

How to Decrease the Risk of Pickleball Injuries

By Dr. Bill Schneider

I suspect that friends Joel Pritchard and Bill Bell had no idea that the game they improvised in 1965 using ping-pong paddles, a perforated ball, and a badminton net, would decades later become the fastest growing sport in America. Pickleball's popularity is no surprise considering that it's much easier to learn than tennis, is highly social, the equipment is inexpensive, and has undisputed mental and physical health benefits. Players can be competitive well into their 80's. But, like any active sport, pickleball is associated with injuries; some of them serious. The risk of pickleball injuries is related to the player's general health, equipment, off-the-court training, and on-the-court skills. While it is not possible to prevent all injuries, players can significantly decrease the risk by following some fundamental guidelines.

Injury Awareness

Being aware of the kind of injuries that are possible will help you pay attention to strategies to avoid them.



Anyone who has been out on the pickleball courts for more than a few months knows that pickleball injuries are common. Surprisingly, the true incidence of both non-fatal and fatal pickleball injuries is unknown. Many people self-treat their minor injuries. There are no published studies about the number and types of injuries that are seen in outpatient clinics of any specialty. We do know the incidence of non-fatal pickleball and tennis-related injuries seen in United

States emergency departments between 2010 and 2019. Keeping in mind that the people that report to emergency departments likely have more serious injuries than average, here are some interesting facts:

- 85% of injuries were in players ≥ 60 years of age. However, you younger players be aware of this: The majority of pickleball players have historically been seniors so that doesn't mean younger players aren't having injuries. The fastest growing segment is now 50 years old and younger.
- The types of injuries between seniors and younger players were roughly similar
- The number of injuries in males and females was roughly equal
- Slips/Trips/Falls and Dives account for 63% of injuries
- 7% required hospitalization

- The most common diagnoses (all ages):
 - Strains and sprains (muscle and ligament injuries) 33%
 - Fractures (broken bones) 28%
 - Contusions (bruises) and abrasions (scrapes) 11%
 - Internal injuries 10%
- Body regions (all ages):
 - Upper extremity (shoulder to fingers) 33%
 - Lower extremity (hip to toes) 29%
 - Head and neck 19%
 - Trunk/back 16%
- Top 5 body parts (all ages):
 - Wrist 13%
 - Lower leg 13%
 - Head 12%
 - Lower trunk/back 12%
 - Knee 6%
 - Shoulder (tie with knee) 6%
- Eye .7%

STRATEGIES FOR INJURY PREVENTION

Optimizing the following will decrease your risk of injury:

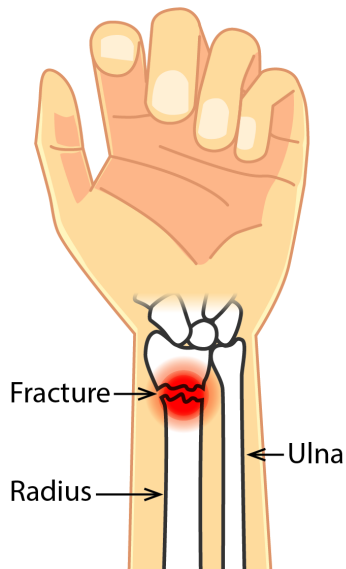
- General health, nutrition, and commitment to life-long fitness
- Bone health screening
- Training schedule
- Pickleball skills
- Equipment

General Health and Sports Screening

Players of all ages should seriously consider having a sports participation physical examination and cardiac screening. Many clinics now have primary care physicians who have completed additional sports fellowship training and are subspecialty board certified in Sports Medicine. These specialists are experts in risk assessment and non-surgical treatment of athletic injuries, including concussions.



Osteoporosis and Bone Health Screening



Fractures at the end of the radius bone at the wrist are commonly associated with osteoporosis

Osteoporosis is a very common disease of bone that has been estimated to cause one fracture (broken bone) every three seconds across the world. The strength of our bones increases until about age 30 after which it steadily declines for the rest of our lives. When the bone loss is much faster than normal, it is called osteoporosis. Because of the hormonal changes that occur after menopause, women's bones then lose their strength faster than men's. The strength of a woman's bone at age 65 is equivalent to a man's at age 80. As a result, a 50-year-old woman has a one in three chance having a fracture over the rest of her life as opposed to a one in five chance for men. These fractures can obviously occur on the pickle ball court.

