

# **JOURNAL OF THE AMERICAN MANUAL MEDICINE ASSOCIATION**



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Medical Massage and Medical Manual Therapy**

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## **Journal of American Manual Medicine Association**

The Journal of American Manual Medicine Association was created to serve as a rational scientific voice for the medical massage and medical manual therapy community. The AMMA Journal is peer reviewed scientific publication. Articles and papers that are published in the AMMA Journal are presented in three main subject groups, editorial opinion, and scientific research, and legal, regulatory, and political events that pertain the medical massage and medical manual therapy professions.

Articles and papers written by outside contributors to the AMMA Journal do not necessarily reflect the view or position of the American Manual Medicine Association.

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## ***From the editor...***



Dr. Gregory T. Lawton

**Dear AMMA Member:**

**In this issue you will find articles and research papers that have been submitted by the AMMA membership. The purpose of this issue is to provide our members with an “inclusionary” experience and the ability to contribute directly to their professional journal, JAMMA.**

**There is a noticeable lack of quality research and articles prepared and written by massage and manual therapists. One of the avowed purposes of JAMMA is to remedy this deficiency by giving our medical massage and medical manual therapy members a voice. This issue is dedicated to our members who have prepared papers related to the study and practice of medical massage and medical manual therapy.**

**This issue is also, in a sense, a celebration of our associations diversity of interests and expression of opinions. Through these articles and papers the contributing AMMA members demonstrate that we are indeed an organization of varied backgrounds and a broad membership base.**

**As a member of the AMMA you have completed a concentrated program of study in medical massage, passed the most difficult national board exam in the profession, and you stand at the highest pinnacle of the massage profession. To remain at the top you need to invest in your professional development on a daily basis. Since you are a medical massage therapist there is simply no limit to the knowledge that you need and can acquire that pertains to the conditions that you treat and the practice skills that you need to master. Your acquired knowledge and abilities pertain to being able to sort out the numerous false doctrines, pseudo scientific theories and fringe practices of your profession so that you do not commit the ethical errors of other massage therapists and so that you can select the most appropriate technique or treatment protocol for your patient.**

**One of the primary purposes of the American Medical Massage Association is to create a distinctive identity for our members through the actualization of the highest professional standards in the industry. Hopefully it is the members of the AMMA, through their professional conduct and high educational standards that will contribute to uplifting this noble profession.**

**Yours in good health,**

**Dr. Gregory T. Lawton**



As a manual therapist, I enjoy the fact that I have the opportunity to learn and grow with every client that comes into my office. My fervent desire is that this educational journey would never end.

Through both the joys and storms of life there is impact on life; there are lessons to be learned; there is opportunity for growth.

As a practicing therapist and educator, I try to cultivate this same desire for growth with my clients and students on a daily basis. I am thankful that many have risen to the challenge.

The articles in this issue of JAMMA have been contributed by therapists just like you. They are individuals who understand that learning never ends, and have a hunger to grow and blossom to their full potential.

If you too wish to contribute to JAMMA, please feel free to contact me. I would love to hear what you have been researching and its effects on you and the clients whose lives you touch.

Thank you for the honor to serve you as together, we continue along this educational journey.

Christina Harangozo

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## **Submission Guidelines**

The Journal of American Manual Medicine Association is a peer reviewed scientific journal that publishes research and articles related to manual medicine.

### **How to Submit:**

- Potential articles must be an original contribution to, or report in, the field of medical massage and manual therapy. It must use objective evaluation criteria. Articles are subject to editorial and peer review.
- Articles should be submitted by e-mail as a Microsoft Word or rich text format document to [JAMMA@americanmedicalmassage.com](mailto:JAMMA@americanmedicalmassage.com)
- Include your name, address and the best way to contact you.

JAMMA is published quarterly by the American Manual Medicine Association. If your article is chosen to be reviewed, you will be contacted.

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## **The Effects of Manual Therapy on Sciatica**

### **Jessica Novorolsky**

“The homeosomatic theory of treatment is based on the hypothesis that the tissue and the systems of the body respond best to therapies that work in concert with the natural processes and functions of the tissues and systems. That is, the body best responds to treatments that are most like the body’s own natural processes (pg. 7, Therapeutic Modalities)”. Manual therapy uses a homeosomatic approach in the application of techniques. Through the application of manual therapy techniques, medical massage can greatly help the patient’s condition of sciatica. The symptoms associated with sciatica are treated via soft tissue work. Mobilization and manipulation techniques help to reduce the patient’s pain, discomfort, weakness, numbness, and tingling generally experienced with the condition. Medical massage is manually applied to specific areas depending on the client’s chief complaint and pathology. Joint evaluation tests are performed through palpations and soft tissue findings. Techniques are used in a series of steps as a protocol to address the joint complex’s abnormalities and dysfunction.

