

Autor-Any	Intervenció
Duncan 2008	Tècniques osteopatia cranial directes-indirectes i/o lliberació miofascial. Tractament acupuntura
Gunnar 1999	Tècniques de manipulació osteopàtica Tractament convencional (farmacològic + teràpia física) .
Licciardone 2008	Convinació de OMT i de tractament amb US
Cuccia 2009	Comparativa tractament amb tècniques d'osteopatia y tractament convencional conservador
Mills 2003	Comparativa entre tractament complementari amb OMT i sense
Philippi 2006	Comparativa entre nounats tractats amb OMT i grup control sense tractament
Pizzolorusso 2011	Comparativa amb OMT en nounats prematurs i grup sense tractament
Hayes 2006	Cerca de la latrogenia associada a la TMO en la població Pediàtrica amb tècniques com Impuls, Mio-fascial. Energia Muscular
Russell 2002	Tècnica Osteopàtica de Mobilització (tècnica de Spencer)
Burton 1999	Estudi comparatiu entre manipulació osteopàtica vertebral i la quimionucleolisis.
Lessard 2011	Tècniques de compressió , normalització inter - intra sutural i intra-óssia. Tractament de le membranes intra-ossies. Equilibració de còndils occipitals, lliberació fascial. Tractament cinturó escapular i pelvis.
Eisenhart 2003	Tècniques d' osteopatia estructural directes
Arienti 2011	Tècniques d'alliberació miofascial, tècniques d'energia muscular, teixits tous i tècniques craneosacres. No tècniques d' alta velocitat. Tractament farmacològic convencional

Chown 2008	Fisioteràpia en grup, fisioteràpia manual individualitzada i osteopatia
Voig 2011	Tècniques d'osteopatia cranial
Sandhouse 2010	Tècniques d'osteopatia cranial (tècnica d'equilibració de la tensió membranosa)
Licciardone (2010)	Efficiency of osteopathic manipulative treatment (OMT) in back pain and related symptoms during the third trimester of pregnancy.

Hadley (1979)

- a)** Do osteopathic manipulative procedures reduce the severity of muscle-contraction headache already in progress?
- b)** When symptomatic relief of muscle-contraction headache is obtained following osteopathic manipulation, are there associated reductions in EMG levels of the frontalis muscle?

Skyba (2003)

Determine which spinal neurotransmitter receptors mediate manipulation-induced antihyperalgesia

- Harvey (2003) One serious problem in interpreting the evidence is that reports often do not make it clear exactly what manipulative procedures have been given to patients, over what period of time, and whether other elements of care (such as advice on activity and exercise) were included.
Thus, what is required is a package that defines in advance the range of techniques permitted, the timing of delivery, and the accompanying advice. So here we propose a Spinal manipulation package agreed by the UK chiropractic, osteopathy and physiotherapy professional associations.
- Hortos 2010 Osteopathic treatment
- Noll (2010) Osteopathic manipulative treatment (OMT) would reduce length of stay (LOS), time to clinical stability, and a symptomatic and functional recovery score in elderly patients hospitalized with pneumonia compared to light touch sham (fingido, simulado) and conventional care only?
- Andrew (2010) The aim of this study was to establish whether cervical spine manipulation provides more rapid and more complete recovery from an episode of neck pain than cervical spine mobilization.

Russo (2006)	To compare the treatment credibility of sham (fingido) manipulative treatment and untreated controls to active osteopathic manipulative treatment (OMT).
Williams (2003)	Assess the effectiveness and health care costs of a practice-based osteopathy clinic for subacute spinal pain.
Guiney (2005)	The authors sought (busquen) to demonstrate that Osteopathic Manipulative Treatment (OMT) can favorably affect respiratory function in pediatric patients with asthma.
Snider (2011)	To determine both accuracy and interobserver reliability (confiança) of identification of lumbar vertebral level by palpation. Also, the effect of examiner experience, presence of anatomical anomalies, and participant characteristics were assessed.
Mellado (2010)	Eficàcia de les manipulacions vertebrals en el tractament de la lumbàlgia mecànica crònica
Hancock 2006	Disseny de tècniques placebo per a estudis de l'efectivitat de la teràpia manipulativa vertebral

Luomajoki (2012)

- a) TPD (two point discrimination) threshold at the back is larger in patients than in healthy controls?
- b) The larger TPD threshold at the back relates (es relacionada) to worse voluntary lumbopelvic control?

