OMT Evidence Based Medicine

Kurt Heinking, DO, FAAO
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Name of CME Activity: 2017 ACOFP Annual Convention & Scientific Seminars
Dates and Location of CME Activity: March 16 - 19, 2017, Gaylord Palms Resort and Convention Center, Kissimmee, FL, United

Name of Faculty/Moderator: Kurt Heinking, DO

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Please email this form to joank@acofp.org as soon as possible
Deadline: Friday, January 20, 2017
Evidence Based Osteopathic Manipulative Medicine

Dr. Kurt Heinking, DO, FAAO
Midwestern University/ CCOM
ACOFP 2017
Efficacy of OM as an Adjunctive Treatment for Hospitalized Patients with Pneumonia: a Randomized controlled trial – Noll, DO

- **Objective**: Efficacy of OMT as an adjunctive treatment for hospitalized patients with pneumonia (MOPSE)

- **Design**: double blinded, randomized controlled; 318 subjects
  - **Experimental**: OMT- refer to MOPSE protocol
  - **Control**: Conventional care only (CCO), light touch (LT)

- **Results**:
  - Significant difference found in length of stay (LOS) for OMT vs CCO
  - Significant difference found for duration of IV antibiotics and death or respiratory failure for OMT vs CCO
  - No significant difference found for OMT vs LT
  - Therefore OMT effective adjunctive modality

MOPSE Protocol

- Thoracolumbar ST
- Rib raising
- Doming of diaphragm MFR
- Cervical ST
- Sub occipital decompression
- Thoracic inlet MFR
- Thoracic lymphatic pump
- Pedal lymphatic pump

MOPSE Protocol

- Thoracolumbar ST
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- **Thoracic lymphatic pump**
- **Pedal lymphatic pump**

Osteopathic lymphatic pump techniques to enhance immunity and treat pneumonia 2011


- Provided a short review that highlighted the clinical and basic science research studies that supported the use of lymphatic pump techniques to enhance lymphatic immune systems and treat pneumonia.

- Lymphatic pump technique was shown to enhance uptake of interstitial tissue antigen to the initial lymphatic.

- A gastrointestinal lymphoid tissue releases immune cells into lymphatic circulation during lymphatic pump treatment.

- Serum Interferon levels of healthy subjects are unchanged during a 24-hour period following lymphatic pump treatment.

- In OMT was applied to patients with COPD at mildly worsening pulmonary function tests immediately post treatment. When compared to pretreatment.
Osteopathic manipulative treatment (OMT) is a promising adjunctive treatment for older adults hospitalized for pneumonia 2016


- To report subgroup analyses from the (MOPSE) study relating to hospital length of stay (LOS), ventilator-dependent respiratory failure rate, and in-hospital mortality rate

- Multicenter (7 hospitals) randomized controlled trial

- Three hundred eighty-seven patients aged 50 years or older who met specific criteria for pneumonia on hospital admission

- Participants were randomly assigned to 1 of 3 groups that received an adjunctive OMT protocol (n=130), a light touch (LT) protocol (n=124), or conventional care only (CCO) (n=133)

- Subgroups were age, Pneumonia severity index and type of pneumonia
Osteopathic manipulative treatment (OMT) is a promising adjunctive treatment for older adults hospitalized for pneumonia 2016

- **LOS was shorter** for the OMT group (median, 2.9 days; n=43) than the LT (median, 3.7 days; n=45) and CCO (median, 4.0 days; n=65) groups ($P=.006$).

- In the older age subgroup, in hospital **mortality rates were lower** for the OMT (1 of 66 [2%]) and LT (2 of 68 [3%]) groups than the CCO group (9 of 67 [13%]) ($P=.005$).

- By per-protocol analysis of the PSI class IV subgroup, the OMT group had a **shorter LOS than the CCO group** (median, 3.8 days [n=40] vs 5.0 days [n=50]; $P=.01$) and a lower ventilator-dependent respiratory failure rate than the CCO group (0 of 40 [0%] vs 5 of 50 [10%]; $P=.05$).