Manual therapy is a specialized form of physical therapy applied through the hands of the therapist. In manual therapy, practitioners use their hands to put pressure on muscle tissue and manipulate joints in an attempt to decrease pain caused by muscle spasms, muscle tension and joint dysfunction. Manual therapy involves restoring mobility to stiff joints and reducing muscle tension in order to return the patient to a natural range of motion. These techniques are applied through soft tissue work and massage by applying pressure to the origin and insertions of muscles of the body. Massage can help relax muscles, increase circulation, break up scar tissue, and ease pain in the soft tissues. More advanced methods of treatment are applied through mobilization, manipulation, and bony lever techniques. Mobilization and manipulation techniques are applied by the use of movement known as dynamic folding. This movement is used to place the muscle into its action and creates a passively contracts the tissue. The motion creates a soft pocket in the tissue that allows the therapist to penetrate deep into the joint. Bony lever technique is the process of varying cadences to stretch or strengthen connective tissue. These techniques require focused and deliberate movements. The goal is to twist, pull, or push bones and joints into proper positioning and increases the joint’s range of motion. Bony lever techniques are applied to the vertebra of the spine based on tension findings, pain sensitivity, and vertebral movements such as a shift, rotation and tilt. Through vertebra manipulation the therapist is able to help relieve tension on the spinal cord. This process can help loosen tight tissues around a joint, reduce pain in the joint and surrounding tissue, and help with flexibility of the joint complex.

Sciatica is defined as compression and irritation of the sciatic nerve causing low back pain that radiates down through the gluteus and into the lower leg. It is made up of a bundle of nerves that run from L<sub>4</sub> – L<sub>5</sub> and S<sub>1</sub> – S<sub>3</sub>. The sciatic nerve is the thickest nerve in the body. It runs out of the sciatic notch of the pelvis, through the deep lateral rotators of the hip, and down the back of the leg. Here it splits into a common peroneal division and then runs down into the lower leg and foot which is the tibial division. The sciatic nerve is difficult to damage because of the thick musculature surrounding it, but it can be irritated and compressed if the surrounding tissue becomes tight and shortened. The added irritation can lead to inflammation in the surrounding tissue. Radiating nerve pain or referred pain is caused due to nerve compression that is felt along

the entire length of the nerve. “Sciatica occurs when the sciatic nerve is “pinched”, either by a swollen, bulging disk in front; by swelling of ligaments behind the facet joint; by a fragment of the interior or outer portion of a disk that has broken through or off of the annulus fibrosus and has entered the spinal canal; or by a combination of these factors (pg. 21, Swezey, Robert L. M.D.)”. Muscle spasms and irritations in the piriformis muscle causing it to become inflamed from injury or over-exertion can also lead to sciatica. Other factors and conditions such as infections, impacted bowels, injury, pregnancy, tumors, arthritis, ankylosing spondylitis, spondylolisthesis, and spinal stenosis can all trigger and contribute to sciatica.

Physicians’ are able to run a variety of tests in order to diagnose sciatica. MIR, CAT scans, X-rays, physical examination to determination of the range of motion of the spine, a root tension test, and evaluation of the neurological status of the lower limbs are all diagnostic tools available to Doctors. Table examinations include the straight leg lift test, related pain test, neurological examination of leg, motor strength test and lumbar area motion and range test. For the treatment of sciatica, Physicians’, recommend decompression surgery, spinal fusion surgery, microdisctomy, pain medication, or physical therapy depending on the severity of the condition.

The Jo Miller is a seventy-two year old, retired white female and a non-smoker. For thirty years, she and her husband ran an office design store. She sat at the desk most of the time doing paper work. They eat out at restaurants at least twice a week. At home they try to eat healthy, their diet was the meat and potato generation. She consumes a moderate amount of water and alcohol and very little caffeine. Three years ago her physician diagnosed her with sciatica. Her physician performed table diagnostic tests for her diagnosis. He opted not to send her for a MRI. She was referred out when first diagnosed to a physical therapist for treatment of her condition. Stretches and strengthening exercises were assigned for the correction and alleviation of her condition and symptoms. After six months of therapy her symptoms had completely been resolved for the time being. Her symptoms returned within the next year causing numbness, tingling and discomfort in the patient’s lower back that radiated down through her lower leg. The client returned to physical therapy but only had a mild relief of her symptoms.

The discomfort of her sciatica starts in the lower lumbar regions on the right side tracking down through the buttocks and down the leg. In the morning she wakes feeling stiff. The symptoms either subside or intensify depending on her daily activities. Flare-ups of her symptoms are experienced after long hours of being on her feet or when walking for long periods.

Without MIR test results disk dysfunctions are difficult to identify. A herniated disk in the lumbar vertebra is one of the main causes of lower back pain and sciatica. As the disk produces from the spinal column, it causes nerve compression and irritation to the surrounding tissue. It was recommended for the client to discuss MIR testing for a complete diagnosis of her condition.

The sacrum and the coccyx are fused bones at the base of the vertebral column. They are the foundation and the base of the spinal column provided an attachment site for muscles, tendons, and ligaments of the lower back, pelvic girdle, and thighs. The abdominal muscles attach at an oblique angle to the lower back muscles to help balance the weigh distribution of the upper body. Weak abdominal muscles and extra weight in the stomach region draws the torso forward and increases the anterior rotation in the hips. Antiversion or an anterior rotation of the hips is when



the iliac crests of the pelvis roll forward drawing the trunk into flexion. As the hips roll forward it increases the lordotic curve in the lumbar vertebra. Extra strain is placed on the lower back because the back muscles overcompensate to draw the torso upright. The lower back muscles become fatigued and weakened, leaving the vertebra susceptible to injury or dysfunction.