Snider (2010)

To investigate the association between altered segmental lumbar vertebral mechanics (somatic dysfunction), as diagnosed by physical examination, and lumbar bone mineral density (BMD) T scores à Estan associades les disfuncions somàtiques valorades per palpació

Bove (2012)

It's possible that an anatomically-based visceral mobilization, designed to promote normal mobility of the abdominal contents, could manually identify, lyse and prevent surgically-induced adhesions?

Zanotti (2012)

Effectiveness of osteopathic manipulative treatment (OMT) in severe chronic obstructive pulmonary disease (COPD)

Plotkin (2001)

a) Which is the impact of osteopathic manipulative treatment (OMT) as an adjunct to standard psychiatric treatment of women with depression.

b) Is depression associated with depressed immune responsiveness?

Thomson (2011)

a) The OMT induces an improvement in immune responsiveness?
Clinical reasoning is a term that makes reference to the processes by which practitioners make diagnostic, therapeutic and management decisions with their patients. These processes are poorly understood, so the aim of this article is to discuss the bases of the clinical reasoning.

Degenhardt (2010)

It is possible the maintenance (manteniment) and improvement (millora) of interobserver reliability (confiança, fiabilitat, seguretat) of osteopathic palpatory tests over a four month period?

Laird 2010	Integració de la Medicina Basada en l'evidència dins l'osteopatia, a través de tallers adreçats al professorat universitari d'osteopatia
Coronado 2012	Canvis de sensibilitat després de la manipulació espinal icluint probes de sensibilitat al dolor amb estímuls químics, elèctrics, mecànics i tèrmics
Bronfort 2001	Tècniques d'alta velocitat i curt recorregut
Seffinger (2010)	Assess the efficacy of Osteopathic Manipulative Treatment (OMT) for somatic dysfunction associated with low back pain by osteopathic physicians and osteopathic practitioners trained in osteopathic palpatory diagnosis and manipulative treatment.
Mégret (2004)	Tensegrity as a osteopathic biomechanical model
Schwerla (2011)	
Rosenheck (2012)	
Seffinger 2010	Recorregut històric darrers anys
Homola 2012	Riscos-Beneficis de la manipulació cervical
Rollinson 2008	Comparació fluctuació LCR a un presostat
Hollis 2012	Resum de revisions de l'osteopatia cranial
Kirsch 2011	Estudi, i recerca comparativa sobre l'idoneïtat dels tractaments protocolitzats en osteopatia

Groos 2011	Tècniques estructurals d'impuls a la columna cervical i toràcica, mobilització transversal cervical
Renaudeau 2012	Tècniques osteopàtiques, quiropràctiques, fisioterapeútiques i dels no sanitaris
Philips 2009	Osteopatia cranial en nounats
Brathingham 2008.	Tècniques manipulatives en extremitats inferiors, mobilitzacions
Jäkel 2011	Tècniques d'osteopatia cranial directes i indirectes
Earley 2010	Tècniques d'alta velocitat de baixa amplitud (HVLA), d'energia muscular, funcionals, de teixits tous, cranials, linfàtiques

Humphreys (2010)

The objective of this review is to update the clinical research literature from the 2007 report by Vohra, Johnston, Cramer and Humphreys on possible adverse events in children treated by Pediatric Manipulative Treatment and in specially about spinal manipulation.

Liu (2012)

Efficiency of Osteopathic Manipulative Treatment (OMT) in back pain, pneumonia and otitis media.

Brand (2005)

Are spinal manipulations, as performed by manual physical therapists, chiropractors, or osteopaths, effective in alleviating signs and symptoms of the KISS Syndrome (Kinetic Imbalance due to Suboccipital Strain Syndrome) in infants, and what, if any, are the undesired side effects of this treatment?

Hayes (2006)	The aim of this review is to determine the incidence of iatrogenesis (ie, aggravations and complications) derived from OMT in the pediatric patient population
Humphreys 2010	Possible adverse events associated with pediatric manual therapy
Rubinstein (2011)	To assess the effects of spinal manipulative therapy (SMT) for chronic low-back pain: The objective was to examine the effectiveness of SMT on pain, functional status, and recovery at the short, intermediate and long term follow-up measurements in comparison to control treatments (e.g., no treatment, sham, and all other treatments) for adults with chronic low-back pain.
Brantingham (2011)	The aim of this systematic review is to evaluate the effect of manual and manipulative therapy (MMT) for common shoulder pain and disorders.

