Welcome!

I believe you’ll enjoy this article if you have a passion for pickleball or are considering getting started. Having dabbled personally over the last few years, I understand better than most the games lure and just how infectious the perfect dink can be. But I write to remind you there are fantastic benefits of exercising and getting into a new sport, but also to ensure you are preparing for any new exercise or sport to participate fully and injury-free. Hopefully, this guide is useful in providing simple, timely, and injury-sparing measures to safeguard yourself and truly maximize your time on the court.

Ask any seasoned athlete, ‘What is the best ability to have in sport?’ Yes, you guessed it – the availability to play. For that, you need to be healthy. Happy reading.

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Getting the Most from This Guide

This guide will walk you through information explaining a little bit of the “why” behind the “how.” We’ll make sense of the information, so you won’t have to. Then, we’ll give you some key takeaways and actionable steps to apply whenever you like.

Come back and use the information as a reference at any time. Be sure to use the key takeaways and application strategies in whatever way makes sense for you. Don’t feel obligated to put everything into action right away. When you’re ready to dive deeper into the topic, please check out our recommended resources.
Introduction

Accessible to all audiences, pickleball continues to grow with its socially inclusive nature and quick learning curve. Court size reduces the need for running, and a favorable solid paddle dampens the demand for high levels of technical finesse. Pickleball is a game where anyone can succeed with solid strategic and tactical prowess.

Make no mistake; pickleball is physical and can be deceptively demanding on the body. You must stop and start to react and move quickly in response to opponent-led directional changes, all while maintaining balance and control to ensure clean contact with the ball. A typical match played in a best 2 out of 3 games format can last anywhere from 30 to 75 minutes.

HELPFUL HINT

USA Pickleball (2023) states a pickleball court measures 20 × 44 feet and is the same size as a doubles badminton court. Pickleball can be played as doubles or singles (doubles are more common). The same court is used for both singles and doubles play.

The net height is 36 inches at the sidelines and 34 inches in the middle. The court is striped, similar to a tennis court, with right and left service courts and a 7-foot non-volley zone in front of the net (referred to as the “kitchen”). Courts can be constructed specifically for pickleball or converted using existing tennis or badminton courts.

Games are typically played to 11 points (tournaments can be upwards of 15 or 21). You must win by two points; only the serving team can score a point.

Viewed as more of a hobby than a sport, too many players are crossing the line (yes, that was a ‘kitchen’ pun) and taking the risk of not preparing themselves to move before they play. Do you warm up? What does your routine look like? What about after you play? Do you consider how you can set yourself up for success next time on the court?

This guide aims to highlight common injuries related to participation and serve as a useful resource to help you safely meet the rigors and demands of pickleball.
Common Musculoskeletal Pickleball Injuries

While the perception of injury risk may be lower than for other sports due to the reduced running, low-impact nature of involved movements, and lower ball strike velocities, reports find that non-contact injuries within pickleball are on the rise. Failure to adequately warm up and prepare your body to contend with the repetitive cutting, twisting, and pivoting forces may be a key determinant. Pickleball players “are notorious for not warming up; they just go out and play,” according to lead researcher Kenneth Vitale of the University of California San Diego (Vitale, K., Liu, S, 2020).

Since pickleball is still relatively new, there is not much research on specific injuries within the sport. To identify likely injuries, we can compare it to other similar racket sports like tennis. In tennis, the most common injuries are sprains and strains in the lower body, followed by sprains and strains in the upper body (including the trunk and lower back) (Greiner, 2019).

Our current understanding of pickleball-related injuries is based on data from the National Electronic Injury Surveillance System containing all injuries treated across emergency departments. The primary injury mechanism includes slipping, tripping, and falling. Reactive movement-related injuries arising from sudden stops, lunging, bending, and twisting can also contribute if you are not prepared to manage the ground reaction forces or odd positions. These factors can increase the likelihood of a lower-body injury, such as a strain in the Achilles tendon and knee, or something more severe, like meniscal or ligamentous issues (Greiner, 2019).

