



How to Stay in the Game: Percussion Injury Prevention and Treatment

Music is a rigorous field of study and a demanding line of work. The vast majority of musicians experience performance-related pain at some point in their lives. Since percussion playing demands physicality, there is cause for concern to prevent any career ending injuries. We depend on our physical ability to make music but when that is hampered things can change overnight. This session will highlight ways to prevent injury before it happens and will focus on body awareness to know the conditions and symptoms that serve as warning signs before the damage is done.

COMMON INJURIES

Muscle spasm (hand and wrist)

- *Signs and symptoms* – Dull ache in the muscles on the top of the forearm. The pain is sharp while playing (especially traditional grip) or doing wrist-turning moves.
- *Description* – Muscles increase in tightness until they cramp (usually pronator quadratus, pronator teres, or thumb muscles)
- *Cause* – Prolonged constant movement of the muscles in a similar manner depletes them and causes them to freeze up

Pollicis (thumb) tendonitis

- *Signs and symptoms* – Pain and swelling on movement or resistance to movement of the thumb, particularly during extended periods of drum or mallet playing
- *Description* – Increased tension or trauma to the tendon, causing tearing of the tendon fibers to varying degrees
- *Cause* – Increased tension to the tendon from a strong overload or a constant tension put on the tendon for long periods of time

Stenosing tenosynovitis

- *Signs and symptoms* – Pain, grinding, or clicking (crepitation) on the thumb side of the wrist and forearm or palm of hand, and pain in the area on movement
- *Description* – Irritation or increased swelling on the tendon of sheaths at the wrist (carpal tunnels) of hand. This decreases space in the tunnel and irritates the nerves. There are two types: De Quervain's (thumb side of the wrist) and trigger finger (palm of hand by the fingers)
- *Cause* – Improper technique, increased playing time, or sudden change to a more powerful stroke can cause irritation and swelling that can hurt the tissues.

Median nerve entrapment

- *Signs and symptoms* – Tingling, pins and needles, or numbness of the first three fingers; also, weakness on striking drum with elbow bent or straight
- *Description* – Pressure on median nerve by the muscles of the forearm, fracture (if recent trauma to the area), or inflammation causing decreased nerve function (i.e. numbness or tingling)
- *Cause* – Muscle spasms, overuse of the elbow or wrist-finger complex, causing prolonged pronation effort

Tunnel of Guyon entrapment

- *Signs and symptoms* – Numbness and possible weakness in the ring and pinky fingers are worse during and after playing hand instruments; there is also pain and tenderness under the muscle on the pinky side of the palm
- *Description* – The tunnel Guyon is formed by a ligament (the pisohamate), spanning two of the wrist bones. Through this tunnel runs the ulnar nerve and artery. Increased pressure on the

tunnel from swelling and so forth can cause nerve irritation, sending symptoms into the small fingers

- *Cause* – This injury is usually caused by a hard, direct blow to the heel of the hand. It can also be caused by repetitive trauma to the same area. Hand drumming is the most common drum activity causing this condition

Carpal tunnel syndrome

- *Signs and symptoms* – Numb, tingly, or achy feeling in the hand or wrist (usually thumb and first finger) that gets worse over weeks or months and during or shortly after repeated stressful motions of the hand or wrist
- *Description* – Irritation of the median nerve as it goes through the carpal tunnel. Overactive or inefficient movement through the tunnels causes heat, swelling, and pressure
- *Cause* – Commonly from long-term misuse (microtrauma) of the wrist for a period of weeks or months. Other causes are sudden increase in speed, practice time, or stick size; tighter heads; change in instrument setup; and so forth

Ulnar nerve entrapment

- *Signs and symptoms* – Pain, tingling, or numbness in the fourth and fifth fingers. Possible pain in the shoulder blade (near the spine), upper back, and elbow
- *Description* – The ulnar nerve (funny bone nerve) becomes irritated by trauma, pressure due to tight muscles, or wear and tear
- *Cause* – Constant motion that rubs the ulnar nerve. Spasm of the muscles causes compression around the ulnar nerve. Tunnels that the nerve passes through become obstructed. An obstruction may be due to a forceful hit to the area, tight muscles, or pressure on the area from the outside (i.e. clothing, jewelry, etc.) among other things.

Focal dystonia

- *Signs and symptoms* – Moderate to severe muscular incoordination or decreased ability to control well-known movements done numerous times on the instrument
- *Description* – Neurological movement disorder. It demonstrates as painless loss of muscular coordination of voluntary motor control while doing well-trained movement on an instrument
- *Cause* – Believed to be caused by neurological malfunction brought on at least in part by anxiety and other emotional factors

Ganglion cyst

- *Signs and symptoms* – Painless lump one to three centimeters in diameter on the wrist (usually the back of the wrist). May be larger when the wrist is bent away from it and smaller when bent toward it. Also, found in hands, feet, or ankles
- *Description* – Weakness in the membrane around the joint, or herniation of the lining through ligamentous area of defect, leads to a bulge or bubble of mucinous (yellow gelatin type) fluid. It is a cystic enlargement of a tendinous sheath on the back of the wrist
- *Cause* – Unknown, but possibly a break or trauma causing fluid to enter

Osteoarthritis (hand)

- *Signs and symptoms* – Pain in one or more joints of the arm in the morning or following activity. Can be one or both hands (usually after age thirty)
- *Description* – Aging of a joint before its time
- *Cause* – Repetitive joint-wearing movements, or macro trauma, causing the joint or joints to be dysfunctional (gradual onset). This injury is usually found in players who play hard

Elbow bursitis

- *Signs and symptoms* – Swelling or pain (burn, stab) at the top of the elbow while moving (active or passive). May be tender to touch. Stretching or using those muscles without movement does not decrease pain.