Rey (2001)

- Definir el estado de conocimiento sobre la efectividad de las manipulaciones vertebrales en las cervicalgias y lumbalgias de origen mecánico, así como en las cefaleas tensionales, cervicogénicas y migrañas.
- Describir el estado de conocimiento actual sobre la formación académica de las distintas ramas de la “medicina manual” que aplican las manipulaciones vertebrales.
- Valorar la seguridad de las manipulaciones vertebrales en función de la región de la columna sobre la que se apliquen.

Licciardone 2010

Revisió d'ECA del tractament osteopàtic del dolor lumbar

Posadzki (2011)

Evaluate the evidence for or against the effectiveness of spinal manipulation

Bogduk 2009

Revisió sobre l'origen i el diagnòstic del dolor cervicogènic des de les diferents tècniques d'estimulació i tractament sobre els segments cervicals superiors

Brolinson (2008)

- What is the purpose of osteopathic manipulation? Who would benefit from it? What harm (perjudicis, daños) can come from the practice?

Patologia	nºParticipants	Tipus d'estudi
Paràlisi cerebral espàstica	55	ECA
Dolor lumbar subagut	155	ECA
Dolor lumbar crònic	488	ECA
Transtorns temporomandibul-lars	50	ECA
Otitis mitja recurrent	57	ECA
Asimetria postural	32	ECA
Funció gastroentestinal en prematurs i dies d'ingrés en unitat de prematurs	350	ECA
Asma.Rinitis. THA amb disminució d'atenció. Infeccions tracte respiratori. Otitis Mitja. Migranyes, cefaleas. Refluxe	306	ECA
Osteoporois idiopàtica. Dolor en espatlla. Periartritis escápulo - humeral	29	ECA
Lumbo-ciàtica per hernia discal sintomàtica	40	ECA
Compressió- deformitats cranials	100	ECA
Esguinç agud de primer i segon grau de turmell	55	ECA
Dolor crònic en lesions de la médul.la espinal	47	ECA

Dolor lumbar crònic	239	ECA
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Migranya com trastorn neurològic	42 (dones)	ECA
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Error de refracció entre sis diòptries de miopia i 39 de cinc diòptries d'hipermetropia, astigmatisme regular. Disfunció somàtica cranial de la sincondrosis esfenobasilar		ECA
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<ul style="list-style-type: none">• Inclusion criteria: Obstetrical clinic patients between the 28th and 30th weeks of pregnancy• Exclusion criteria:<ul style="list-style-type: none">- Intent to deliver at a non-designated hospital- High risk pregnancy determined by the attending obstetrician (gestational diabetes, preeclampsia, placenta previa, abruptio placentae...)	144 subjects; 24 years was the median age	ECA
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Muscle-contraction headache: • **Inclusion criteria:** 22 subjects

ECA

History of dull, nonthrobbing (sense punxades) bilateral headaches recurring over months or years with posterior cervical discomfort. Headaches had been relieved in the past with simple analgesic medication.

• **Exclusion criteria:** Patients with a history of trauma to the head, neck, or spine or with migrainous symptoms were excluded.

113 rats (Male Sprague- Dawley rats (250–350 g, Harlan, Indianapolis, IN; n = 113)) ECA

Simple mechanical back-ache with or without referred leg pain	On average, each manipulator in the trial received about 30 participants randomized to his or her care during the 12-month recruitment period	ECA
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Pneumonia	Non specified	ECA
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Pneumonia	<ul style="list-style-type: none"> • 3426 patients screened: 3020 were excluded and 406 were randomized • Eligibility and exclusion criteria were both very specified (see page 2 from the article) • Subjects were enrolled and randomized into three groups: <ul style="list-style-type: none"> - Conventional care only (CCO, standard care control); 135 subjects - Ligth-touch treatment (LT, sham (fingido, simulado) control); 136 subjects - Osteopathic manipulative treatment (OMT); 135 subjects 	ECA
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<ul style="list-style-type: none"> • Inclusion criteria: Patients with nonspecific neck pain less than 3 months in duration and deemed (jutgat) suitable (convenient, indicat) for treatment with manipulation. Only patients for whom neck manipulation was the preferred treatment were included in the trial. • Exclusion criteria: neck pain related to a significant trauma; a primary complaint of arm pain; signs of specific or serious pathology such as malignancy, infection, inflammatory disorder, fracture, radiculopatya, or myelopathy; history of neck surgery; or neck pain of less than 2 out 10 on a numeric rating scale, or were not literate (que sap llegir i escriure) in English. 	<ul style="list-style-type: none"> • 182 subjects ages from 18 to 70 years 	ECA
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- Inclusion criteria: Chronic low back pain
- Exclusion criteria: Prohibited subjects from receiving chiropractic spinal manipulation or additional sessions of OMT

