9.2 Abstracts from Poster/Oral Session on Therapy

9.2.1 Clubfoot Syndrome: an Osteopathic Treatment Case Report

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Background

Congenital clubfoot has a prevalence of 1/1000 among live newborns, representing one of the most common musculoskeletal defects at birth [1]. The use of nonoperative treatment involving passive motion [2] and/or the application of leg cast has been documented and results from previous studies suggest also that the most effective treatment of clubfoot is the Ponseti method [3], with 90% a success rate of 90% at short term and long term results being equally impressive [4,5]. As far as complementary and alternative medicine are concerned, the literature lacks information about the effect of osteopathic care in children affected by clubfoot. The aim of this study is to present a case report of bilateral clubfeet treated with the Ponseti method in combination with osteopathic manipulative treatment (OMT).

Methods

A newborn, 12 days old, white caucasian female with bilateral clubfeet classified as 3rd grade of Dimeglio’s scale (score=15), with associated lateral clinodactilia of the last finger entered the Department of Orthopedics at the University of Chieti, Italy. Prior to the first orthopedic examination, the patient received two osteopathic treatments at the age of 5 and 10 days. At day 12 (fig. 1) the infant was examined by the pediatric orthopedic surgeon that applied a bilateral cast in dorsiflection and pronation. The third osteopathic treatment was performed at day 17, while at day 20 the second series of casts was applied. At day 24 the newborn underwent the fourth osteopathic treatment. The practitioner performing the osteopathic treatments used only myofascial release techniques and the treatment strategy was left to the discretion of the osteopath and not based on a predetermined protocol.

Fig. 1 and 2

Results

At day 33 the third orthopedic examination was planned. At this time there was a complete resolution of the anatomic abnormalities (fig. 2) and no more plaster cast treatments as well as no orthopedic shoes were required.
Conclusions

OMT may represent a suitable and feasible approach in the management of children affected by clubfoot. The combination of OMT with the Ponseti method seemed to be effective in this particular case. Therefore further studies are needed to prove the effectiveness of osteopathy in the treatment of congenital clubfoot in newborns.

Disclosure

The authors declared they have no competing interests.

References


The Effects of Cranial Manual Therapy and Myofascial Release Technique on Somatic Tinnitus in Individuals without Otic Pathology: Two Case Reports with One Year Follow-up

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Background

Tinnitus is defined as hearing a sound in the absence of any external auditory stimulus. Somatic or craniocervical tinnitus, which is present in patients without any detectable ear/nerve disorders, is associated with somatic disorders such as myofascial pain syndrome, or cervical and cranial dysfunctions. Craniosacral manual techniques for correcting cranial bone dysfunctions and myofascial release for myofascial pain could improve somatic tinnitus [1].

Purpose

The purpose of this report is to present the effect of cranial manual therapy and myofascial release technique on somatic tinnitus in two case reports with one year follow up.

Methods

Two cases were suffering from chronic tinnitus without any otic pathology. Both subjects had marked sphenoid, temporal and occipital bone dysfunctions. Intra-oral palpation and examination revealed presence of active tender point in the lateral pterygoid muscle in two cases. Applying mechanical pressure to the palpated trigger points increased tinnitus in the ear and reproduced his headache and caused radiating pain to the temporal bone. Manual therapy of the cranial bones for restoring their normal alignment and cranial rhythm was performed for both subjects. The tender points on the lateral pterygoid muscles were treated through intra-oral neuromuscular technique (myofascial release) as described by Chaitow [2].

Results

The tinnitus severity assessed by the Tinnitus Severity Index on a 1 – 100 VAS scale. After one-year follow up, quality of life, social interactions and tinnitus symptoms
were also assessed. Manual therapy of the cranial bones for restoring their normal alignment, cranial rhythm and tension membrane and myofascial release technique for tender points in lateral pterygoid muscle had a significant effect on reducing the persistent tinnitus in both subjects. At one-year follow up, both subjects reported significant improvement in their quality of life and social interactions without recurrence of their tinnitus symptoms.

**Conclusion**

The findings of this study indicate that cranial manual therapy and myofascial release technique could be a potential treatment for somatic tinnitus in patients with no otic pathology or temporomandibular disorders.

**References**


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**A Comparative Study of Cervical Hysteresis Characteristics after Various Osteopathic Manipulative Treatment (OMT) Modalities**

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**Background**

Despite apparent clinical benefits, few objective tissue texture or myofascial measurements exist documenting post-OMT change. A durometer which imparted a single consistent piezoelectric impulse of 4lbs (Spineliner®; Sigma Instruments; Pittsburg, PA USA) into the myofascial structures overlying the spine was employed to quantifiably measure the hysteresis characteristics and to document tissue texture and fascial changes post-OMT. The four components used to calculate a durometer, motoricity (area under the curve), mobility (time to peak/total time), frequency (length of the curve) and fixation (peak of the curve) were analyzed to document the change in cervical hysteresis after OMT.

**Hypothesis**

Cervical tissues will show a quantifiable change in fixation, frequency, mobility, and motoricity after OMT with no objective changes in Sham treatment.

**Materials & Methods**

A total of 240 subjects were recruited. The first 200 subjects were equally and randomly assigned to receive Sham or single-segmental Muscle Energy (ME), Counterstrain (CS), Balanced Ligamentous Tension (BLT), or High-Velocity Low-Amplitude (HVLA) OMT directed to the cervical segment considered to have the most somatic dysfunction. 40 additional subjects were evenly distributed to receive ME or HVLA. All subjects were objectively measured using the Spineliner®, treated with cervical OMT, and then remeasured with the Spineliner®.

**Results**

A change from baseline derived from the median values regardless of treatment was displayed in motoricity, fixation, and frequency except for Sham in which no change was noted. Mobility also showed a change from base line with ME, CS, and BLT; however, a slight change in sham and no change in HVLA were observed. But, the most significant post OMT changes occur in the motoricity component with CS (p-value 0.04). A similar trend in mobility is also noted in CS (p-value 0.12).
Conclusion

When comparing treated to untreated cervical spines using comparable myofascial tissue loads, the most significant changes occur with CS post OMT and an appreciable objective change is noted in all four Spineliner® components post OMT and no change in Sham. Although a slight change in Sham was noted in regards to mobility; overall, it is evident that not only does a subjective change in the fascia occur post-OMT, but a quantifiable objective change transpires as well.

Can the Load Transfer Through the Pelvis (as Measured by the Active Straight Leg Test) Be Improved Through the Use of Kinesio Taping?

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Background

Motion control of the pelvic girdle during everyday function requires the coordination and activation of various muscle groups in order to achieve optimal biotensegrity (the co-activation of muscle groups that provide minimal compression or tension loading with the least amount of effort) [3]. Active Straight Leg Raise (ASLR) testing has been used to identify non optimal stabilisation strategies for load transfer through the pelvis. Modified tests that supplement the forces to stabilise the pelvis have also been described [4]. The improvement of the performance to effort ratio when doing the testing may be indicative of what forces need to be restored during treatment in order to restore efficient neuromuscular control.

Kinesio Taping has been utilised to stimulate immediate effects on neuro-muscular function independent of patient training. The mechanism of activity is thought to be via stimulation on skin and fascia as the tape is elastic and superficial in its application [1]. The effect is to change the activity of mechanoreceptors in the area influenced by the tape. The primary role of the tape is to return the underlying skin, fascia, lymphatic and neuromuscular activity to homeostasis [2]. The normalisation of these systems is anticipated to result in a decreased perceived effort during activity. This preliminary research explores whether Kinesio Taping can facilitate biomechanics to improve the reported effort in the ASLR test when increased effort is reported at the baseline test.