A treatment plan was discussed with the patient. For three weeks she would receive two treatments per week. At the end of the third week her progress would be reevaluated. Patient education is a vital aspect of medical massage therapy. In order to improve a patient's condition or disease they must understand the importance of their weekly treatments and at home care. By providing the client with the information and explanation necessary of their treatment plan; they are more apt to take an active roll in their at home care. Each stretch should be held for a full thirty seconds, to allow the muscle to become fully relaxed in order to receive an actual stretch. Regular low impact exercise is also recommended such as walking, swimming, leg circles to help increase the range of motion in the hip joint. Moist heat such as a hot shower or heating pad with a damp cloth, should be used for fifteen minutes before the client stretches and exercises. The heat will increase tissue extensibility and joint range of motion before the target area is worked out. Then the area should be iced for fifteen to twenty minutes after the activity is completed to decrease inflammation and irritation to the hip region.

During the reevaluation of the client's progression after a few weeks of treatment the symptoms have been improved but not significantly. The assigned stretches and light exercises have been helping but the client still was unable to find relief from her symptoms for an extended period. Upon further investigation the client revealed that she has been chronically constipated. All muscular pain is caused either chemically, hormonally, or by an injury. Without MIR results there is no way to detect an injury in the lumbar vertebra. The client is past the age of menopause ruling out possible hormonal problems. As fecal matter becomes impacted and clogged in the intestinal track and colon it adds to the compression and inflammation in the pelvic region. Toxic chemicals are released into the surrounding tissue causing irritation.

The majority of our population eats the standard American diet, high in fat, sugar, and processed foods and very low in fiber, whole grains, fruit and vegetables. A lack of water consumption and an increased consumption of caffeine products such as coffee and soda dehydrate the body. Poor diet, lack of hydration and lack of exercise are a few leading causes of constipation. As the amount of fecal matter increases it starts to harden and dry out leaving the gut bloated, hard and heavy. Toxins are released into the body irritating the surrounding tissue and can cause inflammation. This increased pressure can intensify and trigger low back pain because of the irritation to the surrounding tissue and structures.

After application of the abdominal massage the client did find temporary relief of her constipation. Jo, experienced no pain or symptoms of sciatica for the next two days. A colon cleanse was recommend to alleviate her constipation. An increase her dietary fiber and water intake was recommended. Aloe Vera juice was recommended as a daily supplement because of its natural healing and detoxifying powers. The aloe Vera works gently within the intestinal tract to help break down impacted fecal matter gently cleansing the intestinal track. Another recommendation as an alternative for laxatives is GNC Colon Cleanse tablets, this can be taken

as needed for constipation relief. The tablets are all natural and consist of fennel seed, peppermint, papaya, rose hips, buckthorn bark, barberry root, celery, and acidophilus.

As the weeks progressed Jo had marked improvement in the range of motion in the pelvic girdle. The flexibility and extensibility in the right hip was increased. Through the progression of the treatments, the tissue texture became less spongy and fibrotic. There was less resistance in the right hip during the application of the treatment. Laterally rotation, hip hike and hip compression in the right hip were significantly reduced by the first month of treatment. The antiversion had slight improvement helping to reduce the rotation in the lumbar vertebra. Once the client's chronic constipation dissipated by the use of the aloe Vera juice, GNC colon cleanse, and the abdominal massage; her symptoms greatly improved. The stretches and exercises performed daily dramatically aided in decreasing the stiffness in the hip. The number of treatments was reduced to one time per week until further re-examination.

The application of manual therapy techniques on the lumbar vertebra and pelvic region had significant improvement on the condition sciatica. The techniques effectively increased range of motion, decreased pain and muscle tension, and help to improve the dysfunction of the joint complex. In order for the client to receive the most effective treatment for their condition, the therapist and the client must work together. The treatment and application of manual therapy techniques is only a portion of the service a medical massage therapist provides for their client. It is the therapist's job to educate their client on the importance of their at home care. The client and their therapist should discuss the treatment plan in order to define the treatment goals and expectation of the therapy.

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## **Carpal Tunnel Syndrome: Wrist pathology or Government Conspiracy?**

### **James Ayers**

The answer is wrist pathology.

Carpal Tunnel Syndrome (CTS) is an idiopathic condition associated with several other health concerns and a variety of activities and occupations. Reduced to its most basic definition CTS is a combination of signs and symptoms caused by the compression of the median nerve between the carpal bones and the transverse carpal ligament. The philosophy of care for this condition ranges from physical and/or drug therapies to surgical intervention. The most successful course of treatment for the management and eventual reverse of carpal tunnel syndrome, when not a symptom of another pathology, is a combination of lifestyle changes and manual therapy.