- In-hospital **mortality rates** in the PSI class V subgroup were lower ($P=.05$) for the OMT group (1 of 22 [5%]) than the CCO group (6 of 19 [32%]) but not the LT group (2 of 15 [13%]).

- Subgroup analyses suggested adjunctive OMT for pneumonia **reduced LOS** in adults aged 50 to 74 years and **lowered** in-hospital **mortality rates** in adults aged 75 years or older.

- Adjunctive OMT may also **reduce LOS** and **in-hospital mortality rates** in older adults with more severe pneumonia.
OMT in Children with Recurrent AOM - Mills, DO

- **Objective:** OMT as adjuvant therapy for recurrent AOM

- **Design:** 57 patients followed over 6 months
  - **Experimental:** Routine care + OMT
  - **Control:** Routine care

- **Results:**
  - Intervention had fewer episodes of AOM
  - More surgery free months
  - No adverse reactions to OMT
Acute Otitis Media OMT: Mills

- 15-20 minutes
- Gentle techniques on areas of restriction
  - ART
  - MFR
  - BMT
  - BLT
  - FPR
  - CS
- NO HVLA

Galbreath Articulatory Technique for draining Eustachian tube

Acute Otitis Media OMT: Mills

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  - NO HVLA

Echinacea for OMT for recurrent otitis media?


- A randomized, placebo-controlled, 2 x 2 factorial trial with six-month follow-up conducted between 1999 in 2002.

- Patient’s age 12-60 months with recurrent otitis media.

- Children were randomly assigned to one of four protocol groups:
  - Double placebo, Echinacea plus Sham OMT, true OMT plus placebo Echinacea, or true Echinacea plus OMT. 5 OMT visits or Sham treatments were offered over 3 months.

- Conclusion: In otitis prone children, treating colds with Echinacea did not decrease the risk of otitis media, but may increase it. A preventative regime of up to 5 osteopathic manipulative treatments does not significantly decrease the risk of acute otitis media.
Effect of OMT on middle ear effusion following acute otitis media and young children: Pilot study


- Looked to evaluate the efficacy of OMT on middle ear effusion resolution. Compared standard of care versus standard of care plus OMT in patients with acute otitis media.

- Patients age 6 months to 2 years, were measured with weekly tympanometry measurements. 52 patients enrolled / 43 completed the study.

- Conclusion: Standardized OMT protocol administered adjunctively with standard of care for patients with acute otitis media resulted in faster resolution of the middle ear effusion faster then standard treatment alone.
The Pregnancy Research on Osteopathic Manipulation Optimizing Treatment Effects (PROMOTE) study was designed as a prospective, randomized, placebo-controlled, and blinded clinical trial to evaluate the efficacy of an OMT protocol for pain during third-trimester pregnancy.

- **Objective:** Evaluate efficacy of OM on back pain in third trimester and to improve outcomes of labor and delivery

- **Design:** Randomized, 400 women in 3rd trimester

- **Experimental:**
  - OMT: 7 treatments over 9 weeks
  - Control: Usual care only (UCO), usual care + placebo ultrasound tx (PUT)

- **Results:**
  - OMT effective in mitigating pain compared to UCO
  - No significant difference from PUT
  - Therefore OMT effective adjunctive modality
The 12 well-defined, standardized OMT techniques used in the protocol are commonly taught at osteopathic medical schools in the United States. These techniques can be easily replicated as a 20-minute protocol applied in conjunction with usual prenatal care.

