessfully attempted to play the next round after her injury. But a Grand Slam title was at stake. On the other hand, Gregg was NOT battling to stay at the top of the world rankings. He was “sidelined” for six weeks, did not require surgery, and successfully returned to the courts of northern Virginia.

Rupture of the Plantar Fascia

Doubles Team #2—Kim Clijsters and Gil Schuerholz (Figure #2)

Most tennis fans are aware that Kim Clijsters, from Belgium, is one of only a few mothers to be playing on the WTA tour. After a two-year absence (to have her baby), Kim returned to win the 2009 U.S. Open in New York City. But not many observers know that on two separate occasions, Kim has sustained a partial rupture of the plantar fascia, and eventually returned to the court. Gil Schuerholz, a 47 year old local tennis professional from Ellicot City, Maryland will obviously never be able to fully appreciate the demands of child birth. But based upon his 2009 experiences, Gil can indeed appreciate how tough it is to return to playing tennis after injuring one’s plantar fascia.

On Aug. 14th, 2009, Gil felt a “snap, crackle and pop” within his left heel while playing in a USTA team tournament. He attempted to play the remainder of the event, but could not continue. For one week, he utilized frequent ice applications, an over-the-counter orthotic, and did not play. With the National 45 and over Grass Courts slated to start on August 23rd, 2009, Gil was unsure if he could play singles and doubles. He and his partner (Andy Stoner) had enjoyed previous success by winning the 2008 45 and over Indoor Doubles Championship. But playing on a partially ruptured plantar fascia was not the ideal scenario for any player, including Gil Schuerholz.

When any athlete tears a portion of the plantar fascia, the usual presentation is localized erythema, edema, ecchymosis, intense pain, and difficulty in full weight-bearing. As with “tennis leg”, a defect can be palpated within the fascia. X-rays and an MRI will rarely alter the initial therapy. If the athlete does not desire to return to play and the fascial rupture is extensive, the best treatment would include: no impact activity for six to eight weeks, a weight-bearing boot for six weeks, soft tissue massage, ice, physical therapy, and custom made orthotics.

If the athlete (like Gil) is motivated,
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forward toward the net. As he was about to hit a volley, he felt as if the back of his right lower leg had “exploded.” His first thought was that someone’s racket had struck the back of his leg and ankle. But he was unable to stand and forced to default.

Generally, when an athlete tears the Achilles tendon, there is no ability to plantar-flex the affected ankle (a positive Thompson’s test). The exam finds a disruption or attenuation of the substance of the Achilles tendon, edema, ecchymosis, pain, and inability to apply weight. X-rays can be ordered to rule out bony pathology, and an MRI can confirm the clinical picture. Although conservative treatment is an option for a more sedentary patient, surgical repair of the torn tendon is the treatment of choice for any athlete hoping to return to sports.

Ken Barnas, a nationally ranked player, had every intention to return to his beloved hobby. Less than two days after his rupture, Ken underwent successful surgical repair. Postoperatively, he was in a full length cast for twelve weeks, followed by a below-the-knee cast for four weeks. By early 2004, Ken was able to begin physical therapy. Although he was eager to return to the court, he did not begin playing until June 2004. One can only hope that Daniela is not “sidelined” for as long as Ken was in 2004.

Lower Leg and Knee Injuries

Doubles Team #4—Rafael Nadal and Jordan Corey (Figure #4)

The “doubles team” of Jordan Corey, a 36 year old Seattle-based financial analyst and Rafael Nadal, the number one player in the world, have both battled lower leg and knee pain. Although Rafa has enjoyed more success, both play the game of tennis with “reckless abandon.” And, without doubt, their grinding, “never give up” styles have contributed to these overuse injuries.

Rafael Nadal’s foot problems began in 2004 when he developed a stress fracture. Many so-called “experts” said that this would plague him for the rest of his career. Yet he went on to win the French Open from 2005–2008. But in the last two to three years, a majority of Rafa’s injuries are occurring proximal to the foot. Although he won the 2010 French Open, Wimbledon and U.S. Open, shin splints, patellar tendonitis, a knee injury and, most recently, hamstring issues have affected his play.