It is important to understand that injuries can be classified into two categories because they are uniquely different. Acute injuries can occur suddenly from a trip/fall, a miss-timed overhead swing overextending the shoulder, or simply a poorly timed step trying to avoid the kitchen. As you have probably witnessed, acute strains and sprains are also commonplace with the side-to-side nature of play. Ankles are vulnerable to sprains, just as the calf and Achilles tendon are to strains with the constant need to push off the back foot to advance toward the ball.

KEY WORDS

Sprain – A stretching or tearing of ligaments.

Strain – A stretching or tearing of a tendon.

Acute injury – An injury that occurs suddenly, such as from a trip, fall, or twisting a joint.
However, we can use some preventive measures to help mitigate acute injuries (discussed later in this article).

**Chronic injuries** tend to occur over time and are often a result of high repetition and overuse in the absence of sufficient recovery. These issues can be amplified in pickleball since players use a hard playing surface (Greiner, 2019). The underhand nature of pickleball and repeated swinging motion place stress on the elbow over time (Greiner, 2019). This is often referred to as **pickleball elbow**. **Patellar tendinitis**, commonly referred to as jumper’s knee, is another common injury, especially in high-frequency players, because the stop-and-go nature of the sport can cause wear and tear on the tissues of the knees.

Instead of hoping the ‘protective pickleball gods’ will spare you such fate, a well-considered approach to your warm-up, equipment, and fueling will swing the odds in your favor and allow you to enjoy the game you love with reduced risk of incidence.

### Injury Reduction Strategies

James Kerr, author of ‘Legacy’ believes that \textit{Performance = Capability + Behavior} (Kerr, 2013). How you behave and prepare off-court will bring about the best (or worst) in your pickleball capability. Nothing is more frustrating than being sidelined through injury – especially with preventative measures available. We have provided a few strategies to consider, accompanied by a thorough warm-up to raise your performance ceiling and keep you healthy, which will be discussed later.

#### Proper Shoes

As with most sports, what takes place on the ground is decisive. Suitable footwear providing traction and stability is essential from a controlled movement and injury prevention perspective. Research what will best serve your on-court efforts. Shoes offering greater stability and durability may feel ‘heavier’ relative to a lighter-weight feel shoe, with the tradeoff being the potential for less support and stiffness. Traditional running shoes designed for straight-line running are not ideal; players should look for court shoes (Vitale & Liu, 2020). These shoes are better for support and include tread that helps you stick to the court, which can protect you from acute injuries like ankle sprains.
Features of appropriate footwear consist of the following:

- A slightly wider base that provides lateral (side-to-side) stability (helps safeguard against common pickleball injuries such as ankle and knee sprains)
- Reinforced ankle support
- A flexible midsole that offers an unrestrictive feeling (allowing you to be responsive and feel the ground)

**HELPFUL HINT**

A slight elevation to the heel will help keep your weight centered over your mid-foot, improving your movement response time and on-court effectiveness.

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**Paddle Size**

When selecting your paddle, consideration must be given to the weight. Lighter paddles may allow for more control, while heavier paddles might enable more power. For beginners, lightweight paddles with a larger head might be more advantageous as the wrist and elbow develop tolerance to the repetitive nature of the swings. The grip size can also be adjusted to suit your hand size and ease of holding. If you notice the paddle develops dead spots or lacks responsiveness, encouraging you to swing harder, it might be time to re-invest in a new paddle.

Unlike tennis, pickleball typically only requires a single hand to swing. Consequently, a heavier paddle can cause an upper body strain (Vitale & Liu, 2020). Paddle size and weight will be relative to you and your strength levels. Choosing the one that makes the most sense to you is important based on your current skill level, strength, and budget.

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**Other Equipment**

Despite not being known for speed, pickleball is much faster than you might think. Pickleball involves hard polymer balls that can move around 30 to 40 mph (Vitale & Liu, 2020). With this in mind, it is important to consider using safety glasses. Safety glasses not only serve the purpose of protecting your eyes from the ball but also paddles.