- Abdominal Diaphragm MFR
- Pelvic Diaphragm MFR
- Sacroiliac ART
- Frog- Leg Sacral Release
- A/P Ilium MET
- Pubic symphysis decompression
- Compression of Fourth Ventricle (CV4)

- Seated Thoracic ART
- Supine Cervical ST
- OA decompression
- Thoracic Inlet MFR
- Lateral Recumbent Scapulo-thoracic ST
- Lateral Recumbent Lumbar ST
PROMOTE Protocol

- Seated Thoracic ART
- Cervical ST
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PROMOTE Protocol

- Thoracic Inlet MFR
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PROMOTE Protocol

- Abdominal Diaphragm MFR
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- Sacroiliac ART

PROMOTE Protocol

- Pubic Symphysis Decompression
- Frog-Leg Sacral Release
- A/P Ilium MET
- Compression of Fourth Ventricle (CV4)

Effects of OMT on Pediatric Patients with Asthma: A Randomized Controlled Trial- Guiney

- **Objective**: Assess OMT effects on peak flows in asthmatic patients
- **Design**: 140 subjects ages 5 to 17 years
  - **Experimental**: OMT
  - **Control**: Sham session
- **Results**:
  - OMT group showed significant mean increase in peak expiratory flow
  - Sham group showed no significant difference
  - Therefore OMT effective adjunctive modality
OMT for Pediatric Asthma Patient

- Rib raising
- Muscle energy for ribs
- MFR

OMT for Pediatric Asthma Patient

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OMT for Pediatric Asthma Patient

• Rib raising
• Muscle energy for ribs
• MFR

Intramuscular ketorolac vs OMT in management of acute neck pain in ED:
A Randomized clinical trial – McReynolds

- **Objective**: Efficacy of single dose of IM ketorolac vs OMT in acute neck pain management in ED

- **Design**: 58 patients w/ acute neck pain < 3 weeks duration
  - **Experimental**:
    - OMT
    - Control: 30 mg IM ketorolac
    - Perceived pain evaluated on 5 point pain scale 1 hr. post tx

- **Results**:
  - No significant difference between OMT and ketorolac
  - OMT is as efficacious as IM ketorolac in providing pain relief
  - OMT is significantly better in reducing pain intensity
  - OMT is a reasonable alternative to NSAIDS for acute neck pain in ED
Intramuscular ketorolac vs OMT in management of acute neck pain in ED: A Randomized clinical trial – McReynolds

• Specific combination of 3 OM techniques was left to physician discretion
  
  • Cervical HVLA thrust
  
  • Cervical ME
  
  • Cervical ST

Intramuscular ketorolac vs OMT in management of acute neck pain in ED: A Randomized clinical trial – McReynolds

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Mechanical Low Back Pain

- The Agency for Healthcare Research and Quality (AHRQ) guidelines for the management of acute low back pain was published in 1994. Six other countries besides the U.S., recommend spinal manipulation for patients with LBP in their national guidelines.

In reviewing the literature, Seffinger and Hruby found and published the following statements regarding low back pain. They are derived by review and as well as from a best evidence synthesis of the current published literature.

1. Manual treatment for patients with acute or chronic mechanical LBP is as effective as standard treatments.
2. Manual treatment is recommended for adult patients with mechanical LBP.
3. Manual therapy provides more effective short-term pain relief for patients with acute or subacute LBP and better than a placebo treatment for patients with chronic LBP.
4. There is moderate, although conflicting, evidence to recommend spinal manipulation for chronic nonspecific or mechanical back pain sufferers for short-term relief of symptoms, which may enable increased activity levels and less reliance on medications.

Mechanical Low Back Pain

- Meta-analysis of the few osteopathic clinical trials shows multiple benefits of osteopathic manipulative treatment (OMT).

- These include: **decreased pain** and decreased use of **physical therapy** and **medications** compared with the standard medical care.

Mechanical Low Back Pain

- A U.S. trial of osteopathic manipulation vs. allopathic standard of care for lower back pain was performed in Chicago between Rush Hospital Department of Orthopedics and CCOM. It’s purpose was to determine whether osteopathic care, including manipulative treatment, would benefit patients with low back pain (that had lasted more than three weeks, but less than six months) more than standard allopathic care.

- It used an integrated approach, including medications, physical therapy and manipulation at the discretion of the treating physician.