To understand why the median nerve is so prone to compression the anatomy of the area must be examined. The carpal tunnel is located at the distal wrist and is made up of the eight carpal bones on three sides in a semi-circle and covered by the transverse carpal ligament or flexor retinaculum. The median nerve and the nine tendons belonging to the flexor digitorum profundus, flexor digitorum superficialis, and flexor pollicis longus occupy this limited space. Thus any amount of inflammation or edema in the area will immediately begin to cause nerve impingement. The median nerve begins at the brachial plexus and has roots from C6 to T1. It tracks distal down the medial side of the humerus and lateral side of the ulna through the carpal tunnel and enervates the first, second, third, and half of the fourth fingers. In a double-crush scenario, which will be discussed later in the paper, CTS can be caused by an impingement anywhere along this path.

When impingement occurs the signs and symptoms of CTS will present as any combination of the following: numbness, tingling, paresthesia, weakness, difficulty gripping and making a fist, coldness, burning, pain radiating up arm or down to fingers, fingers feeling useless or swollen, inability to distinguish hot and cold, and a tendency to drop things. All of these symptoms are indicative generally of a nerve problem but not specifically CTS making a diagnosis difficult.

There are two subjective and two objective methods currently used to diagnose CTS. The two subjective are Tinel's test and Phalen's maneuver. Tinel's test involves a doctor pressing or tapping on a patient's anterior wrist with the wrist in extension. The test is positive if tingling or shock-like sensations occur. Phalen's maneuver involves sustained wrist flexion. The patient holds the dorsal surface of the hands together with fingers pointing down. The test is positive if numbness or tingling is felt within one minute. The two commonly used objective diagnostics are a nerve conduction test and electromyography. In a nerve conduction test electrodes are placed on the hand and wrist. Small electric shocks are then applied and the speed with which the nerves transmit the impulses is measured. For electromyography a fine needle is inserted into the muscle and the electrical activity is measured. Ultrasounds are sometimes used to view impaired movement of the median nerve. MRIs are useful for showing anatomy but not helpful in diagnosing CTS. According to Steven Bailey, ND, of Portland, Oregon, Thoracic Outlet Syndrome (TOS) is commonly misdiagnosed for CTS.

The distinction between CTS and TOS is vital for choosing proper treatment. The two can sometimes exhibit similar symptoms, as they are both caused by nerve impingement, but the root of the pain is different. In TOS symptoms are caused by an impingement of the brachial plexus possibly due to inflammation of the scalenes or pectoralis minor. TOS typically will affect the radial or ulnar nerves, but not the median nerve. A manual therapy treatment for TOS will look similar to one for CTS, given that they are both nerve pathologies of the upper extremity, but the intent will not be the same.

As of yet no one definitive cause of CTS has been found. It is seen secondary to several other pathologies such as rheumatoid and osteoarthritis, amyloidosis, sarcoidosis, multiple myeloma, leukemia, and acromegaly. Sometimes hormonal disorders and imbalances including diabetes, hypothyroid, hyperthyroid, menopause, and pregnancy may be the cause. In an interview with Grace Hinkle RN pregnancy was described as a factor due not only to increased fluid retention but also due to hormonal changes which cause muscles to relax allowing more mobility in the joints and encouraging slippage and impingement. It is also linked to obesity, repetitive strain, congenitally narrow carpal tunnel, fracture, sprain, strain, bone spurs, tendonitis, tendosynovitis, bursitis, cysts, tumors, stress, lyme disease, gout, double-crush, disc disease. A curious correlation has been found too between vitamin B6 deficiency and CTS.

CTS is found in 1 in 10 Americans and dates back to the early 20th century although it was not definitively diagnosed until 1950. It is found in women three times more often than men, possibly due structurally to a narrower carpal tunnel. Incidence peaks after middle age, typically occurring in post-menopausal women over 50, although it is seen earlier. Women on birth control are also more prone to CTS. It has been suggested that this is due to the contraceptives interfering with B6 absorption.

Those with industrial occupations that involve repetitive hand movements, repeated gripping, grasping, and manipulating with a flexed wrist, forceful pinching and high impact or vibration are in a high-risk group for developing CTS. These include: operators of power tools such as jackhammers, carpenters, grocery checkers, violinists, meat packers, and manufacturing or assembly line workers. Hobbies that involve awkward and repetitive wrist and finger motions such as gardening, needlework, golfing, and canoeing can be contributing factors as well. CTS is seen in data entry and computer related office work although it is three times more likely in industrial work.

Lifestyle has a tremendous impact on the likelihood of developing CTS. Choices in diet, a lack of exercise, smoking, and overall stress levels will all contribute to creating a toxic, pro-inflammatory environment in the body. As described in the Encyclopedia of Natural Healing diet and nutrition play an integral part in the treatment of CTS. Foods to focus on include whole grains, seeds, nuts, soybeans, fresh salmon, brewer's yeast, molasses, liver, wheat bran and germ, and cod. Eliminate yellow dyes as they interfere with B6 absorption. Avoid stressor foods such as sugars, caffeine, processed grains, and corn. Include foods high in B6 like cabbage, spinach, carrots, and legumes. Avoid caffeine, alcohol and soft drinks as they bind magnesium. Limit protein intake. Bromelain, found in pineapple, is an excellent anti-inflammatory that has been shown to speed recovery time, decrease swelling, bruising, and pain following injury or surgery. Supplements of glucosamine, turmeric, horsetail, evening primrose oil, and ginkgo biloba are recommended.