Method

Patients with low back and pelvic girdle pain were recruited and assessed for ASLR effort. A baseline measurement of effort was assessed and recorded. The test was repeated with compression through the innominates and along force tension lines that could be replicated by muscular activity. When a particular direction of force facilitation was identified to be of benefit, the new perceived rating was recorded. Kinesio Taping to the tension lines indicated in the testing was applied in priority order and the new ASLR self reported measure assessed at each stage.

Results

From the sample of patients recruited and tested, immediately substantial worthwhile effects were reported by patients with decreased effort and decreased symptoms. The summation of taping strategies typically improved the patients’ perceived effort to match or almost match the best reported measure when the therapist applied an external force.

Conclusion

Kinesio Taping yielded significant and immediate improvement in self reported measures of ASLR testing. Kinesio Taping to improve muscle function during this task may provide a simple beginning point in the management of PGP that promotes better mechanical loading with decreased effort and symptoms. The Kinesio Taping Method may also be used as a tool to encourage better...
active compliance and involvement with exercise and stretching programmes as it demonstrates immediately to the patient the relevance of such exercises. The light tension application of the tape reinforces the value of subtle changes without having to exert excessive force to achieve improvements. The study shows exciting potential in the use of taping to facilitate load transfer. Additional research is required and welcomed to improve the level and standard of this evidence.

References

Disclosures
Thuy Bridges has been a Certified Kinesio Taping Instructor since 2005 and receives fees from students for teaching Internationally Accredited courses (mainly in Australia and New Zealand). Thuy is also an Associate Lecturer of Anatomy Trains and will likely receive payment for teaching related courses in the future. There was no payment or other contribution received from external parties for this study.

9.2.5 Treatment of Patellar Dislocation with Fascial Distortion Model

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Background
Patellar dislocations occur with significant regularity, particular in young female athletes.[1] These dislocations usually occur from an unusual twisting motion of the knee or via a direct blow. Manual reduction of the patella is required in some circumstances. Surgical intervention is less common. Whichever method of reduction is required to correct the dislocation post reduction rehabilitation is commonly recommend for 8–12 weeks prior to returning to participation.

The Facial Distortion Model (FDM)[2] is an anatomical perspective in which most musculoskeletal injuries and certain medical conditions are envisioned as consisting of one or more of six principal fascial distortion types. In the FDM a patient’s body language in conjunction with subjective complaints is used to create a meaningful diagnosis that can then be addressed with manipulative techniques.

Method
A 14 year old female ballet dancer stumbles and twists her knee while warming up during a routine stretch. Her supporting leg twisted in an awkward position causing dislocation of her patella. She was unable to reduce the patella and was unable to bend the knee. Emergency Room evaluation was required with manual reduction. Referral to orthopedics was provided. Orthopedic recommendation was for patient to remain on crutches (7–10 days) and begin rehabilitation which was expected to take 3–6 weeks. [3]

Results
Patient seen within 24 hours of injury. Knee ROM was 5–10 degrees of flexion, extension was zero degrees. Pain was 5/10. Body language included linear sweeping motions along the medial and lateral aspect of the patella indicating diagnosis of triggerband. Patient also pointed to several specific areas on the inferior margin of patella indicating a Continuum distortion. Triggerband and continuum
technique utilized. Treatment resulted in full ROM of the knee. Flexion was 100 degrees. Extension was noted to be zero degrees. Total treatment time was 5 minutes. At one week follow up patient reported minor stiffness the following day. Patient was able to dance without discomfort. Follow up one month later indicated patient was without pain or problem related to her knee.

Conclusions

The Fascial Distortion Model and the distortions identified by a patient’s body language and verbal description can direct therapy for immediate, objective, and measurable results. Additional research to investigate the distortions, body language, and the outcomes of various treatments is needed.

References


Application of Fascial Manipulation© in Pubescent Postural Hyperkyphosis

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Background

Dysmorphic or sagittal spinal deformity can be defined as pathological deviations of the posterior (kyphosis) or anterior (lordosis) physiological curve of the spine on the sagittal plane due to structural alterations of discs, ligaments, and bony structures. Deviations can present as either excessive (thoracic hyperkyphosis or curved back, lumbar hyperlordosis), reduced (flat back, concave back, hypolordosis, lumbar kyphosis) or altered (kyphosis of the lumbar back passage, cervico-dorsal kyphosis) in their normal distribution and may have various etiologies. In pre-pubescent and adolescent subjects, it is necessary to distinguish between structured curves and corrigible functional curves, although corrigible curves (curved back or postural kyphosis, postural lumbar hyperlordosis) can potentially progress to stiffness and structuring. The postural curved back consists of an increase of dorsal kyphosis generally accompanied by pronounced lumbar lordosis. Dorsal kyphosis in pre-pubescent and adolescent subjects can be very pronounced while remaining clinically mobile.
Methods

17 subjects (mean age 11.8 DS 0.8; 9 males, 8 females) with non-structural hyperkyphosis were evaluated according to the Italian Society of Physical Medicine and Rehabilitation (S.I.M.F.E.R) guidelines. Each subject then received 2 to 4 sessions of Fascial Manipulation© once a week. At the end of the cycle, each subject was re-evaluated with the same means and within the same parameters. A follow-up was carried out at 7 months.

Results

Data analysis (conducted by means of SPSS 15.0) evidenced a statistically significant difference in the assessment of the following clinical parameters, analyzed before and immediately after the cycle of Fascial Manipulation©:
- mean difference in distance between Wall-C7 of 1.2 cm (p<0.0001);
- mean difference in distance between Wall-L3 of 0.87 cm (p=0.0004) and
- mean difference in distance between Fingers-Floor of 1.7 cm (p=0.027).

Conclusions

Results suggest that the Fascial Manipulation could represent an effective method for the reduction of postural hyperkyphosis in pre-pubescent and adolescent subjects and a valid preventative measure for structural alterations of discs, ligaments and bony structures, which can cause pain, disability, and psychological disturbances such as reduced self-esteem and distorted body image. In addition, this approach could reduce rehabilitation time for these subjects (an average of 3 sessions as compared to numerous cycles of postural gymnastics).

9.2.7 Results of Chiropractic Treatment on 46 Patients Referred From an Ear, Nose and Throat Department

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Objectives

The objectives of this study were to report and evaluate the results of chiropractic treatment for patients referred from an ear, nose and throat (ENT) department suffering from cervical spine and temporomandibular joint (TMJ) related symptoms.

Method

Descriptive case series. Forty-six consecutive patients suffering from chronic cervical spine and TMJ pain and dysfunction with associated symptoms were included in the study. All subjects included were examined and diagnosed by an ENT specialist. No pathological changes were detected upon neurological, radiological or magnetic resonance imaging. The subjects were found to be suffering from idiopathic cervical spine and TMJ related symptoms and further referred for chiropractic treatment. Chiropractic treatment involved musculoskeletal therapy directed to improve and restore function. Mean time to follow up was two years.

Results

Thirty-five patients reported a significant to very significant improvement of symptoms whereas five patients reported a slight improvement of symptoms. Six patients reported no change. There was a clear reduction in sick leave among the patients treated compared to conventional medical interventions.
Conclusion

To our knowledge this is the first study reporting on the co-management of patients between an ENT department at a Norwegian hospital (Fylkesjukehuset i Sogn og Fjordane) and a chiropractor. It was found that a proportion of patients presenting to the ENT department may have significant benefit from chiropractic treatment. This shows that further cooperation and co-management between ENT department and chiropractors should be encouraged.