Mechanical Low Back Pain

• The results of this clinical trial were published in the November 4, 1999 issue of the New England Journal of Medicine. It was a prospective, randomized, ambulatory clinical trial of the efficacy of comprehensive osteopathic care (i.e., medical plus manipulative treatment) versus standard medical care in patients presenting with subacute low back pain of 3 weeks to 6 months duration.

• The patients were equally satisfied with their care, irrespective, to which group they were assigned, and outcomes were equivocal, but the osteopathic physician used less medication and physical therapy referrals.

• This study benefitted the Osteopathic profession greatly, providing exposure, for the efficacy of OMT to the whole medical world.

Mechanical Low Back Pain

• A systemic review 36 of sham-controlled, double-blind randomized clinical trials of spinal manipulation (i.e., high-velocity, low-amplitude (HVLA) procedures) challenges this conclusion because it demonstrated no clinically significant specific therapeutic effects.

• Sham-controlled HVLA manipulative treatment studies are difficult to interpret, because a sham treatment may have some therapeutic benefit.

Mechanical Low Back Pain

- There is strong evidence that manual therapy provides more effective short-term pain relief for patients with acute or subacute LBP.

- Manual therapy provides better than a placebo treatment for patients with chronic LBP (grade A evidence).

- There is moderate evidence (i.e., grade B) that manual medicine is more effective than usual care by the general practitioner, bed rest, analgesics, and massage for short-term pain relief of patients with acute and chronic LBP.

- It seems reasonable to use a combination of manual treatment along with exercise and medication as the best practice based on the evidence.

Osteopathic intervention and chronic nonspecific low back pain: Systematic review 2013

- Orrock PJ, Myers SP: Osteopathic intervention and chronic nonspecific low back pain: Systematic review, BMC Musculoskeletal disorders 2013, 14:129

- The systematic review of clinical research into osteopathic intervention for chronic nonspecific low back pain. The literature was search using specific inclusion criteria and papers assessed using the Cochran back review risk of by his criteria.

- Out of 809 papers search 37 papers were subjected to a more detailed analysis of the full text which resulted in 35 being excluded only 2 remaining trials were looked at because of the lack of methodology and homogeneity.

- 1 trial concluded that osteopathic intervention was similar and effectively sham treatment in the other suggested a similar effect between osteopathic intervention, exercise, and physiotherapy.

- The authors recommended that further trials on this subject need to have consistent and rigorous methods appropriate controls and use of shams and an intervention that reflects actual practice.
Mechanical low back pain meta-analysis: 2014


- A study done between Victoria University Melbourne Australia and AT Still Research Institute.

- A systematic literature search including only randomized clinical trials looking at outcome measures of functional status and pain.

- They identified 307 studies of which 15 studies were reviewed and 10 investigated the effectiveness of OMT for nonspecific low back pain.

- They recommended larger high quality randomized controlled trials with robust comparison groups.
Mechanical low back pain meta-analysis: 2014

- There was moderate quality of evidence to suggest that OMT had a significant effect on pain relief and functional status in acute and chronic low back pain.

- For nonspecific low back pain and pregnancy low-quality evidence suggested a significant difference in favor of OMT for pain and functional status.

- **Conclusion**: Clinically relevant effects of OMT were found for reducing pain and improving functional status and patients with acute and chronic nonspecific low back pain and for low back pain and pregnancy and postpartum women at 3 months post treatment.
Targeting Patient Subgroups With Chronic Low Back Pain for Osteopathic Manipulative Treatment 2016


To identify subgroups of patients with chronic LBP who achieve medium to large treatment effects with OMT based on responder analyses involving pain and functioning outcomes from the OSTEOPATHtic Health outcomes In Chronic low back Trial.

A randomized, double-blind, sham-controlled trial involving 455 patients was conducted from 2006 to 2011. (OSTEOPATHIC) Trial is the largest single-site efficacy trial of spinal manipulation for chronic LBP, as evidenced by a comparison with 26 trials included in a Cochrane Review.