Vitamin B6 therapy is recommended for the treatment of CTS due to its role as a catalyst in several metabolic processes. It also has an important role in the blood, skin metabolism, and central nervous system. Deficiency is common due to malabsorption, alcoholism, oral contraceptives, and chemical inactivation by drugs. It is unknown why B6 deficiency manifests as CTS in particular. Several studies by John Ellis, MD, and Karl Folkers, Ph.D., at the University of Texas have shown a correlation and positive results from B6 supplementation therapy. The patient must be diligent, however, as it may take up to three months to see a result.

It is important to rule out and treat possible underlying causes before beginning treatment of CTS as it may only be a symptom of a much larger pathology. When symptoms first occur the initial prescription is usually rest for the affected hand for two weeks and avoidance of any activities that may worsen symptoms. Drug therapy may be prescribed depending on the physician. These may include non-steroidal anti-inflammatories (NSAIDs) such as ibuprofen or aspirin. NSAIDs are only effective for short term pain relief and typically prescribed when symptoms have only been present a short time and are due to strenuous activity. Diuretics are prescribed when CTS is due to fluid retention associated with pregnancy or thyroid issues. Corticosteroid injections are used to relieve pressure and provide immediate, temporary relief in mild cases. They are not for long term use.

Exercise and physiotherapy, often guided by a physical or occupational therapist, are effective for calming flares. It is important for the client to be diligent about their self-care if the therapy is to truly make a difference. Exercise is proven useful in mild to moderate cases for short and long term management. It controls the process but does not cure it if other factors are ignored. Ergonomics have an impact not to be overlooked such as the relationship between chair and computer height, or the relationship between operator position and the assembly line. The patient should look at improving posture. This should include sitting or standing up straight; slouching rolls shoulders medially and places neck in extension putting pressure on the brachial plexus. Also the patient should observe form in their hands – avoiding working hyperflexion and hyperextension for extended periods. Reducing force and grip, and taking frequent breaks to stretch will help to prevent overuse. Keeping hands warm will help to maintain circulation.

Braces or splints are prescribed to help keep the wrist straight and avoid putting pressure on the median nerve. Braces are more likely to be effective in mild to moderate cases that have been occurring less than a year. They are for short-term use only as extended wear results in adaptive shortening and muscle atrophy. They should only be worn at night or during activities that are primarily causing stress.

Conventionally surgery is viewed as the final solution for CTS. There are two types currently practiced, endoscopic and open palm. In endoscopic surgery two incisions are made (1/2" each) in the wrist and palm. A camera is then inserted attached to a tube by which the surgeon observes the tissue and cuts the carpal ligament. It is performed under local anesthesia, typically 10-20 minutes, is effective and only causes minimal cosmetic scarring. In an open palm procedure a 2-inch incision is made in the wrist and the carpal ligament is cut. It too is performed under local anesthesia and takes 10-20 minutes. Studies indicate that either technique will leave patients with similar results in 6 weeks. No mention is made the effects of internal scarring or adhesion.

Endoscopic surgery typically yields a faster initial recovery time but this is offset by slightly higher complication rates. Both surgeries have a 90% or better success rate with the most common cause of failure or recurrence due to misdiagnosis of another problem. When conducting either procedure the surgeon will choose to cut the carpal ligament in either a straight line or in a "z" pattern. Both methods will impair the patient's ability to grasp or grip, but the "z" method leaves more connective tissue intact. The theory behind both procedures is that by cutting the carpal ligament more room will be created in the carpal tunnel thus relieving the pressure on the median nerve. Though time and again research points toward surgery as the ultimate solution to CTS not once did the author of this essay find mention of the long term side effects of having the transverse carpal ligament cut. Given the chronic problems developed by those who tear or completely sever other ligaments in the body, and not to mention the effects of the pain-spasm cycle on something as common as a sprain, it is a mystery to this author as to why this is not the first thing discussed when surgery is considered an option.

Manual therapy provides an excellent alternative solution for both pain management and overall reverse of CTS. According to Dr. Lawton in his General Rehabilitation Protocols manual CTS is a biomechanical disorder resulting from metabolic and immune system deficiencies that leads to a progressive inflammatory process of the connective tissues. This outlines why it is so vital to partner the lifestyle and nutrition changes outlined earlier with manual therapy treatments. The nutrition changes will allow the body to restore and normalize proper biological and chemical function; while manual therapy treatments will interrupt the inflammatory process helping to restore circulation and allowing the body's healing mechanisms to take over.

As outlined in Dr. Lawton's Therapeutic Modalities manual the manual therapist has several modalities available which could have a positive impact on CTS. Thermotherapy, cryotherapy, actinotherapy, and hydrotherapy, in particular, are known to be especially effective. When choosing a modality it is important to take into consideration the cause of the individual's CTS.