Jordan began to have pain on the lateral aspect of the left knee in 2009. This pain was reproduced...
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after playing multiple days in a row and improved with rest. After seeing his primary care physician, Jordan was sent to a physical therapist whose evaluation revealed ilio-tibial band syndrome. This is an inflammation of a band of tissue that extends from the lateral aspect of the pelvis to the lateral aspect of the knee. Pat Wempe, PT, a physical therapist in Evansville, IN, speculates that poor muscular control of the hip external rotators can play a role. Jordan’s treatment consisted of aggressive physical therapy, soft tissue massage, a home stretching program, and custom-made orthotics. At last report, on the hard courts of Seattle, Jordan is playing pain-free tennis but (unfortunately) has not captured any major titles (as Rafa has) since his injury.

Ankle Injuries

Doubles Team # 5—John Isner and Alex Kor (Figure #5)

John Isner, who stands 6’9”, is an American tennis player who is most famous for winning the longest match in tennis history. At the 2010 Wimbledon, he beat Nicholas Mahut, 70-68 in the fifth set of their first round match. But John may be more proud that he was able to play his first round match at the 2010 U.S. Open after sustaining a severe ankle sprain only two weeks before. On August 18th, 2010, while playing a match at the Cincinnati ATP tour stop, he was forced to default his match after the injury. His playing status at the 2010 U.S. Open was questionable, at best. But on Sept. 2nd, 2010, he miraculously won his first match at the U.S. Open. Despite an MRI that showed no fracture but significant ligament damage, he was able to win two rounds in the tourney.

Five-foot-seven Alex Kor, your author, suffered a similar injury while playing a doubles match on July 14th, 2008. During a “heated” exchange at the net, a lob was hit over my head. As I was making contact with the ball, my left foot and ankle inverted, and I fell to the ground in pain. Using a compression dressing, I was able to complete the match. Unfortunately, we were not victorious.

The pain and swelling continued for the remainder of the month of July. X-rays were normal. But by early August I was asymptomatic and gradually returned to playing.

According to a paper in the British Journal of Sports Medicine in 2006, ankle sprains accounted for 20–25% of all acute injuries on a tennis court. By definition, an ankle sprain is an acute soft tissue injury that results in damage to the ligaments, tendons, and associated soft tissues of the ankle. Typically, the athlete will experience immediate pain, swelling, and inability to apply weight. Per the Ottawa ankle rules, X-rays are NOT always necessary for a suspected ankle sprain, but are usually ordered for athletes. As with most acute injuries, the regimen of rest, ice, compression, and elevation is suggested. If the athlete does not respond in a sufficient period of time, more advanced studies (MRI) are recommended. Other treatments include physical therapy modalities, NSAIDs, ankle braces, cortisone shots, orthotics, etc.

Summary

According to a review article by Bylak J. and Hutchinson,' junior tennis players are two times more likely to injure the lower extremity than the upper extremity or spine. And, regardless of age,

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Generally, when an athlete tears the Achilles tendon, there is no ability to plantar-flex the affected ankle (a positive Thompson’s test).

...of the planter fascia, or a more proximal injury (e.g. ilio-tibial band syndrome), or a tear of the Achilles tendon, or a severe ankle sprain, all tennis players can miss a majority of a season when confronted with these significant injuries. However, once all of our “doubles teams” are again healthy, this tennis-playing podiatrist will welcome the opportunity to battle any of the other “teams” as long as his partner, John Isner, serves first.  ■

References

Dr. Alex Kor has a BS in Chemistry from Butler University and an MS in Exercise Physiology from Purdue University. He received his DPM degree from the Dr. William M. Scholl College of Podiatric Medicine in Chicago. In 1990, Dr. Kor completed a Podiatric Surgical Residency at Westside V.A. Medical Center—University of Illinois. He has served as the team podiatrist at the N.C.A.A. Division I level (University of Evansville), the NCAA Division II level (Bowie State University in Bowie, MD) and at the NCAA Division III level (Knox College in Galesburg, IL). Kor is certified by the American Board of Podiatric Surgery and is a Fellow of the American Academy of Podiatric Sports Medicine. In addition to his current duties at Bowie State University, In 2010, Dr. Kor was the #59 ranked men’s singles tennis player in the 45-and-over age group in the United States.