

THE PERFECT BALANCE FOR EQUESTRIANS

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ABOUT THE EDITOR

Michele Altemus is a board certified orthopedic specialist in physical therapy. Michele has a Master's degree in physical therapy from Emory University and a Bachelor's degree in Kinesiology. She specializes in neck and back pain and injury. Michele has a broad scope of experience treating orthopedic and neurological injuries.

Twenty five years as a rider and horse woman has given Michele great insight into the physical needs of the equestrian. Michele has suffered with a back injury for over ten years and has still been able to work, ride, and show successfully.

Editor's note

Well— we are making it through another season believe or not. This year I have seen a multitude of injuries of the more serious nature. Unfortunately, we lost another young rider in the children's jumper division. Riding and death are not a good picture, but is a reality. New York state is one of the few places that enforces the helmet law. It is amazing that we have to tell people to do something that is for their own safety. The older riders I am sure feel they have made it through life okay without wearing a helmet every minute they are on a horse, but they must remember the younger riders are watching them. Young inexperienced riders who look up to the experienced riders are at a higher risk for falling and do need protection. All falls are not the result of jumping or flatting. The rider may pass out for some unknown reason, the horse might spook or get stung by a bee. Many different scenarios can happen and whether you are experienced or not— you may fall off.

Fractures were a big part of this year's injuries. This issue is focused on the wrist and hand. Jumper riders are subject to finger and hand fractures both from falls and from the hand jamming into the neck on landing. I sat with a few riders this year in Florida as they explained how many times they had broken or fractured a finger jumping. I had no idea. One of our Olympic hopefuls fractured her hand last year in the Olympic trials landing off a jump. She had to take some time off for the injury.

What most riders don't want to recognize is that it takes 12 weeks for normal bone to heal. That is not including complications such as poor blood supply, shattered bone, bone that needs to be reconstructed, and other health problems that interfere or slow healing down. Sometimes bone just won't heal together (nonunion fracture). An x-ray is a must and splinting or resting is too. You can not make bone heal faster. Good alignment is very important in the hand and wrist since there are a lot of tendons and ligaments that attach to the many bones in the hand. Your hands are vital to riding and everyday life. Take injuries to them seriously.

REMEMBER it is not how hard you fall it is the way you fall!

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Who Should Read This Newsletter?

- ◆ Riders
- ◆ Trainers
- ◆ Parents
- ◆ Equestrians

PHYSICAL THERAPY

Rehabilitation of the hand is not a simple task. Many different injuries can occur at the hand and each one must be treated individually. The most common injuries in riders are jammed fingers, fractured bones, torn ligaments, arthritis, and tendonitis. Grooms, farriers, and veterinarians often suffer carpal tunnel syndrome, crushed injuries to the hands, and cuts/burns. The ultimate goal in any one of these injuries is to restore normal use of the hand. One of the primary problems after a hand injury is pain and swelling.

An x-ray is called for in all injuries that resulted in the hand being crushed, landed on, or trapped. Some of the most simple accidents can break a finger if the finger is caught at the right angle. I mentioned before that many top grand prix riders admit to fracturing finger and hand bones from just landing off a jump. The first sign of a fracture is swelling and usually some kind of deformity. The finger will look crooked or swollen and motion is lost immediately. Ice and elevation are important. A short visit to the hospital will reveal any serious problems. Once a fracture has been ruled out the hand should be treated carefully. All procedures to reduce swelling i.e. ice, compression through taping or a glove with elastic material, elevation, and active movement in the painfree

range. Massage is not indicated for a swollen stiff hand. Antiinflammatories like advil or a doctor prescribed medicine is indicated.

Ligament and tendon injuries of the hand are a little more difficult to manage. Ligaments provide stability to the wrist, hand, and fingers. The pain from jamming a finger or injuring a ligament takes a while to go away. The injured area should be taped during riding to support and prevent movements that place the ligament on stretch. During the resting period all measures should be taken to reduce swelling. Some physicians may inject a substance that helps scar the ligament down to the bone which will help decrease their pain. Check with your orthopedic.

RSD

Reflex Sympathetic Dystrophy is a problem that you want to avoid at all costs. Unfortunately, this condition may occur without rhyme or reason. RSD is typically seen after a fracture in the shoulder, wrist or hand. The exact cause of RDS is not known. The sympathetic nervous system is the system in the body that regulates blood vessels, temperature, and heart rate. Swelling caused by fractures that were casted or immobilized, trauma to a nerve, and pain seem to facilitate the problem. The most common signs of RSD are hypersensitivity, swelling, capsule tightness of the joints in the hand, wrist or shoul-

der, blood vessels constrict and sweating may occur over the body part involved. The hand will typically look shiny and the skin thin. The nails may become brittle as well.

Treatment by a physical therapist is necessary and must be carefully followed out. Elevation, ultrasound, mobilization and active exercises are all a part of the therapy, but must be done carefully because of the pain and sensitivity of the area affected.

Preventing secondary problems after fractures in the arm and hand is important. Frozen shoulder or adhesive capsulitis is very painful and causes the client to want to carry the arm next to the body. Stiffness develops and other body parts become less active. Always remember to move all joints above and below the injured or painful part. Complete immobilization is vital at the site of the fracture and joints that are involved with the fracture, but all other body parts should be moved. Check with your physician for permission to exercise.

Most drug stores have materials to compress, splint, and support wrist and hand injuries. It is never good to have excess swelling in the hand and the swelling should be addressed immediately. Remember-RICE—rest, ice, compression, and elevation.