- 91 subjects. EE
- Each subject was randomized to one of three treatment groups: 1) OMT (n=48); 2) Sham manipulative treatment (n=23); 3) No intervention (control group)(n=20).

- Inclusion criteria: Mechanical pain in the neck or upper or lower back of 2 – 12 weeks duration, either the first episode or a recurrence.

- 201 patients between 16 ECA and 65 years old

- Exclusion criteria:

- Serious spinal pathology suggested by 'red flag'

- 140 pediatric patients with asthma; 11.2 years was the median age

- Each subject was randomized to one of the two study groups, but while assignment was masked (ie, single blind), physician assessment was not. ECA

- Inclusion criteria: Diagnosis of asthma

- Exclusion criteria:

- Patients in acute distress

- Patients who demonstrated a lack of cooperation with study protocols, or were otherwise (doctors)

- 60 healthy subjects

- 60 healthy subjects; 27 EE (Estudi men and 33 women; aged Experimental) 20 to 60 years

- Exclusion criteria:

- Pregnancy, ankylosing spondylitis, and known congenital vertebral anomalies or spinal surgery in the lumbar or low thoracic region that could interfere with palpatory accuracy.

- Unability to lie prone on a radiographic examination table for approximately 30 minutes.

Lumbalgia mecànica crònica:

- Criteris d'inclusió: Pacients diagnosticats de lumbàlgia mecànica crònica
- Criteris d'exclusió: Patologia òssia, compressió medular, hèrnia discal exterioritzada, pèrdua d'integritat dels elements periarticulars, refús del pacient

- 28 subjectes entre 20 i 60 EE (Estudi anys Experimental)

Número d'experts EE
consultats: 16

- Inclusion criteria: Patients who presented back pain with an area of pain that fell between the spinous processes of T10 and L5. In some case there were also leg pain.
- Exclusion criteria:
 - If the interview revealed red flag or the physical examination revealed non-stable neurological signs.
 - Healthy controls were excluded if they had back pain that impaired activities of daily life in the past 2 years or had neurological, orthopaedic or psychiatric condition that would affect lumbopelvic control or tactile acuity

- 90 subjects: 45 patients with back pain and 45 healthy controls subjects
- There were no differences between patients and controls on habitual activity, age, height and weight

EE (Estudi Experimental)

- Chronic low back pain and no low back pain:
- Healthy volunteers (47) without low back pain:
 - Exclusion criteria:
 - o Any condition that would alter the lumbar bony
 - Cecal and abdominal wall abrasion was used to induce adhesions in the 3 groups of 10 rats.

- 63 subjects (Age, Mean= 29.7 years); 16 with chronic low back pain (CLBP) and 47 without
- 30 rats: 3 groups of 10 rats (Control, Lysis and Preventive)
 - Treatment groups:
 - Lysis group: On postoperative day 7, unседated rats were treated using visceral mobilization. This was followed by immediated post-mortem adhesion evaluation.
 - Preventive group: Were treated daily in a similar fashion, starting the day after surgery.
 - Control group: Without treatment.

EE (Estudi Experimental)

EE (Estudi Experimental)

Severe chronic obstructive pulmonary disease

- 20 patients affected by COPD (see Table 1: Diagnostic classification, assessment of severity of COPD); 15 males and 5 females; 60 year old group
- Inclusion criteria: Stable COPD, who did not show signs of exacerbation from at least 3 months.
- Exclusion criteria: the occurrence of acute exacerbation during the period of study or history of diseases other than COPD, in particular neurological diseases or joint degenerative disease leading to spinal or body rigidity.