Immediate Effect of Myofascial Massage for TMD With Pain

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Background

National Institute of Health (NIH) recommends noninvasive and reversible therapies such as physical therapy for management of temporomandibular disorders (TMD). TMD is one of the most common syndromes that reflect deep somatic pain. The origin of the pain is supposed to lie in the temporomandibular joint or the surrounding structure. However, it is difficult to identify the location of the origin of the pain. In this study, we investigated the immediate effect of ischemic compression and stripping massage for jaw opening limitation with pain at surrounding muscles and the region of the joints.

Methods

This study was carried out in 90 subjects with signs or symptoms of jaw opening limitation with pain. The subjects were offered the myofascial massage (ischemic compression and stripping) for 30 minutes for the trigger point area and referred pain area evoked by the trigger points. The opening value was measured the inter-incisal distances for maximal opening values before treatment and immediately after treatment by a digital ruler and also measured numerical rating scale (NRS) of the pain.

Results

The mean of the opening value were 27.1±7.9mm (before treatment), 34.5±8.7mm (immediately after treatment). The mean of the NRS were 4.0±1.5 (immediately after treatment). There was a significant difference between before treatment and immediately after treatment by the myofascial massage therapies.

Conclusions

It was suggested that myofascial massage therapy with low-frequency and high-intensity stimulation like ischemic compression and stripping massage is available as initial management for TMD with pain of muscle area and joint area.
Hypothesis

Vertebral pressure and manipulation is frequently deployed in Osteopathic Manipulative Procedures (OMP). Although it is well recognized that vertebral pressure affects autonomic activity, the precise mechanisms of these responses are not well understood. It was the goal of this study to demonstrate modulation of Photo-Pulse Plethysmograph (PPG) and Laser Doppler Flow (LDF), in the upper extremity of asymptomatic human subjects, following controlled pressure, applied to select vertebral locations by an experienced osteopathic physician. These peripheral vascular parameters were recorded bilaterally to illustrate inherent asymmetry in the signals on the two sides in a subset of the subjects.

Methods

A multi-channel signal acquisition system (BiopacTM) was used to assess the peripheral vascular effects from controlled pressure on select sites along the vertebral column. The set up was customized to record the bilateral PPG and LDF signals, whereby the acquisition was triggered by the subject’s EKG signal, providing 5 channels of physiologic data, bilaterally from the upper extremities. Clinically asymptomatic subjects with no apparent pathologies were enrolled for this IRB-approved preliminary study (9 females, 4 males). Patients lay supine, undisturbed, while controlled physiological provocations such as transient occlusion of one forearm as well as hyperthermia (42–45 °C), were applied to establish the baseline responsiveness of the set up for each subject. Following these tests, an experienced osteopathic physician applied controlled digital pressure sequentially, on OA-C2, T1-T4, T8-L2, and L5-S vertebral regions. Quiescent phase of approximately 10 minutes each was inserted between maneuvers, leading to an overall duration of the session being between 100–140 minutes. The EKG triggered PPG and LDF signals were logged continuously during this procedure. Post-evaluation for this data entailed time and frequency domain analysis.

Results

This investigation establishes a technique to monitor modulation of LDF and PPG signals following controlled physiologic stimuli, including sequential vertebral pressure. Post-analysis of data in time and frequency domain demonstrated increased flow characteristics in the upper extremities following controlled vertebral pressure. A bilateral asymmetry of LDF and PPG signals was noted in 25 % of the subjects even during the quiescent phase of the experimental session.

Conclusion

Continuous bilateral recoding and post analysis of LDF and PPG signals demonstrated increased flow characteristics in the upper extremities indicative of an autonomic response, following spinal manipulation.
Professional Background and Experience of Bowen-Therapists with Bowen-Therapy – a Quantitative Approach

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Background

Some safe and effective manual therapies are not yet scientifically approved, like Bowen Therapy or Dorn Therapy. They are lacking research. Bowen Therapy (BT) is a fascia-related non-invasive manual therapy developed in Australia by Tom Bowen, and taught in Germany for about 12 years. According to the list of therapists provided by the two largest Bowen schools in Germany approximately 900 Bowen therapists have been educated in the mentioned time frame. As BT is not yet approved, it cannot be reimbursed through statutory health insurances in Germany. Only six articles exist in PubMed until June 2011. Therefore the aim of this pilot study was to provide information about Bowen therapists, their clients and treated diagnoses in Germany. Furthermore therapists’ experience concerning the effectiveness of Bowen Therapy was of interest.

Method

A self-developed questionnaire was distributed to all participants of the Bowen-Congress November 2007 in Munich. The survey contained 18 closed and 1 open-ended questions, concerning working situation, basic profession and formal training of the therapists, frequency of Bowen-treatments in their clinic, treated diagnoses, features of patients and success of treatments. The response-rate was 24 %, so data for 24 therapists and 103 patients were gained until February 29, 2008. Data were analyzed per SPSS16.

Results

62 % of the therapists are naturopaths, 21 % are massage-therapists, 12 % are physiotherapists and 4 % other health professionals. 67 % are working in their own clinic. They conduct 4 to 15 Bowen treatments per week. They had former education in cranio-sacral therapy (29 %), osteopathy, manual therapy, massage, in traditional Chinese medicine, Dorn therapy, Homeopathy and others. Therapists did find it applicable for each patient. They evaluate BT as more effective than other therapies (81 %), and 5 % as less effective. The quick and sustainable effects of BT are considered unique in comparison to other manual therapeutic approaches. It is soft, economical in its application, safe and empowers the patients. The waiting period, an important component of BT is also seen as a unique feature. Patients’ age varies between 2 months and 90 years. Most treated diagnoses are of orthopaedic-neurological origin (83 %). 64 % were acute cases, others related to chronic conditions. 45 % of the clients had between 1 and 3 Bowen treatments, 28 % needed 4 to 6 treatments. 34 % of the patients had no side-effects, 32 % felt a transient increase of pain, 33 % felt different vegetative reactions. The treatments were successful in 87 % with complete freedom of symptoms or significant improvement, 0.9 % showed an aggravation.

Conclusion

This study provides information about the practice of Bowen therapists in Germany. It will help to inform researchers, practitioners and potential funders about this relatively new therapy and its potentials estimated by experienced therapists. It also contributes information to the sparse literature about BT in Germany and can be used as baseline for more differentiated research about Bowen therapists, BT and its potential benefits. Thence the results of the study contribute to research in BT worldwide.
Effects of Abdominal Shape on Abdominal “Slosh” during Pedal Pump OMT

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Background

The Pedal Lymphatic Pump (PLP) is an osteopathic manipulative treatment (OMT) technique traditionally used to enhance lymphatic flow and increase immune function. The operator stands at the feet of the supine patient, dorsiflexes them to a fascial barrier and applies a pan-corporeal rhythmic impulse force from their metatarsal region. The oscillatory motion transmitted through the fasciae and other body tissues usually creates a visible abdominal motion described as an “abdominal slosh”. The abdominal slosh varies in its style of motion. It can appear as a wavelike motion, similar to a sine wave; a more slapping motion, similar to a wave striking the edge of a pool; or a combination of the two. While anecdotal recommendations exist, few studies have examined host factors influencing technique performance; posing the question, “does body morphology affect PLP performance?”