For cases of CTS caused by a repetitive strain thermotherapy is beneficial. The heat will draw circulation to the area it is applied relaxing overworked muscle and tendon. Castor oil packs applied to the wrist and forearm, paraffin dips, and friction rubs with various liniments are all effective methods of heat application. If CTS is being caused by fluid retention or the hand and wrist are desensitized to temperature thermotherapy is contraindicated.

Cryotherapy may be used in conjunction with thermotherapy or as a modality by itself. It is contraindicated if the patient has numbness, Raynaud's disease, impaired circulation, numbness, or a hypersensitivity to cold. With the exception of these few contraindications cold is recommended in most all cases of CTS. Cryotherapy will provide the benefit of decreased pain, edema, and inflammation, and a numbing effect on trigger points.

Hydrotherapy, specifically the contrast bath, will help to stimulate local circulation. The patient should use a 4:1 hot to cold ratio when applying the bath. For example submerge hands and wrists in hot water for 4 minutes and then in a cold shock for 1 minute. Hot and cold may be alternated multiple times but the patient should end with heat.

Actinotherapy is an excellent choice for a CTS treatment and, barring a tumor or photosensitivity at the wrist, there are no contraindications. It is also effective at all levels of severity because it does not require physical contact. The light therapy will decrease pain and edema, while increasing local blood flow, and stimulating tissue healing.

All of these modalities can work well either by themselves or as part of a manual therapy treatment, are easily accessible and inexpensive, and a patient can be instructed to use them at home. This is a great benefit to a patient suffering from CTS as it allows for the client to delay, or altogether prevent the need for surgery, and places access to the healing process in their hands.

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#### **What is Diabetes & How does Massage Therapy impact it?**

**Kate Eckert**

Diabetes is a largely treatable and even preventable disease. Massage therapy is good for diabetes because it helps to increase circulation of blood and lymph, it works directly with the muscles and connective tissue to facilitate greater mobility and it promotes relaxation in which helps to reduce stress in the patient.

What is Diabetes? Diabetes is a disease in which the body doesn't produce or properly use insulin. Insulin converts sugar, starches, and other food into the energy you need everyday.

There are four main types of Diabetes, Type 1 Diabetes, Type 2 Diabetes, Gestational Diabetes, and Pre- Diabetes.

Type 1 Diabetes results from the body's failure to produce insulin. It is also known as "insulin-dependent diabetes mellitus" and it is an auto immune disease. (1)

Type 2 Diabetes results from insulin resistance, where the body fails to properly use insulin along with relative insulin deficiency. This variety is also referred to as "non-insulin-dependent diabetes mellitus", but that name is no longer accurate. (1)

Gestational Diabetes occurs during pregnancy. This must be monitored regularly. Other types of diabetes may arise from this later on.

Pre-Diabetes is a condition that occurs when there are elevated levels of blood glucose, but not high enough to be diagnosed as Type 2.

Who can you seek to help you with Diabetes? First and foremost you should consult your primary care physician. Podiatrists are a good source for your feet. There are diabetes educators, dietitians, counselors, mental health workers, family and friends.

The most common Signs of Diabetes are: being very thirsty, urinating often, feeling very hungry or tired, losing weight without trying, having sores that heal slowly, having dry/itchy skin, losing the feeling in your feet or having tingling in your feet, and blurry vision. The most common symptoms or complications of Diabetes are cardiovascular disease, Increased risk of stroke, hypertension, & aneurysm, Edema, ulcers, gangrene, amputations, Kidney Disease, Impaired vision, Neuropathy, urinary tract infections, candidiasis, birth defects, and higher than normal rates of gum disease and tooth loss.

What can you do to prevent Diabetes? You must be willing to make important changes in your life style. Healthy weight, healthy diet, and regular exercise are the best ways to do this.

How do you maintain your Diabetes once you have it? Most Doctors will give specific instructions for a meal plan, exercise, testing blood sugar levels, and to take medicine (if needed) exactly when the doctor says to.

How is Massage Therapy beneficial to help treat Diabetes? First of all, massage promotes relaxation. Relaxation decreases stress, and stress is a big factor for diabetes patients. They are constantly trying to maintain good levels and they worry about complications that may occur with the balancing of their new medications, etc... Massage calms the nervous system; it also brings about much needed rest and a sense of well being to the body. It is also thought that massage can put you more in tune with your body so you detect changes in relation to the diabetes sooner. Second, Massage helps to increase circulation of blood and lymph. This helps to nourish the body on a cellular basis. This then helps to promote wound healing in superficial tissues like on the feet. "Improved circulation allows for more efficient uptake of insulin by the cells." (5) Thirdly, "Massage works directly with the muscles (myo) and connective tissues (fascia), helping to facilitate greater mobility in the body." (5) This is very important because elevated blood sugars can cause a thickening of connective tissue in a diabetic. Exercise for ROM and stretching are also important for the health of the myofascial system.