EE (Estudi Experimental)

- 17 women; 20 – 50 years of age
- Inclusion criteria: Premenopausal women with newly diagnosed moderate depression, with no knowledge of OMT and who had no previous history of depression or other psychiatric disorders.
- Exclusion criteria: See Figure 1 in the article

- 17 women. Each subject was randomized to one of two treatment groups, and no significant differences existed between groups for age

OA (Opinió d'Autor)

- Inclusion criteria: people with (16) and without (48) low back pain
- Exclusion criteria:
 - Congenital vertebral anomalies or other conditions (eg fractures) that could potentially alter lumbar bony anatomic features (rasgos, característiques)
 - If it was received spinal manipulation within the 8 weeks preceding the study

- 64 subjects:
 - Mean age = 30 years
 - Forty-nine participants were women
 - Participants were recruited from:
 - a) The faculty of Kirksville College of Osteopathic Medicine – A.T. Still University (KCOM): staff (personal de plantilla) and students
 - b) The surrounding rural community.

EE (Estudi Experimental)

Investigació-docència	34	Estudi de grup pre i post text
Dolor muscul - esquelètic	Revisió de 997 articles on només 20 d'ells reuneixent els criteris d'inclusió per aquest MA.	MA
Mal de cap crònic (d'origen: tensional, migranyós i cervical)	683	MA
<ul style="list-style-type: none"> • Inclusion criteria: Low back pain with musculoskeletal origin • Exclusion criteria: <ul style="list-style-type: none"> - Patients with visceral disease conditions that refer pain to the low back - When the source of the low back pain was: vertebral fracture; vertebral joint dislocation; muscle tears (desgarro) or lacerations; spinal or vertebral joint ligament rupture; inflammation of intervertebral disks, spinal zygapophyseal facets joints, muscles, or fascia; skin lacerations; sacroiliitis; ankylosing spondylitis; or masses in or from the low back structures that are the source of the pain. 	<ul style="list-style-type: none"> • A total of 525 subjects with low back pain were randomized in the eligible trials. 	MA (meta-analysis)
		OA (Opinió d'Autor)
		OA (Opinió d'Autor)
		OA (Opinió d'Autor)
Evidència científica en l'osteopatia	0	OA
Accidents vasculars post manipulació	0	OA
Fisiologia del LCR	0	OA
Investigació-docència	0	Opinió-Resum sobre Rev
Cualsevol tipus de patologia que sigui tributaria de tractament osteopatic	0	Recerca

cervicalgia simple, cervicalgia aguda, cefalea, cefalea cervicogenica	27 assajos amb 1522 pacients	Rev
Dolor cervical. Sinestralitat comparativa entre àmbits professionals	Estudi Sinestralitat de 1408 casos, en relació al tractament cervical	Rev
Còlics en nounats	200 assajos, només 1 amb 28 pacients compleixen criteris	Rev
Patologia de maluc, genoll, turmell, peu	389 assajos 39 d'ells compleixent els criteris d'inclusió.	Rev
Disfunción somática crani i altres parts del cos.	0	Rev
Lumbàlgia i cervicàlgia aguda, esguinços aguts de turmell, fibromiàlgia, cefalea, atalectàsies, còlics del nadó, malaltia de Parkinson	0	Rev

Pediatric patient population

5 studies

Review

Back pain, Pneumonia, Otitis media

Back pain (472 subjects); Review
Pneumonia (464
subjects); Otitis media (65
subjects)

KISS syndrome in infants
Spinal manipulation in infants with colic
Spinal manipulation in infants
Safety of spinal manipulation in infants

KISS syndrome in infants: Systematic review
any report
Spinal manipulation in
infants with colic: two
studies
Spinal manipulation in
infants: any report
Safety of spinal
manipulation in infants:
one case report

- Inclusion criteria:
 - Pediatric patients aged equal or inferior of 19 with two or more office visits where they received OMT (at each office visit).
- 346 subjects; mean age: Review 7.37 years; 48% females versus 52% males

Pediatric patient population

5 studies

Rev

Chronic low-back pain

- 26 randomized controlled trials (RCTs) (total participants = 6070) that examined manipulation or mobilization in adults with chronic low-back pain were included.
- In total, 9 of the 26 trials met the criteria for a low Risk of Bias.