Methods

PLP was performed on 51 subjects lying supine on an osteopathic table, with footwear removed and their abdomen exposed up to the xiphoid process. An accelerometer documented the average frequency of 2.28Hz (137/minute) and force of 0.29G needed to create the optimal “slosh”. The abdominal motion during PLP was video recorded for each subject. An osteopathic medical student, not previously involved in PLP delivery, but trained to identify the characteristics of an ideal “abdominal slosh”, then retrospectively watched each video to rate abdominal shape (1-5 scale, scaphoid to obese), effective creation of an abdominal slosh (0-5), and the characteristics of abdominal motion (0-5, lower scores indicating wavelike motion, higher scores indicating slapping motion). 48 of the 51 videos were rated and included in the analysis; 3 of the videos did not adequately show the abdomen.

Results

Abdominal shape (average=3.02; n=48) has a direct relationship to effective creation of the abdominal slosh during PLP (average=3.77; p=0.04). As the abdominal shape rated higher, the ability to create an acceptable slosh increased. An inverse effect was noted between abdominal shape and type of abdominal slosh (average=2.83; p=0.05); as the abdominal shape rated higher, the type of abdominal slosh became more wavelike.

Discussion

Abdominal shape influences the ability to create or optimize the traditionally sought-after abdominal slosh and its motion characteristics; therefore, it is important to accommodate for individual body morphologies to perform PLP OMT as recommended. Further investigation is needed to explore whether an “optimum abdominal slosh” corresponds with the presumptive physiologic effects of the PLP or is even required at all.
Myofascial Release Therapy Compared to Massage in Reducing, Symptoms of Fibromyalgia

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Background

People with fibromyalgia (FM) have persistent widespread pain and soft tissue tenderness. As an adjunct to drug therapies, they often seek bodywork such as massage for pain reduction. Recently the pain-generating role of the fascia in maintaining FM symptoms has been suggested [1] indicating that manual therapy that addresses the fascia may be helpful in managing FM symptoms. Two randomized controlled trials of myofascial release therapy (MFR) compared to sham ultrasound found significant reduction in tender points and pain scores that persisted at one-month post-intervention. The study authors concluded that further research was warranted to compare outcomes obtained with MFR with those of other manual therapies. [2, 3].

Methods

The purpose of the present study was to compare myofascial release to Swedish massage in women with FM. Eight subjects received myofascial release while four subjects received Swedish massage for 90 minutes weekly for four weeks. On average, the subjects were 34.5 years of age (SD=5.5), with FM for 2.6 years (SD=0.9), with no baseline differences between groups.

Results

The Aickin separation test [4] indicated that the primary outcome, Fibromyalgia Impact Questionnaire-Revised Total Change Score for the myofascial group trended (mean = 10.14, SD = 16.2) in the hypothesized and positive direction compared to the Swedish massage group (mean = 0.33, SD = 4.93).

Conclusions

There were no adverse events or early discontinuations indicating that both interventions were feasible and acceptable to patients despite tenderness to touch (baseline myalgic score 31.9 (SD=7.7) and 36.3 (SD=3.1) in the myofascial and Swedish massage groups respectively). Larger randomized controlled trials are supported by the separation test, particularly focusing on longer-term follow up to compare duration of improvement after MFR compared to standard Swedish-type massage.

Disclosure

This study was funded by an award from the Gerlinger Foundation.

References

Background & Purpose

Plantar fasciitis is a common overuse injury that can lead to a significant loss of function. Instrument-assisted soft tissue mobilization (ISTM) is a non-invasive, manual therapy technique utilized for the treatment of soft tissue dysfunction that has been found to stimulate healing and tissue reorganization. The purpose of this case series is to describe outcomes in patients with bilateral plantar fasciitis who were treated using ISTM. Case Description

Three patients presented with functional limitations directly related to bilateral plantar fasciitis. Each patient was evaluated and received the same treatment regimen consisting of a warm-up, ISTM to the foot and calf, strengthening, stretching, and ice massage. Outcomes were assessed using the numeric pain rating scale (NPRS), the Lower Extremity Functional Scale (LEFS), and physical measurements related to the foot and ankle.

Outcomes

After an average of 8 sessions in a 4-week period, all patients demonstrated a mean decrease in pain of 47%, reaching a clinically meaningful change. The mean LEFS improvement was 11.2%. All three subjects demonstrated an increase in great toe extension, dorsiflexion, and plantarflexion. All subjects reported returning to previous levels of recreational activities.

Conclusions

The results of this case series demonstrate the potential effectiveness of ISTM as a manual therapy approach for the efficient treatment of bilateral plantar fasciitis in combination with exercise. Future directions for research include the continuation of the current case series with the goal of developing a randomized clinical trial.
Abstracts

9.2 Abstracts from Poster/Oral Session on Therapy

9.2.14 TDFS Tridimensional Dynamic Fascial Stimulation – Potential Tool for Functional Mobility in Duchenne Muscular Dystrophy – Pilot Study

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Background

In Duchenne muscular dystrophy (DMD) the increase of muscular fat content and fibrosis generates a reduction of range of motion (ROM) of the joints. Boys with DMD develop a disorganized body causing severe systemic consequences, especially after relying on a wheelchair. Classically, physical therapy contributes to prolongation of life and as a palliative care in late stage by respiratory management. However, fascia manipulation has never been tried to reduce contractures and deformations.

Objective

To test the hypothesis that physical intervention through manual fascia stimulation may influence the range of motion (ROM) in boys with DMD.

Methods

The TDFS Tridimensional Dynamic Fascial Stimulation was chosen, whose protocol is being tested in cycles of 10 sessions (3 mini-cycles of 3 plus one closure session; 90 minutes each). It proposes to reach simultaneously the musculoskeletal system, meningeal and visceral core. Two patients (male, 8yo, 1 ambulant, 1 wheel chair) received 6 weekly sessions; afterwards 1 patient (male, 9yo, wheel chair) received 20 weekly sessions. ROM was measured by a gravitational fleximeter:
- before and after 6 sessions;
- before, after 10, and after 20 sessions.

Results

6 sessions:
a) ambulant – 24 movements in the girdles and limbs at each side, and 10 movements of the trunk (total 58): 33 movements (56.9 %) increased, 20 (34.5 %) decreased, and 5 (8.6 %) maintained.
b) wheel chair boy – same movements, except the 2 side bending of the trunk (total 56): 22 movements (39.3 %) increased, 33 (58.9 %) decreased, and 1 (1.8 %) maintained.

20 sessions – 18 movements in girdles and limbs at each side, and 01 (flexion) in the trunk (total 37):
a) after 10 sessions: 19 (51.4 %) increased, 10 (27 %) decreased, and 8 (21.6 %) maintained;
b) after 20 sessions: 16 movements (43.2 %) increased, 11 (29.7 %) decreased, and 10 (27 %) maintained.

Discussion

Increases and decreases in ROM can be beneficial or not depending how the initial values are lower or higher than those of normal people. Trunk flexion increased and stabilized afterwards, while girdles and limbs changed both to more and less flexibility. Conclusion: The TDFS method was able to evoke changes of ROM towards more as well as less flexibility, both in the ambulant and the wheel chair DMD patients. Further research is needed to understand the details of appendicular ROM changes without treatment as well as those possibly induced by TDFS.
Purpose

The effective, timely, and financially prudent management of chronic pain is an important goal of all health care organizations, including the Veterans Health Administration (VHA). The VHA has a Pain Management Directive that “provides policy and implementation procedures” for the treatment of pain as described in its National Pain Management Strategy. This strategy includes recommendations for both “an interdisciplinary, multi-modal approach” and for the “continual monitoring and improvement in outcomes” of pain treatment. This small, IRB reviewed, pilot study evaluates treatment outcomes of a chronic, musculoskeletal pain management program using a Complementary and Alternative Medicine model in the form of myofascial, manual techniques.

