

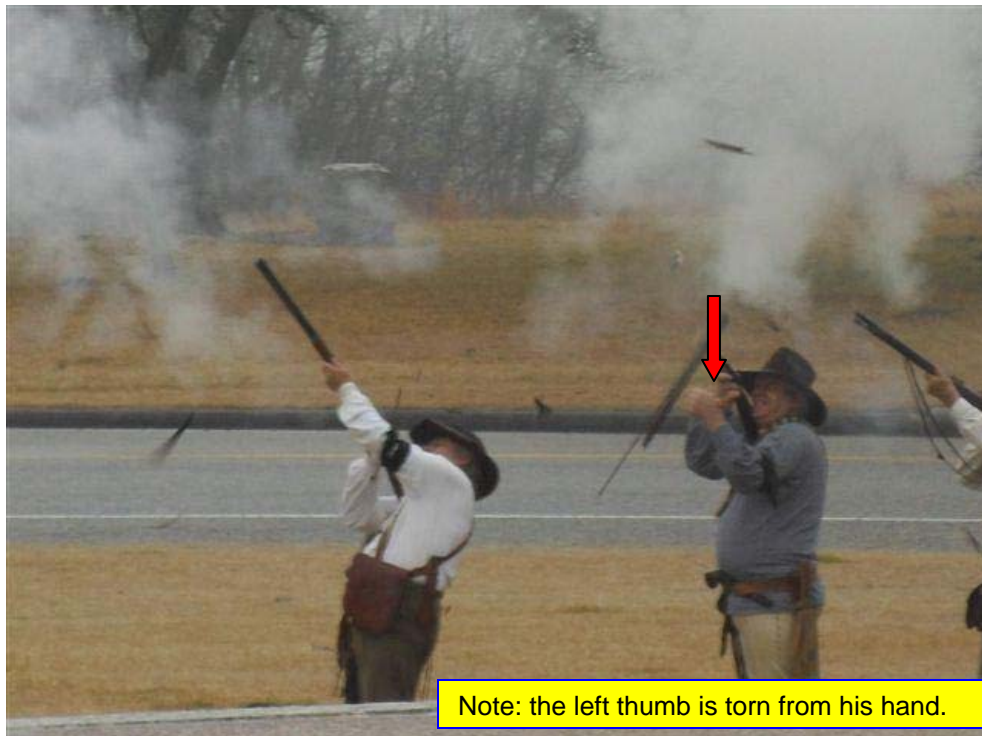
How a Devastating Injury Became a Rehabilitation Success Story



Lewis Wayne Carpenter 5-2010

On January 20, 2010, Sir Colonel Lewis "Wayne" Carpenter, suffered a devastating left hand injury when attempting to fire a black powder, muzzle-loading rifle. The occasion that led to this unfortunate event was a ceremony for the "celebration of life" for the late General Carroll A. Lewis, Jr. at the San Jacinto monument in Texas. The Texas regiment, which is still intact today and dates back to the time of the Alamo, was honoring General Lewis, Jr. with a rifle salute from various muzzle-loading rifles. The rifle that Colonel Carpenter was using that day was manufactured in Illinois in 1790 and was refurbished upon purchase. Colonel Carpenter reports that he had been using this rifle for various ceremonies for about 10 years without any prior incident. However, on this particular day, the rifle's barrel exploded from the gunstock and struck his left thumb with such a tremendous blow that it caused a severe amputation/dislocation of the base of the thumb joint, medically referred to as the carpal metacarpal joint.

An observer at the ceremony just happened to be photographing the event and captured a rare picture of the accident just as it occurred (see below):



Note: the left thumb is torn from his hand.

The severity of his injury required that he be transported to a Level 1 Trauma hospital in Houston, Texas. The hospital's trauma center was extremely busy that day and Colonel Carpenter had to be stabilized for 12 hours while he patiently waited for an extremely important life altering surgery by an expert Houston Hand surgeon. Surgery reportedly required the team of physicians and nurses, 6 ½ hours to reconstruct his hand (see a pre-operative picture below):



Pre-operative picture of the left thumb 1-20-2010

The following is a list of injuries suffered by Colonel Carpenter on 1-20-2010;

The left thumb suffered a severe incomplete amputation/devascularization, complex soft tissue injuries that included flexor tendon injury, digital artery and nerve injuries, as well as a 5th metacarpal basilar intra-articular fracture. Surgically, Colonel Carpenter underwent wound decompression and debridement; ligament reconstruction and repair to the CMC dislocation; left flexor tendon transfer of the left ring finger flexor superficialis digitorum slip to the flexor pollicis longus; repair of the digital arteries and nerves. Post-operatively in the operating room, he was placed in a long arm cast for protection of the revascularized thumb.

On Colonel Carpenter's first post-op visit to the physician he was able to move his left thumb and all his digits (see picture below of 1st post-op visit and x-rays).



Colonel Carpenter's 1st post-op visit



Note: movement of digits



Note: K-wire maintaining CMC thumb position

Colonel Carpenter began participating in an extensive hand therapy program which required a detailed therapy plan that included wound care, tendon rehab, fracture management, splinting, edema and pain control. The steps through these complex therapy techniques were managed and monitored by a team of certified and experienced hand therapists (Occupational or Physical Therapists that have a certification in Hand therapy denoted by the initials CHT). During the course of Colonel Carpenter's rehabilitation program, edema and stiffness remained a significant problem for the hand. The physician along with the team of therapists, decided to progress him to the use of a continuous passive motion machine to address persistent stiffness and swelling in the digits as well as the application of various pressure therapies such as coban wrapping and pressure gloves. Neuromuscular stimulation was integrated to increase the pull of the flexor tendons to the digits, once the dislocation at the thumb was properly stabilized.



NMES and thumb motion from extension to flexion of middle finger.

Colonel Carpenter is a very active person who has traveled all over the world for both pleasure and work. He is an avid photographer, scuba diver as well as instructor, hiker, camper, outdoorsman, "baha" jeep driver and a serious grizzly bear observer at various national parks throughout the western states. Restoring the use of his left hand was imperative to not only his livelihood but his quality of life. He has progressed in his rehabilitation process to a point where he is able to completely flex and extend all his digits and can oppose his left thumb to the middle finger without stretching exercises; presently with heat and aggressive stretching he can reach his ring and small digits. Colonel Carpenter's hand surgeon was completely amazed and pleased at such determination and hard work by the patient and his therapy team; as well as what functional abilities he had accomplished with his left hand following this highly complex hand injury.

Colonel Carpenter comments the following about his traumatic experience:

"I believe that I would not have the degree of use of my hand that I now have after 4 months of therapy if it wasn't for the expertise of the doctor and his therapy group. I think that their recommendation of the CPM helped to speed the flexibility of my hand and reduce the time that it would have taken to reach this point in my recovery. The compassion and dedication of this group of people is like nothing that I have ever seen. This team, even after 4 months, found new things to try and new challenges on a weekly basis. Even working through their lunch to see that their patients and families get the care and information needed."



Mama bear with her cubs
Pictures taken by Colonel Carpenter