A 100-mm visual analog scale (VAS) for LBP intensity and the Roland-Morris Disability Questionnaire (RMDQ) for back-specific functioning were used to assess primary and secondary outcomes, respectively.

Substantial improvement was defined as 50% or greater reduction at week 12 compared with baseline.
Targeting Patient Subgroups With Chronic Low Back Pain for Osteopathic Manipulative Treatment

• OMT was not associated with overall substantial improvement in back-specific functioning, patients with baseline RMDQ scores of 7 or greater experienced medium effects, and patients with baseline scores 16 or greater experienced large effects that were significant.

• The OMT effects for LBP intensity and back-specific functioning were independent of baseline patient demographic characteristics, comorbid medical conditions, and medication use.

• **Subgrouping** according to baseline levels of chronic LBP intensity and back-specific functioning appears to be a simple strategy for identifying sizeable numbers of patients who achieve substantial improvement with OMT.
• Licciardone JC, Gatchel RJ, Aryal, S: Recovery From Chronic Low Back Pain After Osteopathic Manipulative Treatment: A Randomized Controlled Trial, J Am Osteopath Assoc. 2016;116(3):144-155

• To assess recovery from chronic LBP after a short regimen of osteopathic manipulative treatment (OMT) in a responder analysis of the OSTEOPATHic Health outcomes In Chronic low back pain (OSTEOPATHIC) Trial (#1)…..

• A randomized double-blind, sham-controlled trial was conducted to determine the efficacy of 6 OMT sessions over 8 weeks.
Recovery From Chronic Low Back Pain After Osteopathic Manipulative Treatment: A Randomized Controlled Trial 2016

- Recovery was assessed at week 12 using a composite measure of pain recovery (10 mm or less on a 100-mm visual analog scale- VAS) and functional recovery (2 or less on the Roland-Morris Disability Questionnaire for back-specific functioning).

- The RRs and numbers needed-to-treat (NNTs) for recovery with OMT were measured, and corresponding cumulative distribution functions were plotted vs. LBP intensity & back-specific functioning. Multiple logistic regression was used as well as sensitivity analyses.
Patients were randomly allocated by computer generated pseudorandom numbers to OMT or sham OMT within a 2×2 factorial design. The second factor studied was ultrasound therapy.

The OMT “package” was delivered during 15-minute sessions provided by osteopathic physicians, fellows, or residents at weeks 0, 1, 2, 4, 6, and 8, and outcomes were assessed at week 12.

Sham OMT involved hand contact, active and passive range of motion, and techniques that simulated OMT but used such maneuvers as light touch, improper patient positioning, purposely misdirected movements, and diminished force.
The findings indicate that 20-25% of patients receiving OMT may experience improvements in both pain intensity and back-specific functioning consistent with recovery from chronic LBP. These findings represent a large treatment effect as defined by the Cochrane Back Review Group.

Multivariate analyses corroborated that OMT was independently associated with recovery suggesting that the findings are relevant to a wide spectrum of patients with chronic LBP regardless of demography, baseline LBP and general health, and concurrent use of prescription and nonprescription medication.

Patients with comorbid depression did not appear to experience a favorable recovery response to OMT in the study.

This is the first major trial to implement the recommendation of the National Institutes of Health Task Force on Research Standards for Chronic Low Back Pain to report “cumulative distribution functions” of responses in treatment and control groups.
Acute Mechanical Neck Pain and Cervicogenic Headache

• Cervical spine manipulation provides short term benefit in patients with acute neck pain and headache. (Grade A)

Acute Mechanical Neck Pain and Cervicogenic Headache

• Spinal manipulation provides short term relief for patients with tension headache. (grade A)


• Manual treatment for moderate to severe cervicogenic headache are effective for many types of patients (grade A)

Subacute and Chronic Mechanical Neck Pain and Cervicogenic Headache

- Mobilization /manipulation plus exercise has both short and long term benefits in chronic mechanical neck disorders. (Grade A)


- For subacute and chronic neck pain, spinal manipulation is more effective than muscle relaxants, and enhanced when combined with exercise and ergonomic adjustments. (Grade A)