Methods

The evaluation was divided into both subjective and objective components. Subjective Response was measured using validated survey instruments to provide data on select variables outlined in the VHA Pain Outcomes Toolkit (National VA Pain Outcomes Working Group, 2003). These included Pain Intensity, Pain Interference, Emotional Distress, Healthcare Utilization, and Patient Satisfaction. Employment Status and perception to improvements in Pain, Function, Outlook, Medication Use, Muscle Tension, Strength, Gait, and Posture were also ascertained. Objective Measures were taken by the treating, healthcare practitioner, and included Physical Capacity variables commonly observed in physical examination. These were Range of Motion (ROM), static Posture, and dynamic Gait, as well as Gender, Age, Height, Weight, and Length of Treatment Time.

Results

The questionnaire response rate was 43%. Fifty-four of respondents were employed. Thirty-one percent were female veterans and 69% were male. Treatment program duration varied from 7 to 26 months. Over one-half of respondents reported a reduction in analgesic medication use. All had an improvement in function, with 91% reporting reduced muscle tightness. Eighty-two percent had improved mood, and 73% reported improvement in pain and posture. Over sixty-percent reported improvements in strength and gait. These results reflected the CAM (Manual Medicine) clinic’s therapeutic goals to increase flexibility, ROM, decrease discomfort, as well as to normalize structure and function.

The results from one subject is used to illustrate the pre- and post-treatment interval trends: reduction in perceived disability from 70% to 29%, reduction in depression from severely to minimally depressed, reduction in anxiety from moderate to very low, and reduction in kinesiophobia from a high to a low degree. Pain Treatment Satisfaction improved from low to high following treatment. There were statistically significant reductions in Pain Interference (p = 0.012), Pain Severity (p = 0.038), and General Activity (p = 0.010).

Representative, objective, pre- and post-treatment comparisons demonstrated 50% to 100% improvements in regional spine ranges of motion. Additional observations included a more erect, standing and seated posture, as well as reductions in cane use.

Conclusions

The initial results of this outcomes evaluation suggest that our CAM treatment model provides positive effects in the treatment of our veterans’ chronic, musculoskeletal pain. One implication is that pain management programs might benefit from the addition of such an approach to the more traditional methods of pain treatment. With a more complete analysis of these pilot data, it is anticipated that cost-reduction in the areas of medication use and non-CAM provider visits might be elucidated.
Background

Symptoms of carpal tunnel syndrome (CTS) are attributed to ligamentous compression or vascular deficiency. Oscillating Energy Manual Treatment (OEMT) is a craniosacral manual technique that has originally been used for treating limited suture mobility in the skull. Literature and clinical evidence suggests that OEMT is useful for myofascial release, alleviating pain, increasing blood flow and reducing ischemia. True experimental evidence has shown the positive effects of OEMT on reducing the symptoms of chronic lateral epicondylitis [1].

Purpose

The purpose of this study was to investigate the effect of OEMT on symptoms associated with CTS.

Methods

Fourteen subjects with CTS between the ages of 38 and 68 participated in this study. Subjects were randomized into treatment and placebo groups by the treating therapist. The treatment group received OEMT for six sessions. During each treatment session, the therapist first applied OEMT in a cross sectional direction over the transverse ligament to promote connective tissue flexibility throughout the carpal tunnel. Next, the OEMT was applied in the direction of the radial artery that passes over the carpal tunnel in order to increase hand circulation. Subjects in the placebo group underwent a similar procedure, but with no oscillating energy being applied by the treating therapist. Grip strength, pain limited activity, functional level, pain intensity, night pain intensity, pinch strength, skin sensation, paresthesia and two-point discrimination sensitivity were measured before and after treatment. The screening assistant therapist was blinded to the subject’s group assignment and performed the pre-test and post-test measurements.

Results

The results of this study showed both clinically and statistically significant differences in pain intensity (p= 0.018), level of night pain (p=0.007), pain limited activity (p=0.034) and functional level (p=0.031) between the treatment and placebo groups; However, no significant differences were found in grip strength (p=0.417), skin sensation (p=0.203), two-point discrimination (p=0.895) and pinch strength (p=0.850) between the two groups.

Conclusion

The findings of the study suggest that OEMT could be a viable and effective treatment for improving symptoms and functional limitations associated with CTS.

Reference

Naprapathic Manual Therapy and Adverse Events Shortly After Treatment – A Prospective Cohort Study.

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Background
Naprapathic manual therapy is defined as a system for specific examination, diagnostics, manual treatment and rehabilitation of shortened or pathologic soft tissue and connective tissue, resulting in pain and dysfunction in the neuromusculofasciaskletal system.

Aim
To investigate the prevalence and magnitude of adverse events (AE) shortly after naprapathic manual therapy for patients seeking care for non-specific back and/or neck pain.

Methods
In an ongoing RCT, the aim is to compare the effect of different combinations of naprapathic manual therapy in three arms. The first 487 patients are included as one cohort in this study. Participants are seeking care for non-specific neck and/or back pain at the educational clinic. In a maximum of five visits within five weeks a combination of spinal manipulation/mobilization, massage, stretching and other soft tissue techniques are given by experienced students. AE within 24 hours are measured by a questionnaire at return visits.

Results
The AE were most common after the two first treatment sessions. The most common AE were soreness in muscles, increased pain and stiffness. Among participants receiving at least 3 treatment sessions (n=344), 37\% had experienced at least one AE of any severity and duration after every treatment, 50\% had experienced such an AE after any of the treatment sessions and 13\% had not experienced any such AE. Three percent had experienced at least one AE that was disturbing and lasting (≥3 on a NRS 0-10 and lasting for at least 12 hours) after every treatment session, 6\% had experienced such an AE after any of the treatment session and 91\% had not experienced any such AE. No significant gender differences were observed and no severe AE were reported.

Conclusion
AE were relatively common after naprapathic manual therapy given by experienced students, but disturbing and lasting AE were not common. There were no significant gender differences.
The Fascial Distortion Model (FDM) is an anatomical perspective, originated and developed by US physician Stephen Typaldos, D.O., in which “the underlying etiology of virtually every musculoskeletal injury is considered to be comprised of one or more of six specific pathological alterations of the body’s connective tissues (fascial bands, ligaments, tendons, retinacula, etc.)”. As a model, the FDM is an abbreviated interpretation of the pathology of fascial injuries and contemplates the structural consequences of orthopedic, medical, surgical, and manipulative interventions [1]. Specific diagnoses in this model are made through the patients’ subjective complaints, body language, mechanism of injury, and objective findings. Treatment is directed at correcting these anatomic distortions, physically reversing them. When the fascial distortions are corrected, the anatomical injury no longer exists; the patient can resume normal function and is pain free. The results of treatment are immediate, measurable, objective, obvious, predictable and reproducible.

