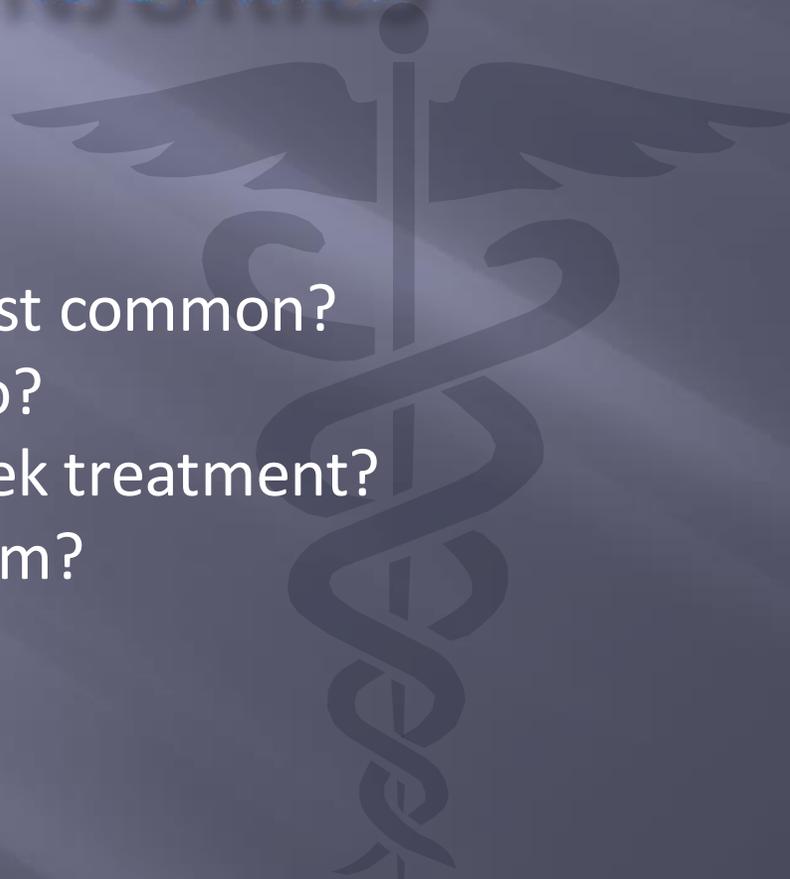


INTRO

- MATTHEW J LANDFRIED MD
- 35 YEARS CLINIC EXPERIENCE
- AROUND 25,000 SURGERIES
- BOARD CERTIFIED IN ORTHOPEDIC SURGERY & SPECIALTY CERTIFIED SPORTS MEDICINE
- WHY AM I HERE AT ST. JAMES?
- WHAT SERVICES ARE AVAILABLE?
- WHERE?
 - MAC - 910-363-0715
 - 1513 N. HOWE ST - 910- 454-8030

PICKLEBALL INJURIES

- What are the most common?
- What should I do?
- When should I seek treatment?
- Can I prevent them?





*“Let’s divide the teams into
back pain vs. leg pain.”*

WHAT ARE THE MOST COMMON INJURIES?

- ▣ Most pickleball-related injuries seen are sprains or strains (33.2%), followed by fractures (28.1%),
- ▣ The most common mechanism is a slip, trip, fall, or dive(63.3%).
- ▣ Sprains and strains were 3.5 times more common in men
- ▣ Fractures were 3.5 times more common in women

WHAT ARE THE MOST COMMON INJURIES?

WRIST

- ▣ sprain, fracture
- ▣ More insidious- ECU tendonitis

LOWER LEG

ankle sprain, Achilles tendon injuries, calf strain, quadriceps strain, hamstring strain, groin pull, hip pain groin or pocket?

HIP PAIN –groin ,pocket

BACK PAIN

The 12-month prevalence of low back pain within racket sport athletes ranges from 31% to 80%. Muscle strain, SI joint

WHAT ARE THE MOST COMMON INJURIES?