Pilot Trial of Osteopathic Manipulative Therapy for Patients With Frequent Episodic Tension-Type Headache
Italy 2014

- Rolle, G; Tremolizzo, L; Somalvico, F; Ferrarese, C; Bressan, LC: Trial of Osteopathic Manipulative Therapy for Patients With Frequent Episodic Tension-Type Headache, *J Am Osteopath Assoc.* 2014;114 (9):678-685

- Single-blind randomized placebo-controlled pilot study

- Forty-four patients who were affected by frequent episodic TTH and not taking any drugs for prophylactic management of episodic TTH were recruited.

- Patients were randomly allocated to an experimental or control group.

- The experimental group received corrective OMT techniques, tailored for each patient; the control group received assessment of the cranial rhythmic impulse.

- The study included a 1-month baseline period, a 1-month treatment period, and a 3-month follow-up period.
Pilot Trial of Osteopathic Manipulative Therapy for Patients With Frequent Episodic Tension-Type Headache

- The primary outcome was the change in patient-reported headache frequency, and secondary outcomes included changes in headache pain intensity (discrete score, 1 [lowest perceived pain] to 5 [worst perceived pain]), over-the-counter medication use, and Headache Disability Inventory score.

- The OMT group had a significant reduction in headache frequency over time that persisted 1 month (approximate reduction, 40%; P<.001) and 3 months (approximate reduction, 50%; P<.001) after the end of treatment.

- Moreover, there was an absolute difference between the 2 treatment groups at the end of the study, with a 33% lower frequency of headache in the OMT group (P<.001).

- Osteopathic manipulative therapy may be preferred over other treatment modalities and may benefit patients who have adverse effects to medications or who have difficulty complying with pharmacologic regimens.
Carpal Tunnel Syndrome

- Wrist carpal bone mobilization improves symptoms and signs of CTS. (Grade A)

Carpal Tunnel Syndrome

- Chiropractic manipulation of the upper extremities and spine is as effective as conservative medical care in improving symptoms and signs of CTS. (Grade A)

Carpal Tunnel Syndrome

- OMT of the thoracic outlet, upper ribs, upper back, lower cervical spine, and tenderpoints of the forearm improve signs and symptoms of CTS. (Grade B)

Carpal Tunnel Syndrome

- Self stretching and Myofascial release of the Carpal tunnel improves symptoms and signs of CTS. (Grade B)

Effectiveness of Osteopathic Manipulative Treatment for Carpal Tunnel Syndrome: A Pilot Project: 2015


- A single-blinded quasi-controlled trial was conducted at an academic institution.

- Participants with CTS underwent weekly OMT sessions for 6 consecutive weeks.
  - Electrophysiological testing of the median nerve and ultrasound imaging were repeated.
  - After 6 weeks of OMT, all outcome measure were re-administered.

- The main outcome measures were:
  - The Boston Carpal Tunnel Syndrome Questionnaire (BCTQ),
  - A sensory symptom diagram (SSD)
  - Patient estimate of overall change
  - Electrophysiological testing of the median nerve
  - Carpal tunnel ultrasound imaging
Effectiveness of Osteopathic Manipulative Treatment for Carpal Tunnel Syndrome: A Pilot Project

• Results of the BCTQ revealed statistically significant improvements in symptoms and function of the treated wrist after 6 weeks of OMT.

• Patient estimate of overall improvement of symptoms was statistically significant for the treated side.

• No statistically significant changes in electro-physiologic function of the median nerve, cross-sectional area of the median nerve, or transverse carpal ligament were observed.
Lack of Substantial Evidence

• Q: Can you name one OMM topic that is controversial and does not have a substantial evidence base?
Lack of Substantial Evidence

• **A: Cranial Osteopathy /OCF**
  - A system of diagnosis and treatment by an osteopathic practitioner using the primary respiratory mechanism and balanced membranous tension. See also primary respiratory mechanism.
  - 2. Refers to the system of diagnosis and treatment first described by William G. Sutherland, DO. 3. Title of reference work by Harold Magoun, Sr, DO.
Critics of the Cranial Concept

1. “No inter-examiner reliability, so how can you treat utilizing a phenomena that can not be measured.