Case report

A 62 year-old female presented with 2 week history of R axilla pain, onset following a routine mammogram. Past medical history was significant for Fibromyalgia Syndrome of 12 years duration, stable with medical treatment utilizing pregabalin and duloxetine. Physical exam revealed vital signs to be stable. Distal neurosensory exam was normal, and there was no axillary or supraclavicular lymphadenopathy. Shoulder range of motion was full to 180° abduction and 90° external rotation bilaterally, but with localized pain in the R posterior axilla. Internal rotation was to T5 L, and limited to T7 R. Cervical rotation was symmetric but limited to 80° bilaterally, cervical flexion and extension were full. She had a painful 1 cm nodule in the posterior axilla near the origin of the trapezius and the insertion of the subscapularis. FDM diagnosis was a Subscapularis Herniated Triggerpoint. Patient was treated utilizing herniated triggerpoint technique with successful reduction of the herniated fascia, accompanied by immediate relief of pain and return to full range of motion in the shoulder. Follow up at 2 weeks showed continued resolution of symptoms without recurrence.

Discussion

In the FDM, the Herniated Triggerpoint is defined as an abnormal protrusion of tissue through a fascial plane. The associated body language is a pressing of fingers or thumb into the soft tissue (as in an attempt to reduce it). The associated verbal description is of a local dull ache, catching, pinching, or pressure. The physical findings include a palpable knot in the soft tissue, restricted range of motion in one or more planes, often with “stepping” through the range of motion. The mechanism of injury in this case appeared to be the compression forces applied during mammography, inducing the fascial herniation in the axilla. The treatment results were immediate, measurable, and objective. The patient’s symptoms were unrelated to her Fibromyalgia diagnosis.

Future considerations

Despite 20 years of clinical application, the theory behind the Fascial Distortion Model requires additional research. Anatomically, the fascial layering system supports the model’s approach. Ultrasound has been shown to be effective in visualizing fascia in vivo [2, 3]. Ultrasoundography and MRI scans [4] may be useful to visualize the fascia before and after treatment, documenting fascial distortions postulated by clinical findings and treatment results in the FDM.
A Preventive Strategy For Pediatric Migraine Headache

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Hypothesis

Migraine headache in children (age 3–12) remains both a diagnostic and treatment dilemma and, to date, no preventative therapies exist. Migraine headaches can be a source of disability and have negative effects on quality of life for the patient and family. An ideal preventative medication for migraine would reduce migraine frequency yet have little effect on cognition or development. The present study was designed to investigate the efficacy of a magnesium supplement (Slow-Mag®) in combination with manual medicine for the prevention of migraine headaches in children. We also assessed the effects of the treatment on perceived quality of life, family stress, and palpated muscle tension and tender points. We hypothesize that this treatment regimen would dramatically reduce headache frequency and related disability.

Materials and Method

73 patients (aged 3–11) diagnosed with migraine headache were enrolled in the study. Patients and their parents were questioned about frequency of migraines per month, quality of life, perceived stress, and effect on family. Patients also were evaluated for the presence of cervical, trapezius, or sub-occipital tender points and muscle spasms. The dietary supplement Slow-Mag® was initiated in all patients. Dosage was determined by weight. After one month on Slow-Mag® all patient received 3 manual treatments over the course of the next month and one treatment during the third month. After a 1 week induction period, the frequency of headache was determined over the 3-month period. Patients were reevaluated at 3 months for all of the above parameters.

Results

After 3 months, all patient scores declined significantly across all parameters (t-test). Mean reductions: frequency of headache per month: 5.9>1.2; effect upon quality of life: significant>mild; family stress: moderate>mild; tender points: 60%>3%.

Conclusion

Manual medicine in combination with Slow-Mag® offered significant improvement in our cohort of children with migraine headache on all indices studied. Larger studies should be initiated.
Background

Muscular dysfunctions after an ankle sprain are very common, especially a dysfunction of the peroneal muscles, which have an important influence on the functional stability of the ankle joint. This phenomenon is an important factor in the recurrence of ankle sprains, often leading to chronic ankle instability. Unless the scientific evidence is actually not available, fasciatherapy is more and more used in clinical practice, such as in patients with an ankle sprain. Therefore this research focuses on the influence of a single fasciatherapy treatment (Danis Bois®) on the muscle strength in a population of young sportsmen with a history of a subacute ankle sprain.

Methods

This randomized controlled trial included 30 young sportsmen with a subacute ankle sprain. Participants were randomly included in the intervention group or in the control group. The intervention consisted of one fasciatherapy treatment according to the method of Danis Bois®. The participants of the control group received a sham treatment. Before and after the treatments, the muscle strength was measured with a BiodexR System 4 dynamometer (Biodex Medical Systems Inc., Shirley, NY). A general linear model for repeated measures with time as within-subject factor and group as between-subject factor was used to detect significant differences ($\alpha \leq 0.05$).

Results

The eccentric eversion muscle strength at $30^\circ$/sec and at $120^\circ$/sec and the concentric eversion muscle force at $120^\circ$/sec increased significantly in the group who received a fasciatherapy treatment. All these participants also reported a subjective increase in suppleness.

Conclusions

A single treatment with fasciatherapy (Danis Bois®) has an immediate positive effect on the muscle strength and subjective suppleness of young sportsmen with a subacute ankle sprain.

Acknowledgement

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9.2.21 Case Report: Effects of Strain/Counterstrain on Neck Pain & Disability

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Background
The use of strain-counterstrain (S-CS) as a primary intervention has been controversial due to a lack of empirical evidence. The issue is further complicated when one adds in a generalized pathological condition, such as cervical pain. Research has demonstrated that S-CS decreases pain, [1–5] improves strength, [4] increases mobility, [2–5] improves function, [1,3] and decreases disability; [3] however, none of the studies have described the application of S-CS for musculoskeletal-related cervical pain. The purpose of this case report is to describe the effectiveness of S-CS on outcomes for a patient with cervical spine pain, weakness and disability.

Methods
The patient was a 36-year-old male Marine referred for a cervical sprain with neck stiffness, weakness, and pain after injury due to an explosion. Treatment consisted of S-CS for the upper trapezius and superior oblique tender points, performed twice weekly for four weeks.

Results
He exhibited increased cervical flexion strength measured by hand-held dynamometry, a statistically significant reduction in pain scores measured by the Numeric Pain Rating Scale (NPRS) (Figure 1), and improved disability scores measured by the Neck Disability Index (NDI) (Figure 2).

Conclusion
Although a causative effect may not be inferred by this case report, results suggest a potential benefit from the use of this gentle positional release intervention for reducing pain, improving strength and function. Future studies are recommended to investigate the effectiveness of S-CS in the treatment of neck pain and disability.

Disclosure
The authors acknowledge they have no commercial interest conflicts associated with this manuscript.

References
A Case Report of Chest Wall Pain in the Superficial Fascial Layer Treated with Ultrasound-Guided Injection and Manual Therapy

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Background

Fascia is innervated by nociceptive nerve endings and can contribute to pain. [1–2] Manual therapy, including myofascial release and fascial manipulation, directly targets the fascial layer and trigger points. [3]

We present a case of chest wall pain involving the superficial fascial layer as visualized by ultrasound guidance.

Approach

A 69-year-old right handed male presented with 3 year history of anterior chest wall and shoulder pain that began following a fall during a myocardial infarction. He underwent urgent coronary artery bypass surgery. Weeks later he was diagnosed with a right scapula fracture. His pain continued in the posterior shoulder and anterior chest wall. He was evaluated by cardiology, pain management, and a shoulder orthopedic surgeon. He received epidural steroid and trigger point injections, physical therapy, 5 different long and short acting forms of narcotics, gabapentin and a lidocaine patch without pain resolution.