Systematic review

Common shoulder pain and disorders

- A total of 35 articles were deemed (jutjats) useful: 23 RCTs (randomized controlled trials), 5 CTs (controlled trials), and 7 SGPPDs (single-group pretest posttest designs), case reports, and case series.

Systematic review

Dolor lumbar y cervical de etiología mecánica.
Cefaleas tensionales, cervicogénicas y migrañas

Included studies: 13 revisiones sistemáticas, 2 metaanálisis, 9 ensayos clínicos y un informe de evaluación. Total: 25

Systematic review

Dolor lumbar

0

Rev

Any type of clinical condition

59 systematic reviews (13 Systematic review discarded)

Cefalea cervicogènica

0

Rev articles i llibres des de 1950

- This article particularly focuses on the use of manipulation in the athletic setting (marc)

Review

Resultat	Direcció conclusió
Milloria funcional nens PC amb espasticitat moderada-severa Guiar investigacions futures	Positiva
Mateix resultat a pacients tractats amb tècniques de manipulació que els tractats amb tractament convencional	Positiva
Aquest ECA donarà dades significatives per a resultats a llarg plaç del tractament del dolor lumbar amb OMT i US	Positiva
Mateixos resultats però el grup de tractament osteopàtic va necessitar menys medicació	Positiva
Benefici potencial dels nens tractats amb OMT prevenint la IQ i l'us d'ATB	Positiva
Les dades obtingudes sugereixen una milloria de l'asimetria postural idiopàtica en nounats	Positiva
La OMT redueix la incidència de signes gastrointestinals i els dies d'estada a les unitats de prematurs	Positiva
La modalitat de TMO es una modalitat segura per la població pediàtrica	Positiva
Estudi comparatiu. Durant el tractamen milloren del dolor els dos grups. Al final del tractament el grup tractat amb TOM ha millorat de manera ostensible en la mobilitat i funcionalitat mentres que el grup de control havia empitjorat	Positiva
Es demostra que en un temps controlat de 12 mesos els resultats dels dos grups son similars	Positiva
El resultat objetiu final i èvolució clínica , demostra que el tractament osteopàtic millora de forma quantitativa i qualitativa l'evolució de la deformitat .	Molt Positiva
Milloria funcional del rang de moviment articular, milloria del drenatge del edema articular	Positiva
Milloria en pacients on els medicaments no es poden utilitzar.	Positiva

L'estudi recolça l'ús d'una varietat d'enfocaments per al tractament del dolor crònic lumbar

Positiva-Neutre

Milloria significativa en els parametres del dolor, de la qualitat de vida y en la capacitat de treballar

Positiva

Milloria sobre la funció visual en els adults amb asimetria cranial.

Positiva

- There were no statistically significant differences in pain levels among treatment groups.
- There were significant differences in back-specific functioning among treatment groups. Although the Roland-Morris Disability Questionnaire scores significantly increased over time, back-specific functioning deteriorated less in the UOBC+OMT group than in the UOBC only and UOBC+SUT groups.

- Grup 1 demonstrated a significant reduction in rated headache pain. (+/-)
- Non systematic changes among the three treatment groups were found with respect of EMG levels of the frontalis muscle and dominant hand temperature.

- Two hours after injection of capsaicin into the ankle joint, there was a decrease (+) in the mechanical withdrawal threshold of the ipsilateral paw for all groups. Manipulation of the knee joint significantly increased the mechanical withdrawal threshold of the ipsilateral paw 15 min, 30 min, and 45 min. The decrease in withdrawal threshold returned by 60 min.
- Spinal blockade of 5-HT_{1/2} receptors with methysergide prevented, while blockade of α ₂-adrenergic receptors attenuated, the manipulation induced antihyperalgesia. NAN-190 also blocked manipulation-induced antihyperalgesia suggesting that effects of methysergide are mediated by 5-HT_{1A} receptor blockade. However, spinal blockade of opioid or GABA_A receptors had no effect on manipulation induced-antihyperalgesia.

The spinal manipulation package was developed for the treatment of simple mechanical low-back pain and was accepted by the three professions who perform this treatment in the UK. It defines a common core of manipulative practice while permitting enough flexibility in both assessment and treatment to be representative of all three professions.

