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Massage Therapy Decreases Hand Pain and Numbness in a Professional Viola Player: A Case Report

Introduction

In 1999, The US Bureau of Labor Statistics reported that “among major disabling workplace injuries and illnesses, median days away from work were highest for cases of carpal tunnel syndrome”. This syndrome is most commonly suffered by those who engage in repetitive wrist or hand movements. Neuromuscular Therapy has proven to be an effective treatment for carpal tunnel syndrome in a lifelong professional musician. The subject sought treatment for her condition very soon after she began to experience symptoms and was able to avoid missing much work as her symptoms decreased.

Neuromuscular Therapy (NMT) is a science-based form of massage therapy. The NMT practitioner aims to discover and treat the root cause of muscular pain and/or dysfunction through postural assessment, functional testing, and manual techniques.

Carpal Tunnel Syndrome (CTS) is defined as compression and irritation of the median nerve as it passes under the transverse carpal ligament of the wrist.

Trigger thumb or trigger finger is a condition in which a thumb or finger locks or catches as the digit is bent and straightened. The condition is also often accompanied by stiffness and pain.

Trigger points are extremely tender spots in muscle tissue. They occur when muscle fibers are stuck in a sustained contracture. This contracted position causes the muscle fibers to become ischemic, or lacking blood flow. The muscle fibers become malnourished and weakened; therefore painful and dysfunctional. They often refer pain to other locations in the body.

Myofascial Release (MFR) is a type of massage that addresses the myofascial connective tissue restrictions in order to restore greater ease of movement and eliminate pain. The MFR practitioner employs sustained, gentle pressure to shift layers of tissue, thereby allowing more fluid to move into the area, as well as lessening the tissue restrictions.

In 2010 it was published by the U.S. Centers for Disease Control and Prevention (CDC) that an estimated 3.1% of employed adults between the ages of 18 and 64 reported to have suffered from CTS in the last 12 months. More women than men reported suffering from CTS, at almost double the rates between the ages of 45 and 64.

Common symptoms of CTS include pain, numbness, and tingling in the palm side of the hand from the thumb to the radial half of the fourth finger, and the dorsal side of the distal phalanges of the second, third, and radial half of the fourth fingers. Other symptoms include swelling and stiffness in the hands, weakness in grip strength, and a feeling of hand incoordination.

Common treatments for CTS are wrist splinting, non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, corticosteroid injections, or surgery in which the transverse carpal ligament is severed to relieve pressure on the median nerve. Physical therapy or occupational therapy can often be useful in teaching patients preventative exercises that they can do while not working, or, if possible, improving postural habits and positions while working.

This condition is extremely troublesome for those who suffer from it because the symptoms make it difficult for the person to work, which threatens their livelihood. Additionally, the person's quality of life will often decrease because their symptoms inhibit their ability to engage in daily activities. Hands are unquestionably necessary for normal functioning in daily life: preparing food, hygiene related tasks, opening doors, lifting children, driving, etc. The decline in the ability to perform these activities leads to depression and feelings of despair, powerlessness, and hopelessness.

CTS is often caused by repetitive activities involving the wrists and hands, such as working in assembly lines, construction, massage therapy, painting, and typing/computer work. Women suffer from this condition more often than men, possibly because women have a smaller carpal tunnel, which indicates a more compressed space for the median nerve.

Literature Review

Keywords used in the search for more information on the effects of massage therapy on carpal tunnel symptoms were **carpal tunnel syndrome** and **massage therapy**.

In the article “Carpal tunnel syndrome symptoms are lessened following massage therapy” (Tiffany Field, Miguel Diego, Christy Cullen, Kristin Hartshorn, Alan Gruskin, Maria Hernandez-Reif, William Sunshine), participants were taught a self massage routine that was to be administered nightly, and they also received one massage a week by a trained therapist. These participants experienced a decrease in pain and paresthesia in the effected arm and hand and an increase in grip strength. They also reported a reduction in anxiety and depression.