On presentation to the physiatrist, he complained of anterior chest wall and posterior shoulder pain, burning and intermittent “electric” sensations. Light touch and clothing provoked symptoms.

Physical examination was significant for aberrant scapula and rib motion and tenderness on palpation of the right anterior chest wall fibrous bands. The remainder of the neurological and musculoskeletal examination was normal.

Following acupuncture, a specific area remained painful. This painful site was visualized with ultrasound (US) guidance (linear probe, 10 MHz, 4 cm depth). Using sterile technique, a 25-gauge needle was advanced to the superficial fascial layer and reproduced the patient’s symptoms. Then, 1 cc of 1 % lidocaine was infused and visualized under US guidance. This improved symptoms for 2.5 weeks and was repeated. The patient was referred for myofascial release to the fibrous nodule in the superficial fascial plane. Myofascial release was also performed to pectoralis, right rib cage area, subscapularis, and latissimus dorsi. Manual treatment included skin rolling technique and cross hand release at the right rib cage and massage to a trigger point at the border of the right scapula.

Results

After 6 manual therapy treatments, the patient reported discontinuation of medicine for pain. He reported minimal to no pain in the chest wall and was able to resume his walking program.

Conclusions

Ultrasound visualization can assist in identifying painful areas and guide treatment of the fascial system.

References

A Randomized Controlled Trial of Ankle Joint Dorsiflexion After Classical Massage or Specific Myofascial Receptor Massage Technique on the Calf Muscle

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Background
In the last few years several massage techniques have been developed to aim the manual therapy to specific receptors in the connective tissue, depending on what results you want to achieve. The profession of Naprapathy was initiated in 1907 in the USA and is a health profession characterized by focusing on shortened or pathologic soft and connective tissues. The aim of this study was to investigate the range of motion in dorsiflexion of the ankle joint after specific myofascial receptor massage technique in the distal myotendinous junction of the calf compared with classic massage in the calf's musclebelly. The trial investigates the hypothesis that range of motion of dorsiflexion and the relaxation in the tissue depends on how and where in the body you stimulate the myofascial receptors. That is because various receptors are found in higher density in specific locations.

Methods
The 100 study participants (ages 19–37, mean 24.2) were randomly divided in two groups. One group got classical massage in the calf muscle for three minutes. The other group got transverse slow friction massage towards the receptors in the myotendinous junction of the calf muscle for three minutes. Goniometric measurement was performed before, immediately after and ten minutes after the intervention to study range of motion of dorsiflexion.

Results
A comparison between the groups showed a difference of 0.70 degrees (p<0.001) in favor of the specific receptor treatment directly after the intervention and a difference of 1.32 degrees (p<0.001) after 10 minutes also in favor of the specific receptor treatment.

Conclusion
Even though the difference in ROM between the two groups is quite modest, this trial suggests that a specific myofascial receptor technique not only may improve the ROM of ankle dorsiflexion more than classic massage, it may also have a more long lasting effect. Depending on the aim of the treatment the therapists might be encouraged to aim their soft tissue techniques to a lesser area where there is known to be high density of mechanoreceptors.

Does Resistance Flexibility™ Result in Rapid Hamstring Length Increases and Accelerated Range of Motion Increases Because of Fascial Changes?

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Background
Eccentric force loading exercises have been shown to cause increased muscle strength, demand less oxygen than concentric strength training [1], prevent injuries, and effectively treat tendinopathy [2]. The physics and pathophysiology of eccentric force loading and its beneficial effects are poorly understood. We introduce the hypothesis that Resistance Flexibility™ (RF) eccentric force technology and biomechanical analysis method immediately affects
fascia, resulting in uncharacteristically rapid range of motion increases and specifically increased flexibility of the hamstrings and the antagonist or 'balancing muscle'. RF is a zero-pain technology designed to identify damaged fascia in the body and then rehydrate and remodel this fascia. Anecdotally, RF training eliminates pain in the body and causes increased flexibility, strength, and range of motion [3].

Methods

1) Range of Motion: We measured maximum resting range of motion in 10 participants seated in a modified lotus position with a handheld goniometer/dynamometer: a) before training, b) after 5 minutes of traditional stretching on the lateral hamstrings, and c) after 5 minutes of RF training on the lateral hamstrings. 2) Stride Length: We measured stride length before and after 20 minutes of RF lower body training on 9 participants using the Tekscan Walkway™ gait analysis system.

Results

1) Range of Motion: Range of motion measured before and after traditional stretching and after RF training (n=10) showed the following changes (mean +/- SEM): After traditional stretching, the range of motion remained approximately the same at 103.6+/-4.88° from the pre-training 103.7+/- 5.01°; after RF training, range of motion increased to 116.0+/-4.87°. A range of motion increase of 10.0° or more was observed in 7 out of 10 participants. These preliminary results indicate there was no change in range of motion in response to traditional stretching, and an exceptional increase in range of motion in response to RF training. 2) Stride Length: Gait analysis before and after RF training (n=9) revealed the following change (mean +/- SEM): Stride length increased to 731.1+27.1 cm from the pre-training 678.6+38.2 cm in response to RF training. These preliminary results indicate an increase in stride length in response to RF training.

Conclusions

The observed increase in stride length following RF training suggests that RF increases hamstring length at an uncharacteristically fast rate. Stride length has been shown to increase in patients that undergo surgical lengthening of the hamstrings and is commonly used as a measure of hamstring function [4]. The rapid range of motion increase caused by RF training corresponds to the RF principle that changing damaged fascia in a given muscle increases flexibility of the antagonist or 'balancing muscle'. The effectiveness of this principle and the rapid changes observed in this study are not explainable by current models of myofascial change. These results may be due to the effect of RF training on the fascia and are under current investigation.

References


Disclosure

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Management of Idiopathic Scoliosis (IS) with Treatment of Myofascial Pain and Dysfunction and Fascial Restriction

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**Purpose**

To identify the role of treatment of myofascial trigger points (TrPs) and fascial restriction in managing pain and spinal curvatures of individuals who have or risk developing IS.

**Methods**

Case studies of 14 subjects include: (1) pre-adolescents at risk of developing IS, (2) adolescents with IS, (3) individuals with persistent pain after surgery for IS (4) older individuals with pain and uncorrected curvatures. Patients were examined and treated standing, seated, side lying, supine and prone to identify active and latent TrPs and fascial restriction and the relationship between pelvic unleveling, convexity and concavity of curvatures, and rib bowing. Fascial restrictions, TrPs, and associated joint dysfunction were treated using myofascial and fascial release (MFR and FR) [1,2] and fascial manipulation (FM) [3]; resulting changes in curvatures, pelvic unleveling and pain were monitored. Patients were also evaluated for ligamentous laxity: Benign Joint Hypermobility Syndrome (BJHS).

**Results**

Patterns of fascial restriction and myofascial dysfunction are remarkably similar in individuals in each of the four categories. Over 80% of subjects treated have BJHS. Asymmetry in length of certain muscles and related fascial layers was found critical to treatment of IS: quadratus lumborum (QL), latissimus dorsi, iliopsoas dorsi (LD), anterior serratus (AS), and subscapularis. QL and iliopsoas and related fascia play a key role in affecting tilt of the lumbar spine and pelvis. These muscles have angular or off center attachments and thus can pull the spine into distortion relative to the pelvis. Different parts of the QL are shortened on convex and concave sides. The LD, AS, and subscapularis and related fascia play a key role in rib cage mobility and tethering the scapula and appear to exert mechanical force due to their peripheral rather than central location. Muscular forces are compounded by significant asymmetry in fascial tension, particularly along diagonal and spiral lines. Elongation of asymmetrically shortened muscles and associated fascial restriction can result in decreased curvatures. Photos and x-rays will demonstrate these changes, including cases of pre-adolescents and adolescents considered likely to require body bracing and possible surgery who experienced 8 to 10 degree reductions in curvatures and therefore did not require these interventions. Treatment of active TrPs in these muscles and related fascial restriction has been effective in reducing back pain often associated with IS. Referral patterns for TrPs in these muscles encompass the entire thoracolumbar spine [4]. Surgical rod placement may fail to restore balance to the myofascially dysfunctional muscles and related fascia and result in post-surgical pain.