- SHOULDER
 - acute injury - rotator cuff tear, biceps tear
 - Chronic - impingement syndrome ,tendonitis
- Elbow
 - Acute - traumatic bursitis
 - Chronic – tennis elbow , golfers elbow

MECHANISM

- ▣ Slip/trip/fall/dive 63% The most common injury overall
- ▣ Hit by an object <5%
- ▣ Hit by the paddle <2%
- ▣ Hit with the ball <1%
- ▣ Collide with other players <1%
- ▣ Heat-related illness
- ▣ Pocket ball



We were able to remove it, just stop keeping pickleballs in your back pocket when you play

HEAT !!!!

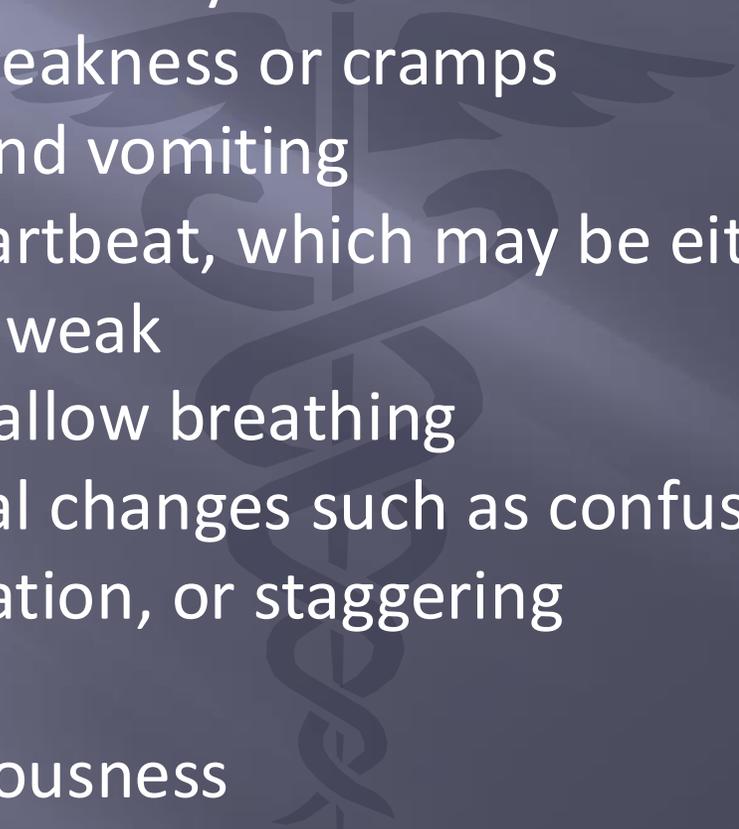
- ▣ HEAT RELATED INJURIES
- ▣ Heat exhaustion and heat stroke are heat-related illnesses caused by the body's inability to cool itself in high temperatures. Heat exhaustion is characterized by symptoms such as heavy sweating, weakness, dizziness, and a body temperature over 100°F (38°C)
- ▣ Symptoms OF HEAT EXHAUSTION
 - ▣ Headache
 - ▣ Excessive thirst
 - ▣ Muscle aches and cramps
 - ▣ Weakness
 - ▣ Confusion or anxiety
 - ▣ Drenching sweats, often accompanied by cold, clammy skin or a sensation of prickly skin
 - ▣ Slowed or weakened heartbeat
 - ▣ Dizziness
 - ▣ Fainting
 - ▣ Agitation
- ▣ heat stroke is more severe, with a body temperature of 104°F (40°C) or higher, and can lead to confusion, hot dry skin, and loss of consciousness, requiring immediate medical attention.

TREATMENT

getting them out of the heat
giving them liquids to drink
removing any unnecessary clothing,
including shoes and socks
cooling them with cold compresses
or washing their head, face, and
neck with cold water
encouraging them to sip cool water

Heat stroke is more severe, with a body temperature of 104°F (40°C) or higher, and can lead to confusion, hot, dry skin, and loss of consciousness, requiring immediate medical attention.