Potential dangers or cautions and considerations for massage with diabetes...”Changes in blood glucose levels can and do occur when people with diabetes receive massage. These changes may happen, regardless of massage. But because of the relaxing nature of massage, and the somewhat altered state of awareness that can occur, a drop in blood sugar can be difficult to notice. Some diabetics can tell when their sugar level is dropping; others experience what is called hypoglycemic unawareness, in which they are not aware of a serious drop in blood sugar. Even people who usually are aware can occasionally experience hypoglycemic unawareness. Hypoglycemia, low blood sugar, is a serious condition and can lead to unconsciousness, and , rarely, death.” (5) As a massage therapist it is good to know what signs to look for. Some of these signs are excessive sweating, faintness, headache, unable to waken, irritability, change in personality, rapid heartbeat, and spaced out tendencies. If blood sugar is low, they need sugar fast! Good sources are fruit juice, honey, a sugary drink, or glucose tabs. Always have your patient recheck their blood sugar before they leave your office.

As a Massage Therapist, why do I care about treating Diabetes? Diabetes awareness is good because not all patients give factual information. If an episode should occur during treatment I now have an understanding of how to treat/take care of my patient. Diabetes also runs in my family. The more I know now, the earlier I can detect it in myself and others. As a therapist, if I am able to promote healing through circulation, stress management through relaxation, and am able to facilitate greater mobility in the body than I know that I have effectively helped someone to have a better day, and even a better life.

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## Peripheral Neuropathy

**Sara S. Harring**

Peripheral Neuropathy is a condition in which the peripheral nerves, that is the nerves that run to the extremities such as arms and legs, are damaged. Some of the primary symptoms of this condition are pain, tingling or numbness especially in the feet. Peripheral Neuropathy is not a disease in and of itself but it is symptomatic of other disorders and diseases, some of these are systemic, physical trauma, infections & autoimmune, inherited or complications of medications. Diagnosis of this condition would be done by a general physician where a thorough patient history would be taken as well physical examination and lab testing. The following information

will show how massage therapy and modalities can play a part in the treatment of peripheral neuropathy.

### Symptoms:

People with Peripheral Neuropathy will usually first show signs of symptoms in the feet although it affects the hands, arms and legs as well. Each individual will have different degrees of symptoms. People may or may not experience all of the following, especially at night:

- Tingling
- Burning
- Prickling
- Numbness
- Insensitivity to pain or temperature
- Sharp or shooting pain
- Cramps
- Extreme sensitivity to touch, even light touch
- Loss of balance & coordination

Muscle weakness may also occur if there has been motor nerve damage, which in turn may cause muscle atrophy. This could affect the function ability and may result in deformities in the effected areas, especially the feet. Blisters and sores may go unnoticed and become infected resulting more serious condition where amputation may need to be considered. People experiencing lack of sensitivity to temperature are extremely vulnerable to getting burned; therefore caution should be taken where hot water or flame is involved.

### Diagnosis

Initial assessment must be performed by a general physician. During the examination the physician would test reflexes, sensitivity to touch and temperature, muscle strength, blood pressure and heart rate. In addition to the physicians visual examination, the patients history is in intricate part of determining the condition as it may show diseases, trauma or deficiencies that are already associated to peripheral neuropathy. Further testing may be required by way of computer tomography, MRI, EMG, NCV, or skin biopsy to determine the origin and extent of nerve damage of an underlying condition.

### Causes

“Peripheral neuropathy may be acquired or inherited. Acquired peripheral neuropathy is grouped into three broad categories: those caused by systemic disease, those caused by trauma from external agents, and those caused by infections or autoimmune disorders effecting nerve tissue.” (National institute of neurological disorders, Peripheral neuropathy fact sheet)

The following systemic diseases and disorders are contributors to peripheral neuropathy.

- Diabetes (one of the leading causes of peripheral neuropathy)
- Vitamin deficiencies (particularly E,B1,B6,B12 which are essential for nerve health)
- Alcoholism (associated to malnutrition)
- Kidney or liver disorders (causing toxins in the blood that damage nerves)
- Hormonal imbalances (compromise metabolic process)
- Vascular damage and blood diseases (decreased of oxygen can cause damage or death of nerves quickly)
- Connective tissue disorders and chronic inflammation (causes compression on nerves)
- Cancer and benign tumors (causes compression on nerves)
- Repetitive stress (prolonged activity can cause inflammation of tissue on nerves)
- Toxins (industrial drugs or environmental exposures)

The following are examples of physical injury trauma that can cause peripheral neuropathy. Depending on the severity of the incident, nerves may become detached completely causing permanent damage or may be crushed, compressed, or stretched causing a more temporary condition.

- Car accident
- Sports-related activity
- Repetitive activity

Infections and autoimmune disorders are contributors by way of inflammation, here are some examples:

- HIV
- Lyme disease
- Viral and bacterial infection

“Inherited peripheral neuropathy is caused by an inborn genetic mutation. The most common are a group referred to of disorders collectively referred to as Charcot-Marie-Tooth disease. This condition results from flaws in genes responsible for the manufacturing of neurons or the myelin sheath.” In this condition symptoms may appear from infancy to early adulthood.