   Not exactly true – criticisms of Upledger not substantiated & ignored Drengler data

2. Cranial bone motion can not be demonstrated because cranial sutures fuse.

   Not true – Sabini & Elkowitz and Kroman & Thompson study

3. No clinical studies showing efficacy

   There are some……more need to be done

   Therefore cranial concepts are unsupported and probably just a figment of our imagination AND should be stricken from curriculum of osteopathic medical training!
Critics of the Cranial Concept


The 5 Components of the PRM

King, H. Osteopathy in the Cranial Field, Chapter 48, Foundations for Osteopathic Medicine, 3d edition, pp 728-745

1. The Inherent rhythmic motion/motility of the brain and spinal cord

2. The Fluctuation of the CSF
   • Enzmann DR, Pelc NJ. Normal flow patterns of intracranial and spinal cerebrospinal fluid defined with phase-contrast cine MR imaging. Radiology 1991; 178:467-474

3. The Mobility of the intracranial and intraspinal membranes

4. The Articular mobility of the cranial bones

5. The Involuntary mobility of the sacrum between the ilia.
   • Still to be proven with cranial motion…….
Therapeutic effects of cranial osteopathic manipulative medicine: A systematic review 2011

- Jakel, A, Von Hauenschild, P: Therapeutic effects of cranial osteopathic manipulative medicine: A systematic review, JAOA, volume 111, No. 12, December 2011 page 685-694

- Following searches of multiple electronic data bases, randomized controlled trials and observational studies that measured the effectiveness of cranial OMM on humans were included in the study.

- Studies that described the use of cranial OMM with other treatment modalities and did not perform subgroup analysis were excluded.

- Outcome measures of pain, sleep, quality of life, motor function, and autonomic nervous system function were extracted. The method logical quality of the trials was assessed using the Downs and Black checklist.

- Of 8 studies that met the inclusion criteria 7 were randomized controlled trials and one was an observational study. The method logical scores ranged from 14-23 points out of maximum 27 points.
Therapeutic effects of cranial osteopathic manipulative medicine: A systematic review 2011

• Conclusions:

• The most common statistically significant results found were for improvement in sleeping patterns, compared to placebo or control.

• The effect of cranial OMM on pain was investigated in 2 studies. A positive outcome was reported in adults with tension type headache.

• Alterations and autonomic nervous system function after cranial OMM was demonstrated including a change in blood flow velocity and visual function.

• Three studies did not show a change in heart rate variability or respiratory rate variability in healthy adults.

• One study showed an improvement in global functioning in children with cerebral palsy following a 10 week follow-up questionnaire. However, there was no statistically significant change in motor function. There were no adverse effects from cranial in these children.

• The review provided recommendations at the current evidence on cranial OMM is quite heterogeneous with only moderate method a logical quality of the studies and scarcity of the available data therefore further research is still needed.
Osteopathic Evidence Based Medicine Critiques

- Subjective assessments
  - Pain Scales
  - Clinical potency of OMT varies widely among practitioners and is related to experience

- Limited quantitative measurements
  - Length of stay
  - The most OMT can do is return patient's physiologic mechanisms towards normal/optimal conditions; therefore studies using healthily patients will not accurately reflect its efficacy

- Improvement from sham groups, however no significant differences
  - OMT studies often study it as a pharmaceutical drug, however, it is a set of procedures and should therefore be studied using the protocols that evaluate medical procedures. In addition, it should be performed by experienced, licensed physicians as this will play a role in efficacy.

- Small numbers of subjects and is often limited to pilot studies
Special Thanks....
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References


References


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Picture References

- OMM Procedure Manual 2013-14, CCOM, Midwestern University
- Google images
- CCOM teaching images: faculty, students, scholars