CAN BE FATAL!



Throbbing headache
Dizziness and light-headedness
Lack of sweating despite the heat
Red, hot, and dry skin
Muscle weakness or cramps
Nausea and vomiting
Rapid heartbeat, which may be either strong or weak
Rapid, shallow breathing
Behavioral changes such as confusion, disorientation, or staggering
Seizures
Unconsciousness

TREATMENT

CALL 911

giving them a cold water or ice bath, if possible

wetting their skin

applying cold, wet cloths and ice packs to their head, neck, armpits, and groin

soaking their clothing with cool water

circulating the air to help their body cool faster

HOW TO DETERMINE REHYDRATION

Determine a Morning Baseline Body

Mass=X

Weigh yourself after three exercise
sessions =Y

$X - Y = \text{FLUID LOST}$

1 LB. = .5 LITERS(500CC)----- ROUGHLY
30 OZ

- ▣ Between 2002 and 2022, there was a 90-fold increase in pickleball-related fractures. Most fractures were of the upper extremity after a fall in women aged >60 years. Despite female fracture predominance, men were 2.3 times more likely to be admitted after sustaining a fracture.

FRACTURE

- Number of Fractures With Associated Bones by Body Region
Associated Bones fractures Upper extremity(n=262)
- ARM :4; Clavicle,,18 Upper arm Humerus, 85 Forearm Radius, 9; ulna, 183 Hand Unknown, 25 Unknown upper extremity
- Head /neck,1: Head Skull, 1 Neck Cervical spine2; Face Orbit, ,6; nasal bone, 1 mandible,;
- Lower extremity(n=77) Upper leg Femur,6;
- Lower leg -Fibula,5; tibia,2; 14 Unknown
- ,Foot- Calcaneus,1;
- Trunk- Pelvis Pubic ramus,1; acetabulum,2;
- Rib-21 Spine-16

WHEN TO BE CHECKED OUT MEDICALLY

- ❑ Persistent Pain: If your soreness doesn't improve after a few days of rest and self-care, it might be more than just typical soreness.
- ❑ Swelling or Bruising: Notice any swelling or bruising? That's your body telling you something isn't right.
- ❑ Limited Mobility: If your range of motion is restricted or you're struggling to walk, it's time to consult a pro.
- ❑ Pain During Rest: If the pain lingers even when you're not playing,
- ❑ ACUTE SEVERE PAIN

TREATMENT

- ▣ ICE
- ▣ ELEVATE
- ▣ REST
- ▣ HEAT
- ▣ PHYSICAL THERAPY
- ▣ CORTISONE INJECTION
- ▣ PRP
- ▣ ULTRASOUND GUIDED SHOTS

Platelet-Rich Plasma (PRP)



PRP is plasma with many more platelets than what is typically found in blood. The concentration of platelets — and, thereby, the concentration of growth factors — can be 5 to 10 times greater (or richer) than usual.

To develop a PRP preparation, blood must first be drawn from a patient. The platelets are separated from other blood cells and their concentration is increased by spinning the blood down during a process called centrifugation. These platelets are then injected into the injured site.

BEST FOR :