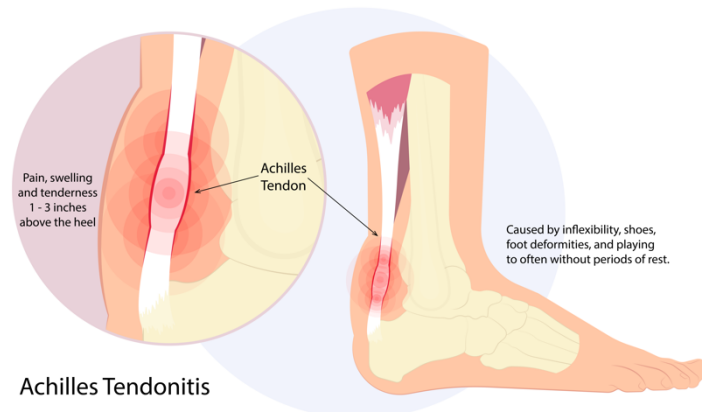
So, osteoporosis starts at a young age and occurs in both sexes. There are many dietary, lifestyle, and health factors that increase the risk of osteoporosis that are beyond the scope of this article (see reference below). The good news is that pickleball is an excellent weight bearing activity that helps prevent osteoporosis.

Osteoporosis causes no symptoms until the pain of a fracture occurs. The only way to find out if you have it before that happens is to have a bone mineral density (BMD) test, called a DEXA scan. Here are the basic indications for BMD testing:

- Women \geq 65 years old and men \geq 70 years old
- Women who had menopause or a total hysterectomy before age 40
- Those at any age who have had a low energy fracture
- Family history of osteoporotic fractures
- Smokers
- Low body weight (thin people are more at risk for osteoporosis)
- Health conditions, medications and radiation therapy associated with bone loss

If you have abnormally low BMD, you need specialty counselling. There are now physicians who specialize in bone health and are experts in the diagnosis, prevention and treatment of osteoporosis.

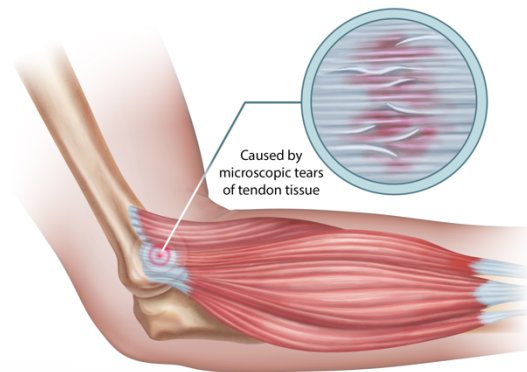
Training for Pickleball



Achilles Tendonitis

they threw the ball in a game. They now limit the number of pitches and don't allow pitching every day. Pickleball is no different.

Common tendon problems seen in pickleball players such as rotator cuff tendonitis, tennis elbow, hip bursitis, knee tendonitis and Achille's tendonitis are almost always caused by training errors and, sometimes, equipment. These are called overuse injuries. If you play pickleball every day and don't train properly, you have likely had, or will have, one of these problems.



Tennis Elbow



If you haven't, read Jill Manske's April 8 email and carefully look at the How to Stay in the Game slide show by physical therapist Scott Peterson. Watch the How to Fall videos and practice falling at home on a padded surface. Falls are the most common cause of injuries. There are many videos available online about how to warm up and stretch before playing. The key is to develop a routine that includes stretching, agility, and muscle warm-up. Go through it every time at the court before you play and between games if there are long waits. Get your motor running!

If you can afford it, physical therapists (PT), certified athletic trainers (ATCs), and personal trainers can assess your flexibility, strength and balance, and can help you develop a training schedule. Doctors of Physical Therapy (DPTs) have the highest level of education (post-graduate doctoral degree), followed by ATCs (college undergraduate and master's degrees) and certified personal trainers (high school degree). They can help you decide how often you can

play and what to do on your off days. If you can't afford that, you can learn a lot by watching videos online.