Another article titled “Massage therapy as an effective treatment for carpal tunnel syndrome” (Rex Elliott, BSc [Hons], Brendan Burkett, PhD) describes a study which concluded that “massage therapy demonstrated effectiveness in the treatment of CTS, with significant symptom reduction and functional improvement from as soon as two weeks”. In this experiment, participants received massage in the neck and shoulder muscles, as well as upper arm, forearm and hand. The authors concluded that trigger points located in muscles proximal to the wrist may exacerbate CTS symptoms. These findings indicate that treatment is necessary to eliminate these trigger points, as well as directing attention toward all possible sites of entrapment. The massage treatment administered was found to be almost as effective as carpal tunnel surgery, making it a comparable option for this who wish to avoid dissection.

Both of these articles describe a carefully planned regimen of massage techniques in order to avoid inconsistencies. Yet, it is likely that massage therapy can be even more effective than this evidence shows, because these experiments don’t allow for a treatment to be tailored to each specific participant. Each instance of carpal tunnel syndrome is unique, though similar symptoms may be exhibited. There are innumerable variables that need to be taken into account when determining treatment protocol.

The multivariable approach is further evidenced by an article titled “Upper extremity paraesthesia: Clinical and reasoning” (Joseph E. Muscolino, DC). It describes the author’s experience with one patient whose complicated history made it difficult to determine the route cause of her upper extremity symptoms. Because of her history, she was predisposed to multiple conditions that would be capable of causing her symptoms. The author recognized that it was very likely that more than one of these issues could be manifesting at any given time to present the patient’s dysfunction and discomfort.

The Case

The subject is a middle-aged woman who has been playing the viola since childhood. She now plays professionally with a number of different groups and teaches viola to children. She also does some administration work for a church, which involves typing and desk work. A yoga practitioner for many years, she also enjoys riding her bike for exercise during nice weather. In the past, trigger thumb has been a problem for her in both hands. A neuromuscular therapist (who is no longer practicing) successfully treated her for this condition, and it has since resolved.

In February of 2018, she started experiencing numbness in her left hand, and about a week later, she was also having numbness in her right hand. She experienced the numbness while the hand and wrist were at rest, and it increased when she would pick things up or curl her fingers, on the left side more than right. This numbness, along with nighttime pain, was interfering with her sleep. She could only sleep 3-4 hours at a time. She was also experiencing stiffness and incoordination in her fingers. Some time later in her treatment, she realized that the numbness could have been triggered by a very complicated piece of music she had been practicing frequently in the weeks leading up to these symptoms. The piece involved a lot of intricate finger movements.

She went to see her physician about a week and a half after the symptoms started, and received a diagnosis of CTS. She started physical therapy the next day, and also started wearing splints on her wrists at night and for some hours during the day. She started taking naproxen sodium to further manage her symptoms.

It is important to note the timeliness in which the subject sought treatment for her hand numbness. Oftentimes, people suffering from these symptoms will put off seeing a doctor about it, and the condition just worsens. The subject exhibited a strong willingness to do whatever was prescribed by her physical therapist and wholeheartedly committed to her treatment. Her treatment, her calm, yet focused, attitude toward her condition indicated her unwavering desire to aid her hand and wrist dysfunction. Not only does her livelihood depend on her wrist and hand health, but her viola playing is a large part of her identity and something she loves to do.

The goals that she stated were the elimination of pain and numbness in her hands, and improvement upon the stiffness and incoordination in her hands. Eradicating or lessening these symptoms would thereby allow her to sleep more comfortably. In the first treatment, the case presented with a bilateral positive Phalen's sign and reverse Phalen's sign. The left hand started to go numb right away, and the right hand started to go numb after 15 seconds. She presented with heavily pronated forearms. She experienced pain in her left thumb with resisted thumb flexion.