Some individuals may also consider using different braces and tape when playing. This can be common for the elbows, wrists, and ankles and can help support players with past injuries or joint instability (Vitale & Liu, 2020).
Hydration

Hydration is key for both mental and physical function. Your hydration status will significantly influence your ability to regulate your body temperature and heart rate, impacting performance. In terms of exercise, it is important that you show up well hydrated as fluid loss from sweat can be high.

Sweat is salty, and you lose salt (and potassium) when you sweat. Repletion is a priority, and drinking water may not sufficiently address what is lost, especially if you exercise longer than 90 minutes or play a match in a hot or humid climate. Maintaining ideal hydration requires increased fluid consumption during play and potentially adding salt and potassium to replace lost electrolytes.

Dehydration can negatively impact performance and potentially predispose you to the risk of exercise-induced muscle damage. Dehydration can also result in acute heat-related dizziness, headaches, and tiredness. Severe dehydration can even be life-threatening.

HELPFUL HINT

Many athletes often perceive sports drinks as a go-to source for hydration. However, they may not be necessary when exercising at low-to-moderate intensities for less than an hour. Sports drinks are designed to replenish fluid and electrolytes and provide a source of carbohydrates (energy) during prolonged periods of intense training. Electrolytes will help with rapid rehydration, which is key when playing in hot or humid climates or over a sustained period of time (90 minutes) (Kerksick et al., 2018). Use these guidelines to determine what is best for your situation:

- Drink 16 oz of fluid the morning of your match
- Drink an additional 13-20 oz 20-30 minutes before play
- Drink 12-16 oz of fluid every 10-15 minutes during play
- Opt for water if you’re playing for less than 60 minutes (if you’re playing in a hot or humid climate or if you’re heavily sweating, consume a sports drink)
- Opt for a sports drink if you’re playing longer than 90 minutes
Pickleball Warm-Up Strategies

The role of the warm-up is to prepare and increase your overall body readiness for the on-court physical activity to follow. A purposeful warm-up will invoke several positive physical responses that may improve your performance and reduce your injury risk. This can take the form of low-intensity exercise like walking around the courts or something more specific, like going through the motions of a pickleball game. Taking the time to prime yourself to move is a worthy endeavor and can be achieved in under 10 minutes. Key principles include:

- Raising your core body temperature
- Elevating your heart and breathing rates
- Increasing your range of motion and freedom of movement through stretching
- Increased psychological preparation for exercise (Mcgowan et al., 2015; Silva et al., 2018)

Why Stretching is Important

Preparing your body to move is analogous to working with plastic. Attempting to change the shape of a piece of cool plastic will likely result in it snapping or breaking. Apply heat, and the substance becomes pliable, receptive to forces, and will maintain its integrity. While much more resilient, your body’s tissues will also benefit from pre-activity warming and lengthening.

The active process of stretching, which can take many forms, will elongate muscles and connective tissues, increasing your current state of flexibility. Flexibility, in this case, speaks to your body’s ability to move freely and unrestricted around the court (and we know better movers often result in higher-level performers). Decrease the risk of tissue overload by taking the time to stretch and prepare your body for the unpredictable and rapid forces of match play.

Flexibility training is an important part of any physical activity and can help increase joint range of motion, improve muscle extensibility, and improve overall movement patterns (Floyd et al., 2018; Kenney et al., 2019). A 10-minute warm-up routine could save you weeks and, in many cases, months lost due to preventable injuries.
Static Stretching

Static stretching involves taking a muscle to the point of mild tension within a stretch and holding the end position for 30 seconds. When stretching statically, you must be both patient and present. Static stretches involve low-force, longer-duration holds that require constant tension but not so much tension that it is uncomfortable, which can result in a protective guarding action. In other words, you should be able to relax during each stretch. Static stretches performed before the competition will increase your tissue’s ability to extend and enhance joint mobility; however, they are not required if you complete a comprehensive dynamic warm-up routine.