**Conclusions**

Myofascial dysfunction and fascial restriction appear to contribute to IS and associated pain, especially in the presence of ligamentous laxity. Treatment can reduce curvatures and pain. Further research is needed.

**References**

**Background**

The ancient world used a common tool to scrape the body not only for cleaning but based on historical context to release tensions in the superficial layers of the dermis. It was a form of preening, lost to the human race. This tool is called a strigil. Generally made of copper, bronze, bone or ivory. Artistic records show the strigil being used by athletes during athletic events in the Palestra (Fig. 1) and by the general population in the Roman baths. Modern interpretations of historical records generally describe the strigil as a tool used to cleanse the body after athletic events with olive oil, applied beforehand, then scraped off at the end of an event. Some describe that Caesar Augustus, who lived to age 75, had his face strigiled so severely that his skin was often seen bruised from deep use of the strigil. In Galen’s De Sanitate Tuenda he describes that it is possible to diagnose illness from observing the strignum and implies its use countless times validating the strigil as a medical tool.

**Hypothesis**

The ancient strigil was used to eliminate adhesions between, the superficial fascia of the dermis and the deeper layers, created during the repetitive motions and inflammations produced during the rigors of physically demanding exercises and daily activities, not just for exfoliating the skin. Why would youth engaged in athletic events be so consumed with being clean? Instead I suggest strigil use was a form of wellness or first aid. The use of strigils may provide one renewed tool for affecting fascia.

**Methods**

By regularly using a strigil with varying strokes, over the dermis of a client, adhesions may be reduced and eliminated. The use of olive oil adds an important analgesic and anti-inflammatory element to the process. The clients may learn to use this method on themselves.

**Conclusion**

Today regular use of the strigil implies what anecdotally the ancient practitioners knew. By using the strigil on the skin, surface tension on the dermis is reduced releasing tension in the deeper layers of the human connective tissue. Further study of this ancient tool may be beneficial in providing preventive care to provide myofascial health.
Abstracts

## 9.2.27

### Assessment of Myofascial Trigger Point Release with a novel Myometer (MyotonPRO) in Addition to an Algometer

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### Background

Myofascial triggerpoints (TP) are very common and are frequently associated with chronic shoulder, arm and headache pain [1]. In order to assess and treat these pathologies a prospective controlled clinical pilot study was designed to observe how changes in biomechanical properties (stiffness and elasticity) of the trapezius myofascial tissues affect patients’ subjective pain sensitivity.

### Methods

On 11 patients, 6 sensitive TP sites were pre-marked on each patient, three on each upper trapezius. The three sites on the more painful trapezius were treated with a single standardized maneuver of myofascial TP release technique, in four 10 minute sessions over a period of 2 weeks. Measurements at pre- and post-treatment were performed on both trapezius using a novel myometer [2], which measures tissue response including recoil to a series of rapid indentations (MyotonPRO) [3], and a pressure algometer. Analog assessment scales of pain, stress and life quality were additionally included.

### Results

The measurements with the myometer on the treated side showed significant decreases in stiffness and in logarithmic decrement (indication of muscle elasticity). Furthermore the algometer readings expressed a significant decrease in pain sensitivity. The algometer related changes were corroborated by similar improvements in the analog scales.

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![Figure 1. Dynamic stiffness Reduction](image1.png)

On treated side before 1st and after 4th treatment significant decrease of stiffness was observed. On non-treated side no significant difference of stiffness was noticed.

![Figure 2. Elasticity increase](image2.png)

On treated side before 1st and after 4th treatment significant decrease of Decrement was observed, which shows increase of elasticity. On non-treated side no significant difference was noticed.

![Figure 3. Desensitization of the Triggerpoints (in lbs.) and subjective pain reduction on the treated shoulder](image3.png)

On treated side before 1st and after 4th treatment significant decrease of Desensitization was observed, which shows increase of elasticity. On non-treated side no significant difference was noticed.

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9 Therapy
Conclusion

Using the MyotonPRO for evaluation of this form of fascial manipulation promises to be a useful instrument for objectively assessing changes of biomechanical properties (stiffness and elasticity) in the myofascial tissues such as the upper trapezius. Significant positive changes in these tissues and subjective pain sensitivity levels on the treated sides were achieved through myofascial TP release. Further studies need to be conducted to consolidate these findings as well as for the possible implementation in different medical applications.

References


9.2.28 A Randomised Controlled Clinical Trial of Multimodal Manipulative Treatment for Shoulder Pain: A Report of Findings.

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Background

Shoulder pain has a high prevalence in clinical practise, however very little research has been dedicated to this clinical entity from a manipulative therapy perspective. Hence, the purpose of this study is to describe a clinical trial and novel treatment rendered on a randomised pool of participants.

Methods

Forty-two participants participated in the trial. The pool of participants was individually randomised into three different groups: a control group (n=12), a manipulation group (n=15), and a multimodal treatment group (n=15). Each participant after randomisation and the initial assessment was treated for a total of eight visits over a four-week period. Multimodal treatment included short lever high velocity manipulation of the cervical or thoracic spines, and or the glenohumeral joint. Additionally, soft tissue interventions in the form of ischaemic compression, friction massage and myofascial release techniques were also applied. Rehabilitation of the rotator cuff and parascapular musculature was also included in the protocol initially in the form of isometric contractions, followed by theraband exercises. Reassessment of participants occurred at the end of the four-weeks and four months after treatment. The outcome measures for the trial included patient’s perception of pain, metal sliding VAS, orthopaedic range of motion and orthopaedic testing.

Results

The data was statistically analysed with descriptive statistical and inferential methods using a standard significance level (alpha) of 0.05. Both treatment groups showed a marked reduction in mean pain levels pre and post treatment for both pain outcome measures including subjective pain and subjective pain metal slider. The multimodal group demonstrated a change of from pre-treatment levels of 6.6/6.2 respectively to post treatment levels at 1.8/1.4 at four weeks. The manipulation group for both outcome measures demonstrated changes from the pre-treatment levels of 5.1/4.8 to post treatment levels of 2.9/2.3. The control group showed no statistically detectable change with statistical testing. At four months, the change in pain outcome measures for the multimodal group was 1.8 and 1.3. This represented
a 73 & 79% reduction in pain levels compared to baseline values. For the manipulation group the pain levels for both variables was 3.2 & 2.6. This represented a 38 & 46% reduction in pain levels compared to baseline values. The participants randomised to the multimodal treatment group demonstrated a greater mean pain level change for both outcome measures and reported success with the treatment.

Conclusion

This report of findings demonstrates the potential benefit of a multimodal manipulative protocol and straight manipulation protocol in managing pain syndromes associated with dysfunction of synovial structures of the shoulder and or shoulder girdle.

Trial registration: Australian New Zealand Clinical Trial Registration Number: ANZCTR N 12609000400268