Obviously, don't drink heavily and get a good night's sleep before playing.

Pickleball Skills

Optimize your pickleball technique and avoid dangerous moves. If you can afford it, work with a good pickleball coach known to pay attention to safety and age-appropriate play. If you can't afford a coach, there is an abundance of online tutorials available for free.

I am not aware of a scientific study that has determined the pickleball maneuvers that cause the most injuries. In my personal anecdotal experience, there are three that stand out as being high risk.

1. Back pedaling to get a lob shot over your head. If you fall over backwards and land on your butt, you can injure you back. If you land on your back, you can have a concussion from your head striking the court surface. If you put your arm out behind, you can have any number of upper extremity injuries. It's just not worth going for it. If you are playing doubles and your partner is not up at the line, he/she should go for it while you switch to the other side. Talk to your partner about it before starting a game and be ready.



2. Charging for low, fast balls going off the side of the court where, even if you successfully return the shot, you must suddenly reverse your direction to get back in position on the court. That is a good way to sprain your ankle, rupture the ACL in your knee, or to trip and fall and have an upper extremity injury.

3. Charging dinks at the net when you are back from the line. If you are not absolutely sure you are going to be able to stop without crashing into the net or

post, let it go and congratulate your opponent. I personally had this happen to me and suffered a severe lumbosacral disc injury.

Equipment

Fortunately, pickleball equipment is inexpensive compared to many sports. If clothing is included, every piece of equipment from your cap to your shoes affects your risk of injury.

Protective eyewear:



- Don't kid yourself, the bill of your hat will not protect you from an eye injury.
- Those of you who, like me, wear prescription eyeglasses just need to ask your optometrist if your glasses are impact resistant and safe for paddle sports.
- For those who don't wear eyeglasses, I cringe when I see people playing without eye protection. I get it, eyewear can be expensive, fog up, slip off your nose and be uncomfortable. Finding the right fit can take a lot of time; but there are so many options that there is a pair that will work for you.
- While only .7% of pickleball related ED visits were for eye injuries, the eye is arguably far more important than, say, your ankle. Here's a scenario to consider: You are at the line and your opponent smashes a line drive at your chest. You get your paddle up but the ball hits the top edge, deflecting the ball directly into your cornea. I suspect many of you reading this have been hit in the face. I have.



- Fog resistant wipes are available that I find helpful on warm, humid days. See reference below.
- I prefer a wire strapless model eyeglass retainer to keep my eyeglasses from sliding down my nose. I hate the straps that drag and catch on my sweaty neck. See reference below.
- Make sure your glasses are UV protected. UV light from the sun causes cataracts, macular degeneration (permanent blindness), and damage to the delicate surface of the eye.
- If you have the money, different color lenses are designed for the various lighting conditions you might encounter at the court.



Clothing:

- While cotton is extremely comfortable when dry, it is awful when wet, does not wick away perspiration, and is a poor choice for athletics. Cotton socks are terrible for sports.
- You don't need to buy expensive clothing. Just look for synthetics that are made for athletics and have a UV protection rating. They will wick away sweat and keep you cool.
- Quality socks make a difference and are worth the money. Buy wool blend or synthetic socks that have some Lycra in them for a snug fit that won't slip inside your shoe. A little cushioning is OK and may be desirable. There are socks designed specifically for pickleball.

Pickleball shoes:

- Rule #1: Do not wear running shoes while playing pickleball! Running shoes have a soft, thick, cushioned sole and zero lateral stability. If you wear them for court sports, you will sprain your ankle; or worse. You would have been able to buy several high end pickleball shoes for what you spent on the medical costs related to the injury.
- If you can only afford one pair of pickleball shoes, purchase shoes designed for outdoor pickleball and tennis. The soles are designed for asphalt courts and have excellent stability in the mid and hind foot. They have some cushioning but keep your foot closer to the court surface. The thicker the sole, the greater the risk of your ankle turning over.
- Indoor court shoes are lighter and designed for wood and linoleum court surfaces. They will wear out quickly if worn outdoors.
- If you play regularly outdoors, you will probably need to replace your shoes every season. Don't wait until the treads are worn off and the bottom of your shoe is flat and shiny. Worn out shoes will slip out from underneath you.