HELPFUL HINT

Static stretching can be very beneficial to increase your joint range of motion. However, research indicates excessive stretching (holding stretches longer than 90 seconds) may temporarily impair strength and power capabilities. However, when dynamic movements follow static stretching, no impairments to strength or power occur (Behm & Chaouachi, 2011).

Dynamic Stretching

Dynamic stretches are moving stretches. They often use momentum to move your body in a timely and coordinated manner (Behm & Chaouachi, 2011). The exercises carefully selected below replicate positions and patterns specific to pickleball-related movement tasks. The benefit of incorporating these stretches is the safe exposure to the deep ranges of motion you will play in. Increasing your ability to get in and out of these positions with better poise, rhythm, and timing will help safeguard you from potential injury and improve your movement efficiency.

As you will see, some of these exercises focus on mobility and performing movements through a large range of motion, whereas others also involve priming the body to move quickly through space.
Example Warm-up Routine

Below is an example warm-up routine that includes a variety of dynamic stretches. However, feel free to add a few static stretches at the beginning of the routine if you’re feeling stiff in certain muscle groups.

<table>
<thead>
<tr>
<th>EXERCISE</th>
<th>SETS</th>
<th>REPS/TIME</th>
<th>TEMPO</th>
<th>REST</th>
<th>Video Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm-up</td>
<td></td>
<td></td>
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<tr>
<td>Light Cardio</td>
<td></td>
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</tr>
<tr>
<td>Brisk walking or light jogging</td>
<td>1</td>
<td>3-5 min</td>
<td>Controlled</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Dynamic Stretching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotational squat to T-step</td>
<td>1</td>
<td>10 each side</td>
<td>Controlled</td>
<td>N/A</td>
<td><a href="https://youtu.be/DS2IL3GiQ2E">https://youtu.be/DS2IL3GiQ2E</a></td>
</tr>
<tr>
<td>Lateral lunge w/ rotation</td>
<td>1</td>
<td>10 each side</td>
<td>Controlled</td>
<td>N/A</td>
<td><a href="https://youtu.be/L4UqnO_MiU8">https://youtu.be/L4UqnO_MiU8</a></td>
</tr>
<tr>
<td>Lunge with directional reach</td>
<td>1</td>
<td>10 each side</td>
<td>Controlled</td>
<td>N/A</td>
<td><a href="https://youtu.be/mhLhch6ryKM">https://youtu.be/mhLhch6ryKM</a></td>
</tr>
<tr>
<td>Standing shoulder sweep w/ arm rotation</td>
<td>1</td>
<td>10 each side</td>
<td>Controlled</td>
<td>N/A</td>
<td><a href="https://youtu.be/xrgdRvSrNLE">https://youtu.be/xrgdRvSrNLE</a></td>
</tr>
<tr>
<td>Single leg hinge w/ directional reach</td>
<td>1</td>
<td>10 each side</td>
<td>Controlled</td>
<td>N/A</td>
<td><a href="https://youtu.be/iQMDjG2Fo48">https://youtu.be/iQMDjG2Fo48</a></td>
</tr>
<tr>
<td>Dynamic (Quickness-focused) Drills</td>
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<td></td>
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<tr>
<td>2-inch runs</td>
<td>1</td>
<td>:10-:15</td>
<td>Fast as possible</td>
<td>:30</td>
<td><a href="https://youtu.be/3SopDZQrc4E">https://youtu.be/3SopDZQrc4E</a></td>
</tr>
<tr>
<td>Base rotations</td>
<td>1</td>
<td>:10-:15</td>
<td>Fast as possible</td>
<td>:30</td>
<td><a href="https://youtu.be/Ygf7E7L8YS8">https://youtu.be/Ygf7E7L8YS8</a></td>
</tr>
<tr>
<td>2-inch runs with stability hop</td>
<td>1</td>
<td>:10-:15</td>
<td>Fast as possible</td>
<td>:30</td>
<td><a href="https://youtu.be/yulmhOpURMo">https://youtu.be/yulmhOpURMo</a></td>
</tr>
</tbody>
</table>
Pickleball Recovery Strategies

Sometimes, idle rest and inactivity are insufficient to facilitate complete rejuvenation. Proactively adopting recovery strategies will likely restore your body and help you rebound to increased levels of pickleball readiness. Remember, longevity in any sport requires a balance of inputs. Task yourself to consider recovery as repair. Wear + Repair = Sustainability. We have highlighted some active and passive recovery strategies that will aid tissue repair, starting with cool-down techniques.