At this time, seven sessions have been completed, approximately every 2-3 weeks. More time has been spent on treating her left hand and arm because the symptoms have always been worse on that side. The subject has extremely dry, rough skin, with patches of redness and sometimes scabs. She has said that her skin is very sensitive, and many skin products will irritate it. MFR techniques were employed to give her hands and forearms more freedom of movement. The focus of treatment was on lengthening pronator teres and all the forearm flexors. Much attention was paid to all the muscles and corresponding tendons that pass through the carpal tunnels: flexor digitorum superficialis and profundus, and flexor pollicis longus. The intent of treatment in these muscles was to lengthen, treat trigger points and release restrictions on the tendons. On both forearms, treatment was focused on trigger points in brachioradialis and extensor digitorum. Both biceps brachii were treated with lengthening techniques and bilaterally all pollicis muscles with broadening and lengthening strokes and trigger point therapy. Specifically in her left forearm, a chunk of time was spent treating her supinator muscle, which has become overworked due to the strongly supinated position she holds while playing the viola. Specifically in her right forearm, flexor carpi ulnaris was thoroughly treated. This muscle is

heavily involved in the action of wrist deviation, which the subject employs as she moves the bow across the strings while playing the viola.

After a few sessions, more time was spent on treatment of her neck. Her sternocleidomastoids are extremely tight and rigid, as well as her upper trapezius muscles, levator scapula, and scalene muscles. She started working with an occupational therapist in conjunction with her physical therapy, who suggested improving mobility in her neck. Currently, it is still believed that the numbness is coming largely from nerve compression in her forearms; however more testing is needed to discern whether compression could also be occurring in her neck or torso.

At this time, the subject still reports a positive Phalens sign on the left side only; however the numbness is now delayed by 27 seconds as she holds the position on the left side. At the fifth treatment, she exhibited a positive Tinel's sign on her left wrist, but negative on her right. In the sixth and seventh sessions, she exhibited a negative Tinel's sign bilaterally. She reports that she is no longer having pain at night. She experiences numbness in her hands less often, less intensely, and for shorter durations. Usually, she only notices numbness or tingling every few days, and she reports "only a couple of twinges" while practicing the viola. She also reports less stiffness and incoordination in her hands and an increase in freedom of wrist movement. She no longer feels that her viola playing is suffering from the effects of this condition.

Discussion

The treatment has been successful in meeting many of the subject's goals. She now sleeps comfortably every night and has been able to continue playing viola professionally and also has continued her job at the church that involves a lot of email correspondence. She has started using the dictation feature to compose emails, so her wrists and forearms can rest. She is still going to physical therapy and occupational therapy to address neck tension, wrist mobility, and hand numbness. She is still receiving NMT regularly, about every 2-3 weeks.

Working with this subject has been a very enjoyable and educational experience. She has been eager, curious, actively involved, and open minded about her treatment. It was quite useful

to watch her pantomime playing the viola so it was easier to thoroughly break down each action and discern which muscles are at work, since this is a unique and asymmetrical activity. It was also helpful to ask as many questions as possible about her experience while playing, such as: Where do you place your music stand? Is it always in the same place? Which way are you turning to look at it? In this way, it was possible to gather more information about what muscular distortions may be taking place in her body.

The subject experienced marked improvement in her symptoms after only one NMT session (she was able to sleep through the night without pain). However, much of her improvement should be attributed to the immediacy in which she sought treatment for her condition and her sincere commitment to her multidimensional treatment plan.

The occupational therapist was able to offer suggestions on improving her posture and hand positioning after observing her playing the viola. The subject is now able to curl her fingers without tingling, so she has begun strengthening her hands using putty. The physical therapist has been focusing on her neck and shoulders, aiming to help release tight levator scapula and upper trapezius muscles and strengthen scapula retractors and humeral external rotators. The subject is now strengthening those muscles using resistance bands.

It is difficult to discern which of these modalities is the most valuable for improving CTS symptoms. In order to further research this question, it would be necessary to track a few CTS patients' progress as they carry out treatment plans for only one modality: one subject gets treated in NMT, one in occupational therapy, one in physical therapy. In this way, it would be possible to gather evidence to support a theory on which modality is most successful.

This subject's multi-pronged approach has allowed her to refine her playing technique to be more effective and comfortable, while causing less irritation on her nerves and muscles. Another factor in her progress was her recognition that she needed to suspend her frequent practicing for a time, in order to focus on healing. She has since been able to add more hours of practice and performance back into her professional life. This genuine attention to detail in recovery is clearly due to her desire for consistent employment and her love of playing her instrument.

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