Tendon injuries

Achilles

tennis elbow

arthritis – knee & shoulder

moderate to severe muscle strains

chronic plantar fasciitis

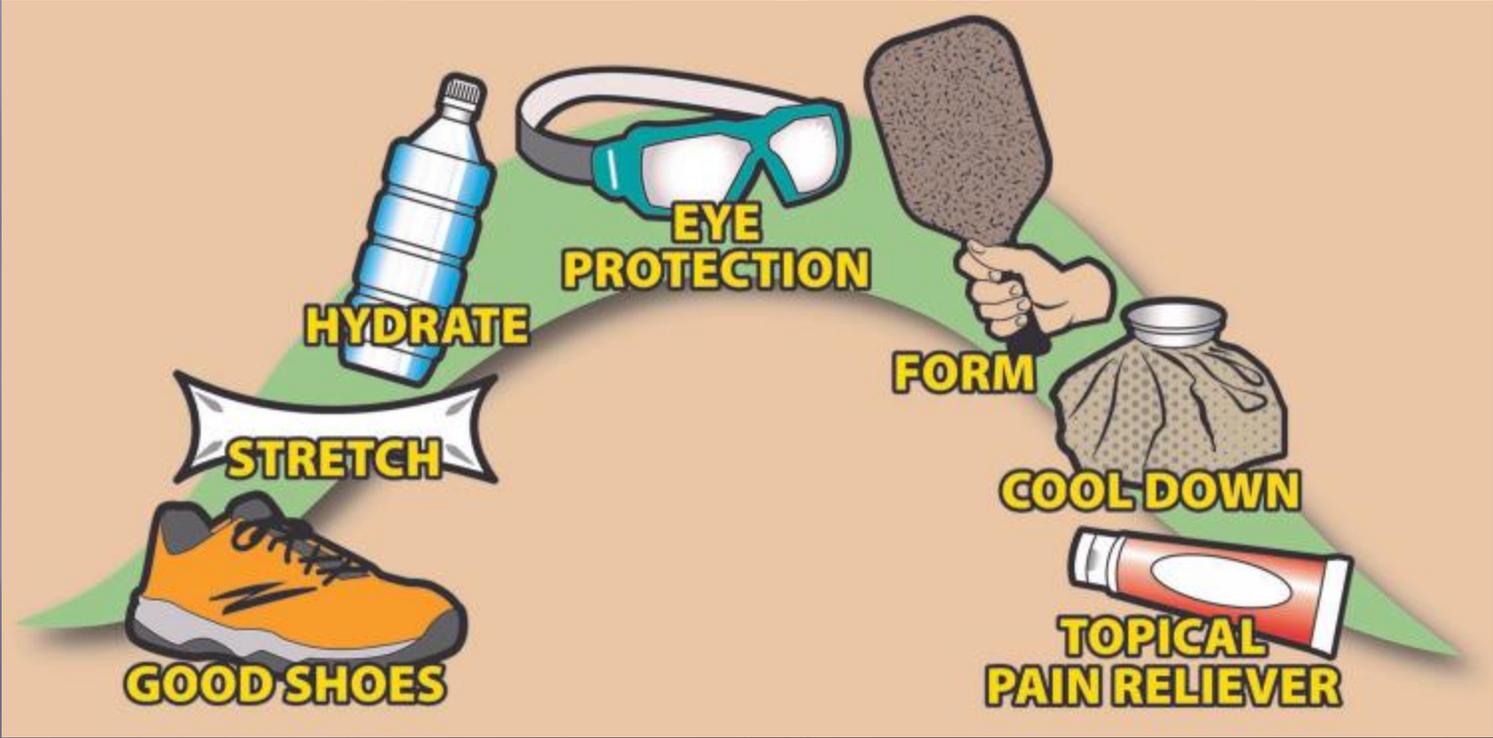
Return to Pickleball



PREVENTION

- ▣ Proactive approaches for
- ▣ avoiding injuries always result in reduced recovery time in case of an injury, which reduces the recovery time.
- ▣ Future studies can be performed for researching specific exercises to reduce the impact on the joint and reducing knee and hip pain post-activity





STRETCHING

- ▣ Recent studies have shown that stretching programs can significantly influence the viscosity of the tendon and make it significantly more compliant, and when a sport demands high intensity, stretching may be important for injury prevention
- ▣ In contrast, when the type of sports activity contains low-intensity or limited (e.g., jogging, cycling, and swimming) there is no need for a very compliant muscle-tendon unit since most of its power generation is a consequence of active (contractile) muscle work that needs to be directly transferred (by the tendon) to the articular system to generate motion. This conjecture is supported by the literature, where strong evidence exists that stretching has no beneficial effect on injury prevention in these sports.