Cool-down

The cool-down gives the body the time it needs to transition from exercise to a state of rest. An effective cool-down helps the body in the following ways:

- Reduces heart and breathing rates
- Helps cool the body
- Returns muscles to their resting lengths
- Prevents blood pooling in the lower extremities (Hooren & Peake, 2018; Koyama et al., 2000)

There are many ways to perform an effective cool-down. Like in the warm-up, start your cool-down with a low-impact, low-intensity activity like walking for about 5-10 minutes.

You can also include static stretching; below, you can find a few different examples:

<table>
<thead>
<tr>
<th>Stretch</th>
<th>Technique</th>
<th>Demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamstring Stretch</td>
<td>Sit on the ground with one leg extended straight in front of you and the other leg bent with the sole of your foot against the inner thigh of your extended leg. Lean forward from your hips, reaching towards your toes, and hold the stretch for about 30 seconds. Switch legs and repeat. This stretch targets the back of your thighs.</td>
<td></td>
</tr>
<tr>
<td>Stretch Type</td>
<td>Instructions</td>
<td></td>
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<td>------------------------------</td>
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<tr>
<td>Figure Four Stretch</td>
<td>Start by sitting on the ground with one leg extended straight in front of you. Bend the opposite leg and cross it over the extended leg, placing the ankle on the thigh just above the knee (as the photo demonstrates, you can also use a stability ball to assist if needed). Gently press down on the bent knee to deepen the stretch in the hip. Hold for about 30 seconds and switch sides.</td>
<td></td>
</tr>
<tr>
<td>Shoulder and Chest Stretch</td>
<td>Extend one arm across your chest and use the opposite hand to gently pull the extended arm towards your body. Hold for about 30 seconds and repeat on the other arm. This stretch targets the back of your shoulders.</td>
<td></td>
</tr>
<tr>
<td>Quadriceps Stretch</td>
<td>Stand upright and pull one heel towards your bottom (gluteals) by bending the knee of the leg you want to stretch. Keep your knees together and hold a stationary object or wall for support. Hold the stretch for about 30 seconds and repeat on the other leg. This stretch targets the front of your thighs.</td>
<td></td>
</tr>
<tr>
<td>Hamstring Stretch</td>
<td>Stand with one foot on top of a platform (or step) and slowly hinge forward at the hips. Let your upper body hang towards your toes, and allow your head and neck to relax. Hold this stretch for about 30 seconds.</td>
<td></td>
</tr>
</tbody>
</table>
HELPFUL HINT

Remember to hold each stretch for about 30 seconds and breathe deeply throughout. Stretching should be done gently and within your comfort level. If you have any specific concerns or conditions, it’s always a good idea to consult a healthcare professional or a certified trainer for personalized advice.

Massage and Handheld Massager

A massage after playing pickleball can help reduce muscle soreness, improve circulation, and enhance recovery. A combination of deep tissue and Swedish massage techniques can be beneficial, focusing on the areas commonly used in pickleball, such as the shoulders, arms, legs, and back, to relieve tension and promote relaxation.

Another viable option is a handheld massager (also called a massage gun). They pulse in and out, which mimics the effects experienced by a hands-on massage. Using a handheld massager before, during, and after playing pickleball can be beneficial because it helps stimulate blood flow, improves muscle activation, and reduces muscle soreness. Before playing, it can help warm up muscles and enhance flexibility. During the game, it can provide a quick burst of vibration to help prevent muscle fatigue. After playing, it aids in promoting muscle recovery by increasing circulation and reducing post-exercise inflammation. However, it is important to use this device under proper guidance and consult a healthcare professional if necessary.