### Prognosis

There are many variables that will determine the out come for each individual with peripheral neuropathy, but because of the ability of nerves to regenerate, providing they are not dead, treatments have proven to be successful. With a prompt diagnosis and comprehensive treatment plan most patients will have improvement or complete recovery. If no changes are made and it goes untreated, deterioration will continue and more serious conditions may occur, such as amputation or even death. The exception would be Charcot-Marie-Tooth disease. Since Charcot-Marie-Tooth disease is a degenerative condition, with no current cure, there may only temporary relief in the symptoms with treatment.

## Treatment

The purpose of treatment is to address the underlying cause as well as the symptoms. The first step is to consult with a general physician to diagnose the condition. Once a diagnosis is made, the physician is able to guide the patient to the different options that are available for treatment plan. Some recommendations may include medications or changes in medications, dietary changes, exercise, life style changes, or referral to other professionals such as podiatrist, physical therapist, massage therapist, acupuncturist, chiropractor or surgeon. The physician will be able to monitor the progress by regular lab tests and physical examinations. The best result is usually achieved with a combination of treatments. To treat the most common symptom of pain, an over the counter medication, such Tylenol or aspirin, may be beneficial. There also topical creams available to treat pain. Anti-inflammatory drugs like ibuprofen may be helpful for inflammation. In more severe cases a prescribed anti-inflammatory or pain reliever may be necessary.

Medical massage therapy and the use of modalities can greatly improve the symptoms of peripheral neuropathy by decreasing pain and inflammation but will cure the condition. When proper protocol is applied in which the soft tissue work is done to allow deeper penetration to the bone level the greatest result will be achieved. Application of bony lever techniques and joint physics will create stretching, increased range of motion, increased blood flow to the muscles, ligaments and tendons as well as producing synovial fluid for the joints. It is also important to treat the laminar groove along either side of the spine due to the fact that is key factor in the central nervous system. Medical massage therapy may have to be more frequent if it is the only source of activity the individual is using . Depending on the type of modality used it can achieve many of the following benefits, decrease pain, decrease edema, increase or decrease circulation, increase range of motion, decrease muscle spasms, increase tissue extensibility, facilitate healing, and relaxation. A therapist would first need to consider any contraindications before applying any of the following modalities:

- Cryotherapy-use of cold application by way of ice, gel pack, cold water, liniments like Woodlock or Zen.
- Thermotherapy-use of heat application by way of thermophore, headlamp, paraffin, hot tub, liniments like Po Su Mon or lavender.
- Actinotherapy-use of light or laser application by way of laser pointer, chee light, bioptron, or pain x.
- Hydrotherapy-use of hot or cold water by way of hot tub, contrast bath, sauna or steam room.
- Mechanotherapy-mechanical devices such as thumper, percussion massage or bongers.
- Electrotherapy-use of electricity by way of E-stim, T.E.N.S. unit, electrotherapy.
- Therapeutic exercise

## Nutrition and Diet

Adopting good nutritional eating habits and maintaining a healthy weight overall will be beneficial, but especially with peripheral neuropathy when diabetes and HIV. A balanced diet might include the avoidance of processed foods like white flour, and white sugar because they

have been shown to increase inflammation. Also limiting or avoiding alcohol altogether would be most affective because it inhibits the absorption of vitamins and can reduce direct effects of peripheral neuropathy. “Quitting smoking is particularly important because smoking constricts the blood vessels that supply nutrients to peripheral nerves and can worsen neuropathic symptoms.” (National institute of neurological disorders, Peripheral neuropathy fact sheet) A multivitamin along with vitamins B1, B12 and folate, which can be found in a B stress complex, have shown to be helpful as well. Herbal remedies like ginkgo, St John’s wort, vervain, oats and gotu kola may proof beneficial but a physician should be consulted for any possible adverse effects.

### Exercise, Self Care and Education

Exercise is very beneficial to in treating peripheral neuropathy and over wellness. It helps to increase circulation, strengthen muscles, increase flexibility and decrease stress. Activities like walking, bicycling, and swimming can be done at a modest pace if a person should have limitation and still be beneficial in stimulating regeneration of nerves. It would proof most beneficial if done at least once a day.

Foot care is an important part in relieving symptoms as well as being aware of any injuries that might go unnoticed. Things that can be done on a daily basis would include a foot soak for 15 minutes followed by moisturizing to avoid cracking and possible infection and massaging to stimulate circulation and nerve regeneration. A weekly manicure should be done so that toenails don’t cause injury. It is important to keep your feet dry and protected by wearing cotton socks and shoes that fit properly or slippers since injury may go unnoticed due to lack of sensation. Support hose may be helpful in reducing pain.

With the easy availability of literature in today’s world it is keep informed and educated on any treatments, and pathologies of peripheral neuropathy. Taking a proactive approach can prove to be most beneficial for patients.

Massage therapy and the use of modalities can play a significant role in helping the patient achieve relief or recovery of their condition. Patients who take the most active approach with the management of the symptoms and the underlying cause of their peripheral neuropathy will see the greatest result. It is also important for patients to have a good dialogue with their physician to help to monitor any changes that may need to be made for the most successful plan.

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