... Patients being treated additionally with osteopathic manipulative medicine stayed in the hospital one day less compared to patients receiving conventional care only Positiva

- Data were analyzed by intention-to-treat (ITT) analysis and by per-protocol (PP) analysis of subjects receiving 100 % of prescribed treatments.
- ITT analysis found no significant difference between the groups for any outcome.
- PP analysis found:
 - A reduction in median LOS for the OMT group versus CCO group, but not versus the LT group.
 - A reduction in median duration of intravenous antibiotics days in the OMT group versus days in the CCO group.
 - The treatment endpoints of death and respiratory failure were less frequent in the OMT group versus the CCO group.

- The median time to recovery from pain was 47 days in the manipulation group and 43 days in the mobilization group. (-)
- The median time for recovery of normal activity was 22 days in the manipulation group and 24 days in the mobilization group.
- There were no statistically significant differences between the manipulation and mobilization groups in the secondary outcomes of pain, disability, function, global perceived effect, or health-related quality of life at any time point.

- Subjects (n=91) perceived OMT as a more credible therapeutic option than sham manipulative treatment, both at trial entry and at 6-month follow-up.
- Among (entre) subjects completing the study protocol (n=66), there were no changes in perceived credibility of the study interventions over time.

- Two month questionnaire results: All outcome measures had improve in both groups, but the osteopathic treatment group more than the usual care group. This improvement was statistically significant but small in the EASPS and was statistically significant in the SF-12. (-)
- Six month questionnaire results: Most outcome measures had continued to
- Peak Expiratory Flow rates (razón) increase a mean of 13.0 Litres per minute (4.8 %) in OMT Group, while the mean increase in Sham procedure (Control group) was only 0.3 Litres per minute (1.4 %). These differences have statistically significance. (+)

- There was no difference in accuracy of palpation between the individual vertebrae, indicating that no particular vertebra was more difficult to palpate than any other.
- The resident's accuracy was significantly lower when compared with each of the faculty examiners. There was no significant difference on palpation accuracy between the faculty examiners.
- The presence of 12th rib anomalies was associated with palpation error, where T12, L1, L2, and L3 were incorrectly identified as L1, L2, L3, and L4 in 31% of evaluations vs 6% of evaluations in participants with no 12th rib anomalies.
- Accuracy of palpation for male participants was higher than for female participants. Obesity significantly decreased palpation accuracy for all examiners.
- Interobserver reliability among all the examiners was moderate with 62% agreement.

- EAV pre i post-tractament: (+)
 - Grup control: No diferències significatives =Ttt no eficaç
 - Grup estudi: Sí diferències significatives = Ttt manipulatiu és eficaç per la lumbàlgia mecànica crònica
- Espiditest pre i post-tractament:
 - Grup control: No diferències significatives =Ttt no eficaç
 - Grup estudi: Sí diferències significatives =Ttt manipulatiu és eficaç per la lumbàlgia mecànica crònica

There was no technique that was considered an appropriate placebo by more than 50% of the respondents Negativa

- The difference in TPD threshold between patients and controls was greater in the horizontal direction than it was in the vertical direction. That is, although TPD was worse in patients than in controls in both the horizontal and vertical directions, the extent to which it was worse was greater in the horizontal direction than in the vertical direction.
- Healthy controls had better lumbopelvic movement control than back-pain patients did.
- Larger TPD threshold at the back relates to worse voluntary lumbopelvic control

- Lumbar segments with perceivable rotational asymmetry had significantly higher (+) mean segmental BMD T scores than lumbar segments with no asymmetry. A similar pattern in BMD T scores was observed for lumbar segments with motion restriction compared to lumbar segments with no motion restriction.
- During the post-mortem dissection, 4 types of adhesions were found: cecum- (+) cecum, cecum-abdominal wall, cecum-fat, and fat-abdominal wall.
- Adhesion severity and number of adhesions were significantly lower in the Preventive group compared to other groups.
- In the Lysis and Preventive groups there were clear signs of disrupted adhesions.

- G1 group have a significant increase in 6MWD in comparison with G2 group.
- For pulmonary function, there isn't any significant difference in G1 versus G2 group.