Heat/Ice

Using heat and ice after playing pickleball can significantly benefit daily recovery. Heat therapy, such as a warm shower or heating pad, helps relax muscles, increases blood flow, and reduces stiffness. It is ideal for promoting flexibility and easing muscle tension. Ice therapy, in the form of ice packs or cold baths, helps reduce inflammation, numb discomfort, and constrict blood vessels, which can prevent swelling. Alternating between heat and ice therapy, known as contrast therapy, can be particularly effective by promoting circulation and reducing muscle soreness. It is essential to use these methods within recommended time limits and consult with a healthcare professional if experiencing severe pain or injury.

Compression

Wearing compression gear during and after pickleball can support the muscles and joints. Compression garments help increase blood flow and may minimize the risk of injury. They can also help reduce muscle soreness, speed recovery, and improve overall performance. Additionally, compression gear can offer a comfortable and snug fit, enhancing body awareness (proprioception) and providing stability during intense movements on the pickleball court.

Sleep

Sufficient sleep is important for optimal physical and cognitive performance, especially if you regularly play pickleball. Typically, 7-9 hours per night is the recommended amount of sleep for adults (Hirshkowitz et al., 2015). Lack of sleep can lead to decreased reaction time, impaired decision-making, reduced coordination, and
increased risk of injury on the court. It can also impact recovery and muscle repair, leading to slower progress and increased fatigue. Prioritizing quality sleep allows you to perform at your best and maintain overall well-being on and off the pickleball court.

**Nutrition**

Proper nutrition is essential for a regularly playing pickleballer. It provides the energy and nutrients needed for optimal performance and recovery. Nutrition strategies for recovery should follow the three Rs principle: rehydrate, refuel, and repair.

**Rehydrate**

Strategies to rehydrate do not need to be complex. Drink plenty of fluids (water or sports drink) immediately. Once you’re hungry enough for a snack or meal, you can also opt for foods with heavy water content, such as watermelon, tomatoes, strawberries, cucumber, apples, lettuce, peaches, or celery.

**Refuel**

Pickleball uses carbohydrates as the body’s primary energy source. Therefore, after playing, aim to replace your carbohydrate stores by consuming some carbohydrate-rich foods, such as pasta, sports drinks, fruit, or honey.

**Repair**

Like other sports, pickleball requires your muscles to work for an extended period. Consequently, your muscles need an adequate supply of protein to help them repair. Opt for protein-rich foods to facilitate the repair process. Common protein-rich foods include chicken, turkey, fish, eggs, tofu, and even milk. Other options include nuts, seeds, beans, rice, yogurt, and cottage cheese.

**HELPFUL HINT**

The three Rs principle (rehydrate, refuel, and repair) can be very simple to implement. After you’re done playing

1. Drink plenty of fluids immediately (rehydrate)
2. Consume some carbohydrate-rich foods when you’re ready for a snack or meal (refuel)
3. Consume some protein-rich foods when you’re ready for a snack or meal (repair)*

*Steps 2 and 3 can be done at the same time.
Conclusion

The basic principles of the manual are quite simple. We eat to fuel. We stretch to move. We move to play. We hydrate to replenish. We rest to recover. We repeat the process. As highlighted, pickleball is viewed by many as a fun hobby, but it is a reactive sport with strenuous and varied, unpredictable forces. You can reduce the risk of injury by increasing your preparedness and tissue readiness by following the techniques in this manual. This way, you can maximize your fun by increasing your ability to play injury-free.

Recommended Resources

https://blog.nasm.org/12-great-corrective-exercises-for-the-upper-back
https://blog.nasm.org/corrective-exercises-for-better-strength-and-performance
https://blog.nasm.org/exercise-programming/the-importance-of-sleep-and-recovery
https://blog.nasm.org/exercises-for-lower-back-pain