- *Description* – Bursae are flat, coin-sized, lubricant-filled sacs positioned anywhere two tissues rub together. They provide smooth movement and prevent damage to the area. When an area gets overused, the bursae get hot and inflamed, causing bursitis
- *Cause* – Increased playing time or aggressiveness will produce tight muscles and friction to the areas of movement. May also be caused by sudden trauma to a bursae area

Lateral epicondylitis (tennis elbow)

- *Signs and symptoms* – Pain on the thumb-side bone of the elbow, particularly when bending the wrist backward or rotating the forearm outward against resistance
- *Description* – Inflammation of tendons that extend the wrist. Tight and spastic muscles pull the tendons, tearing them at or from the bone. This leads to tendonitis (irritation of the tendons)
- *Cause* – Repetitive misuse of, or increased pressure on, muscles that extend the wrist. Usually from a sudden increase of playing time, intensity, or stick size

Medial epicondylitis (golfer's elbow)

- *Signs and symptoms* – Pain on the inner side (pinky) bone of the elbow, particularly when curling wrist or rotating forearm inward
- *Description* – Inflammation of tendons and muscles that flex the wrist. Muscles get tight and spasm from overuse, and they pull the tendons from their insertion at the medial epicondyle of the humerus bone, producing tendonitis
- *Cause* – Repetitive misuse of or increased pressure on flexor muscles. Usually from increased playing time or stick size

Other factors

- | | |
|--|--|
| <ul style="list-style-type: none"> • Stress • Insufficient rest • Amount of sleep • Sleeping position • Posture | <ul style="list-style-type: none"> • Computer usage (typing) • Piano playing • Video games • Age |
|--|--|

PREVENTION

Listen to your body

- Burn vs. pain
- Diet
- Fitness/exercise

Proper technique

- Focus on a relaxed, free stroke
- Combine arm, wrist, and fingers for strokes
- Adjust instrument to body
- Posture
- Stick/mallet choice

Warming up

- Warm water
- Wrist builders/hand warm-ups
- Open-close-open (slow-fast-slow)
- Technique building exercises
- Slow music learning
- Don't go too fast too soon. Don't rush this process.
- Cooling down is also important!

Take breaks

- Frequently

- Divide up practice sessions
- Spend time studying and analyzing the music
- Pace your practicing. Avoid cramming in long practice sessions.

Stretches – should occur after warming up and at the end of practice session.

- | | |
|----------------------------|--------------------------------------|
| • Shoulder and arm stretch | • Arm and wrist rotations above head |
| • Overhead stretch | • Wrist rotations above head |
| • Arm stretch | • Thumb tuck |
| • Wrist warmup | • Thumb extension |
| • Advanced wrist warmup | • Pretzel stretch |
| • Wrist stretches | • Hand flexors |
| • Finger stretches | • Hand extensors |

Strengthening Exercises

- Tennis ball squeeze
- Thumb and pinky pull
- Wrist/finger extension
- Wrist/finger flexion
- Shoulder raises

TREATMENT

- Find cause of pain/problem
- Adjust playing technique
- Medicine/supplements
 - Anti-inflammatories (bromelain, turmeric, aspirin, ibuprofen)
 - Vitamin B6, B12
 - Fish Oil
- R.I.C.E (Rest, Ice, Compress, Elevate)
- Finger or wrist splints
- Consult a professional (doctor, physical therapist, chiropractor, hand and arm specialist)
- Cortisone shots
- Surgery (LAST RESORT)
- Be Patient. Don't rush treatment.

REFERENCES

Haas, Karl. "Coping with a Playing Related Injury." *Percussive Notes* (December 2003): 50

Harnsberger, Andy. "Stretching for Pain-Free Performance." *Percussive Notes* (February 2008): 54-56

May, David. "Injury Prevention in Percussion." *Percussive Notes* (April 1994): 73-75.

McKinney, John. "The Secret to Injury Prevention." *Percussive Notes* (May 2010): 12-13.

Paris, Nina. "Performing Arts Medicine." *Percussive Notes* (October 1995): 64.

Workman, Darin. "Carpal Tunnel Syndrome: Ignoring the symptoms that can end your career." *Percussive Notes* (June 2003): 8-13.

Workman, Darin. "Injury Prevention: The Teacher's Responsibility." *Percussive Notes* (June 1999): 57-60.

Workman, Darin. *The Percussionists Guide to Injury Treatment and Prevention: The Answer Guide to Drummers in Pain*. Florence: Taylor and Francis, 2013.