Core Strengthening

- ▣ Core and stability exercises
- ▣ All the hip strengthening exercises also account for core and stability exercises. These are especially helpful to
- ▣ reduce the risk of falls, quick direction changes, and overall conditioning for the athlete.
- ▣ Plank exercises and side planks are used to strengthen the core without too much dynamic motion in the back to
- ▣ reduce the risk for low back pain (Miller et al., 2021)

Like all the other sports, it is important for athletes to train, warm up before the activity and cool down after the activity. Proper sustained stretching during practice is important and specific drills to improve endurance and

skills play a critical role in the sport. **These drills can include:**

- 1) Front and back running in the court.
- 2) Four corners running in the court.
- 3) Practicing various shots by running side to side
- 4) Forward and backward running to improve balance and impact on joints

Many more sports-specific and strengthening-specific activities can be included. This practice helps with the

required muscles normally used during the sport to come to an optimal length of tension and the body to have

procedural memory during the sport, reducing the risk of injuries (Woods, Bishop, & Jones, 2007)

Dynamic stretching before the actual play helps to get the muscles in the optimal length-tension and reduce the

risk for injuries and warming the muscle up with improved blood supply (Behm & Chaouachi, 2011).

Upper Body Exercises

- ▣ Shoulder Strengthening and Flexibility
- ▣ Rotator cuff plays a role in dynamic stability of the shoulder joint. It is important to strength these muscles as
- ▣ they play a direct correlation with the risk for injuries, scapular stability and overall shoulder mobility. Reduced
- ▣ mobility can make an athlete prone to more injuries. Simple rotator cuff exercises can include resistance training
- ▣ with a resistance band with motions such as external rotation, scapular retraction and depression, external

Upper continued

- ▣ rotation walk outs. Shoulder complex training can also include thoracic extensions using a bolster. Shoulder
- ▣ flexibility training will help reduce the risk for impingement (Brown et al., 2020)
- ▣ Elbows and wrist exercises
- ▣ Simple dumbbells can be used to perform these exercises. Light weights are preferred to strength the wrist joint
- ▣ muscle due to comparatively smaller muscles (Thompson & Lee, 2019). Other exercises can improve squeezing
- ▣ a stress ball to enhance grip while stretch the forearm extensors and flexors can reduce the risk for tendinitis
- ▣ (William & Anderson, 2018)