SIGNS & SYMPTOMS OF COMMON INJURIES

Carpal Tunnel Syndrome

Pain, clumsiness, pins and needles in the hand

Cause: Cervical compression, inflammation at the carpal tunnel

Treatment: Resting wrist splint, anti-inflammatories.

DeQuervain's Tenosynovitis

Pain along the line of the thumb. May radiate up the forearm.

Cause: Overuse of the thumb and wrist.

Treatment: Physical therapy: ice, anti-inflammatories, ultrasound, may need steroid injection

STIFF HAND

Swelling of the fingers, hand or wrist.

Cause: immobilization from fracture, burns, arthritis, surgery

Treatment: ice, anti-inflammatories, active movement, compression, elevation, taping, resting splint

THE WRIST/HAND

By

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The wrist and the hand are important to all individuals that work with and ride horses. More often than not I see clients who groom horses with carpal tunnel symptoms and riders with shoulder and elbow pain. The shoulder, elbow, forearm, wrist and hand allow us to perform daily activities like eating and brushing our hair. Without the gripping function of the hand we would not be able to hold the reins or pick up a grooming brush.

THE JOINT-Bones

There are two joints that make up the wrist. The radio carpal joint and the mid-carpal joint. Ten bones are involved in the wrist joint, eight of them are located in the wrist. The hand is composed of nineteen joints and nineteen bones. All together this complex is made up of twenty nine bones. Imagine the pain and complication when someone's hand gets crushed.

CAPSULES

There is a loose capsule around the wrist joint (RC), but no defined capsule involved with the carpal joints. The finger joints all have loose capsules as well. Capsules serve to unify the joint into a compartment for better stability. When the hand is swollen the capsule stretches which can lead to more serious problems. A swollen, hot hand should not be exercised or used.

LIGAMENTS/TENDONS

The midcarpal joint gains most of its stability from five ligaments. The ligaments provide support and allow movement. The smaller ligaments serve to hold the carpal

bones together. Most of the ligaments of the wrist are located in the palm of the hand there is only one ligament across the back of the hand. Most people have heard of the transverse carpal ligament. This ligament spans the wrist joint between the thumb and little finger and is known as the carpal tunnel. All the tendons that make the fingers bend are located under this ligament as well as the median nerve. There are many important ligaments associated with the fingers. Please view the pictures to become familiar with the intricacies of the wrist and hand.

MUSCLES

There are no direct attachments of tendons to the wrist complex. The one muscle that does attach to a bone that is not involved with wrist movement is the flexor carpi ulnaris and it attaches to a bone the pisiform. Flexor means bend forward.

There are fifteen muscles associated with wrist movement. The wrist can bend backward and forward and side to side. The muscles stop about one half to two thirds the way down the arm and become tendons that attach to the bones in the hand and fingers. In addition to these muscles there are individual muscles associated with each finger. These muscles help with gripping and cupping motions and allow the fingers to separate and come together. The amount of length and tension of the various tendons and muscles is vital to the fine control of the hand.

NERVES

Cervical levels C6-C8 supply the wrist. The main nerve to the wrist/hand complex is the median nerve. The median nerve supplies all the muscles that bend the wrist and fingers and also provide sensation to half of the thumb, index finger, middle finger, and half of the ring finger on the palm side. The ulnar nerve supplies the other half of the

ring finger and the pinkie on the palm side. The radial and ulnar nerves supply sensation to the back of the hand. Decreased sensation and muscle weakness are signs of disc disease. The neck must always be ruled out as the source of a problem in the wrist and hand. Poor posture can lead to disc compression at the base of the neck which ultimately leads to pain down the arm and into the hand. Surgery to the carpal tunnel should never be the first line of defense. A complete evaluation of the upper body and neck should be performed by a licensed physical therapist or doctor. See diagram.

BIOMECHANICS

Understanding how the hand works is not easy. We will review a few of the most common functions of the hand. Please study the insert for an appreciation of the functioning of the hand and why a rider should not take hand fractures or injuries lightly.

The hand has a rich blood supply. Disruption of the blood supply is a serious problem. Fractures that shatter bone may cut arteries and veins in the hand. The hand must be properly positioned and stabilized to heal and prevent long term damage. It is easy to lose motion in the hand and fingers. As mentioned before the wrist is the stabilizer of the hand. The wrist moves in the opposite direction of the hand to allow proper length of the tendons that move the fingers. When the fingers need to close the wrist needs to bend backwards. When the fingers need to straighten, the wrist bends forward. When gripping and holding objects the wrist is basically straight.

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TRAINER'S CORNER

How many times have you told your students to "Close your fingers"? I have heard through the grapevine that some trainers suggest performing gripping exercise to improve the strength of the hand. The goal being to allow the rider to grip the reins better or "keep their fingers closed".

In light of the fact that certain positions of the wrist affect the length-tension relationship of the hand, it is more important that your student have his/her wrist properly positioned. The wrist should be slightly ex-

tended so the fingers can fully close. Stretches for the wrist, hand and fingers should be performed daily to prevent excess tension in the palm of the hand . Tightness across the top of the forearm develops from overuse and can cause tendonitis at the elbow and interfere with the fingers fully closing.

Pain in the fingers and wrist joints in your older clients could be arthritis. Unfortunately, when a rider is having a flare up of arthritis they must rest the joints to prevent further damage. A

resting wrist splint is a good piece of equipment to have for anyone involved with horses, especially braiders. Arthritis is usually accompanied by swelling in the hand and heat. If either of these two conditions exist in your student the student should not attempt to close the hand. Compressing a swollen joint can cause damage to the capsule. The student would be better to rest the hand, wear a compressive glove like Isotoner to keep fluid down and take anti-inflammatories.

See handout for stretches and strengthening exercises.