Pickleball paddles:

- Pickleball paddles are a huge source of entertaining discussion at the courts. While researching this article, I was unable to find any scholarly article about the effect of various pickleball paddle designs on the risk of injury. So, anything you read about the effect of paddle designs on injury risk is based on anecdotal opinion, not established scientific facts.
- Design features claimed to affect injury risk are paddle weight and grip size, which makes intuitive sense.
- If you use a heavy paddle designed for power, and grip it tightly, you can expect to have a much greater risk of overuse injuries such as shoulder, elbow, wrist and thumb tendonitis.
- On the other hand, if you use a lighter paddle designed for control, and grip it lightly, the force of the ball striking the paddle will be dissipated and your arm will be much less likely to be injured by repetitive play.
- Hands come in many shapes and sizes, so purchasing a paddle with a grip suitable for your hand is very important. There are some simple rules of thumb to get your intended grip size into the ballpark of a perfect fit (see reference below). If you go slightly small, it may be easier to manipulate the paddle. If you go a little thicker, you get better control, but too much increases stress on the arm.
- Despite the amount written about grip size, paddle models usually only have a couple grip size options. In my experience, you are lucky if the off the shelf grip on your paddle is perfect for your hand and style of play. If the grip doesn't feel good, the way to get it right is to rewrap or overwrap your grip with readily available products from paddle manufacturers. I have found that going a little thicker softens the impact on my hand.



Water bottle:

- Maintaining your hydration is critical to the prevention of dehydration, heat stress, and heat stroke.
- Dehydration increases the risk of all the injuries discussed above.
- If your mouth is dry and your urine is dark yellow, you are already dehydrated. On hot, humid, summer days, bring extra water.
- Drink 8 – 16 oz of water prior to play and again during the first hour. Then switch to an electrolyte beverage like Gatorade.

And, last but not least, sunscreen:

- Duh!

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May 1, 2022

About the author: Dr. Schneider is a board-certified orthopedic surgeon, is subspecialty certified in Orthopedic Sports Medicine, and is a Fellow of the American Academy of Orthopedic Surgeons (FAAOS). He practiced in the St. Croix Valley region until 2020, when he retired from his full-time practice at Twin Cities Orthopedics (TCO), the premier orthopedic surgery group in the Twin Cities and Western Wisconsin. He and his wife Lauren live in North Hudson, are members of HCPA, and have been playing pickleball regularly since his retirement.

Many thanks to Jill Manske, editor; Dr. Lincoln Likness, MD, sports medicine specialist at Hudson Physicians; Scott Peterson, DPT, physical therapist at TCO, Hudson; and Hudson area pickleball coaches Michael Lammer and John DeGraff; for reviewing drafts and offering advice.

Disclaimer: I wrote this article for my friends and fellow pickleball players to help keep everyone healthy. It is not intended to be professional advice to any individual. Educating oneself about his/her sport and personal safety is the athlete's responsibility.

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References:

Non-fatal senior pickleball and tennis-related injuries treated in United States emergency departments, 2010-2019

<https://injepijournal.biomedcentral.com/articles/10.1186/s40621-021-00327-9>

Osteoporosis information:

<https://orthoinfo.aaos.org/en/staying-healthy/osteoporosis-prevention>

Pickleball Eye Protection article:

<https://thepickler.com/blogs/pickleball-blog/pickleball-eyewear>

Strapless eyeglass retainer: (this is just an example; I am not endorsing Amazon or this product)

https://www.amazon.com/Adjustable-Eyeglass-Sunglasses-holder-Strap/dp/B088SV1JGP/ref=sr_1_24?keywords=eyeglass%2Bstraps%2Bfor%2Bsports&qid=1650834041&sr=8-24&th=1

Anti-fog eyeglass wipes: (I am not endorsing Amazon or this product)

<https://www.amazon.com/Alibeiss-Anti-Fog-Wipes-Pre-Moistened-Glasses/dp/B08FM88C1C?th=1>

Pickleball shoe buyers guide:

<https://thepickler.com/blogs/pickleball-blog/pickleball-shoes>

Pickleball paddle buyers guide:

<https://www.pickleballportal.com/gear/paddles/pickleball-paddles-the-complete-buyers-guide/>