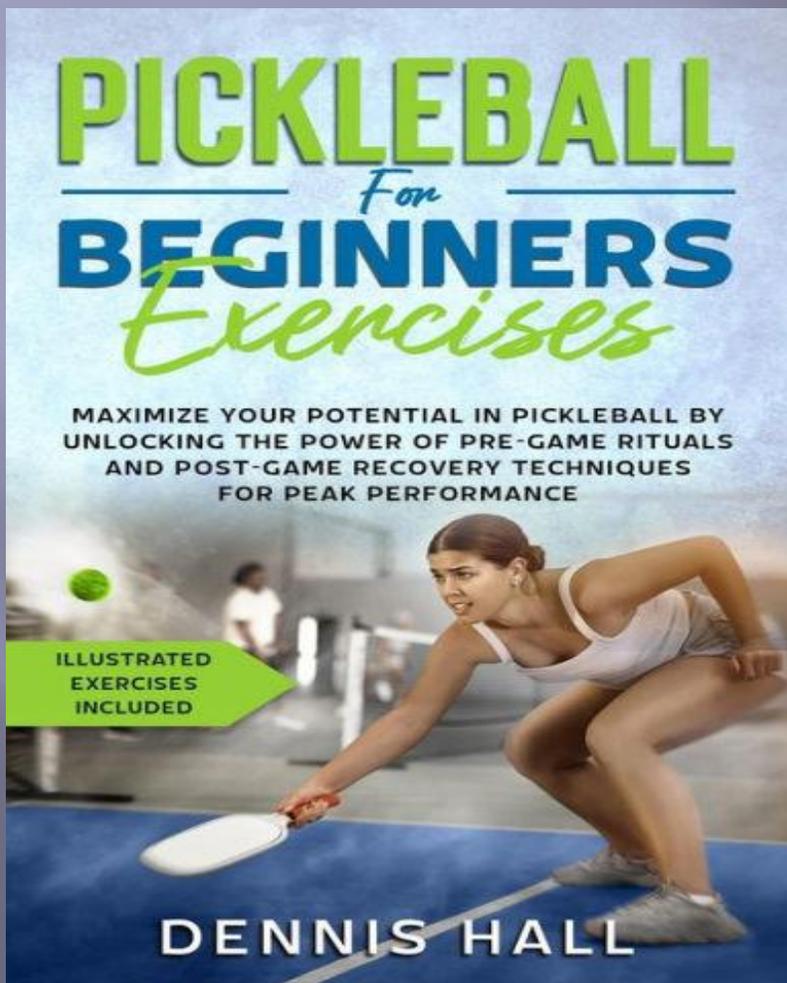
Prevention exercises Lower

- ▣ Lower Extremity Exercises
- ▣ Ankle Strengthening and Stability
- ▣ Ankle strengthening and stability: This helps target mobility and flexibility around ankle joint (Williams &
- ▣ Anderson, 2018). This also prepares the ankle for quick change of direction and impact activities.
- ▣ Balance exercises:
- ▣ Single leg standing, use of balance board, rocker board, tandem walking and drills including quick change of
- ▣ directions will help with proprioception and ankle strengthening (Gribble, Hertel, & Plisky, 2012).
- ▣ Calf raises and tibialis
- ▣ Often times strengthening is overlooked for calf muscles and neglected. The tibialis anterior and calf muscle

Lower Continued

- ❑ strengthening not only helps with improved ankle and knee stability, but that stability also adds to improved
- ❑ balance (Hébert-Losier et al., 2010).
- ❑ Simple exercises like calf raises, toe walks, toe raises, and seated calf raises will help achieve these results.
- ❑ Knees and hips strengthening
- ❑ Simple day-to-day exercises like squats, lunges, side lunges, hip abductor and adductor strengthening, bridges
- ❑ will help with overall core and hip stability. This not only helps with strength and muscle endurance, but also helps
- ❑ with pelvic alignment and back pain in these athletes. (Escamilla et al., 1998). Hip stability exercises like bridges help with gluteal muscles and improve stability (Smith and Wang 2021)
- ❑ These exercises can be performed by using a resistance band for overall hip joint strengthening (Johnson et

Exercise Guide



Pickleball For Beginners Exercises: Maximize Your Potential in Pickleball by Unlocking the Power of Pre-Game Rituals and Post-Game Recovery Techniques ...

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ADDITIONAL CONSIDERations

- Proper Technique and Equipment
- Correct techniques usually encourage proper biomechanics in the body, leading to risk for chronic injuries and risk for falls. Proper coaching can result in improved positioning, optimal and much more effective change in positioning during the game, and more experienced feedback to reduce repetitive mistakes.
- Use of proper, well-fitted **shoes** and **paddles** that are specifically designed for pickleball and preferably the light ones can reduce stress on muscles and joints, provide better support, and reduce unnecessary strain on the joints (Thompson and Lee, 2019)
- Gradual progression and proper rest
- This is important for the recovery of the muscles. As mentioned earlier, most athletes participating in this sport are elderly adults, and the recovery times are also higher than those of younger adults. Taking on high intensity activity without going through gradual loading can cause injuries. Rest days can reduce the lactic in the muscle, help it recover better, and reduce the risk of injuries (Smith and Wang, 2021)

CONCLUSION

- ▣ The benefits of pickleball, particularly for geriatric players, far outweigh the risks, and pickleball may be an important cardiovascular workout program that seniors ardently embrace rather than reject.

ONE LAST NOTE