- The individuals who received OMT reverted to the normal range of the Zung Depression Scale by week 8. In contrast, although the other group showed improvement, more than 70% of the control patients still had signs of moderate depression at the end of the eight week of psychiatric treatment.
- No significant differences or trends (tendències) were observed between groups of cytokine production (IL-1alfa, IL-1beta, IL-2, IL-4, and IL-6) or in levels of anti-

- For static segmental positional asymetry of the transverse processes in the horizontal plane à had moderate to substantial reliability in all 6 sessions. (+)
- The test for tissue texture abnormalities à had moderate reliability in 5 of 6 sessions.
- The test for resistance to anterior springing on the spinous processes à had moderate reliability for 3 of the 6 sessions.
- The test for tenderness à had substantial to almost perfect reliability for all 6 sessions.

Amplia milloria de la major part dels parcipants per integrar la MBE	Positiva
L'efectivitat de la manipulació vertebral davant el dolor d'origen espinal queda demostrada de forma objectiva. Els mecanismes per el cual disminueix el dolor en part continuent siguent desconeguts	Positiva
Les manipulacions vertebrales tenen millor efecte que el massatge per a la cefalea d'origen cervical. Efecte comparable a la d'e l'ús ús comú de medicaments de prescripció profilàctica per a la cefalea de tipus tensional i migranyós	Positiva
<ul style="list-style-type: none"> • In OMT versus control (without any tipe of treatment): There was a highly significant reduction in pain associated with OMT. • In OMT versus active treatment or placebo control: There was a significant reduction in low back pain associated with OMT. • There were significant reductions in low back pain associated with OMT during the short-term, intermediate-term, and long-term follow-up in all the cases. 	(+)
Estem aconseguint introduir literatura científica en el mon mèdic	Positiva
El risc de efectes secundaris post manipulació és baix. S'ha d'escollir molt bé el pacient abans de manipular. Els terapeutes físics (no quiropràctics) ténen menys incidència d'efectes secundaris post manipulació.	Positiva
La presió del fluit (presostat) justifica la MRP	Positiva
Validesa del concepte i beneficis clínics de la Osteopatia Cranial, si be és necessari seguir investigant	Positiva-neutre
La recerca comparativa amb la seva reflexió en confrontar l'idoneïtat d'un protocol de tractament davant un cas clinic determinat o be el tractament ha de ser després de fer una exploració i un diagnòstic osteopàtic acurat i per lo tant un tractament personalitzat	La conclusió es que un tractament osteopàtic acurat mai pot esser protocolitzat ja que el pacient es únic i la patologia del pacient te personalitat propia única i indivisitble.

Els estudis comparatius entre l'efecte de la manipulació vertebral i altres tractaments com acupuntura, teràpia neural, calor, medicació, no tractament, i electroteràpia, s'arriba a la conclusió que no hi ha diferències significatives entre la manipulació i els altres tractaments alternatius, si hi ha millor resposta a curt plaç en la disminució del dolor i la satisfacció del pacient	Positiva - neutre
Estudi sinistralitat en relació un AVC envers a la prescripció de manipulació per mil·lí: Quiropràctics 67%, osteòpates 5%, fisioterapeutes 5%, professions no sanitàries 2%. Al mateix estudi senyala que la mateixa patologia tractada amb AINES apareix una freqüència d'AVC de 1 per mil prescripcions	Positiva
Evidència molt limitada en els estudis de teràpia cranial, de 20 estudis només 1 era ECA	Neutre
Metatarsalgia al final del tractament amb efectivitat alta. Entorsis de tornell amb efectivitat alta. Artritis de maluc i/o genoll efectivitat moderada, dolor femoropatelar efectivitat moderada i tractaments de neurinomes efectivitat baixa.	Positiva
Resultats positius en quant a la disminució del dolor, canvis del SNA i milloria dels patrons de son.	Neutre
La medicina osteopàtica per seguir endavant, ha de ser basada en l'evidència.	Positiva

- Systematic Review of Adverse events Associated with Pediatric Spinal Manipulation: (-)
 - The publication by Vohra, Johnston, Cramer and Humphreys remains (permanence) the most current, comprehensive (extensor) systematic review of the literature on adverse events associated with pediatric spinal manipulation. These authors performed a comprehensive search of eighth major electronic databases from inception to 2004 (= 58 year period). The results of the Vohra et al shows nine serious adverse events (SAE) related to Pediatric Manipulative Treatment.
 - Humphreys 2010 say:
 - o One of them was an examination of a patient's traumatized cervical spine, and how examination is not done with therapeutic intent we can say that were only eighth serious adverse events.
 - o At least three and possibly up to five of these SAE had underlying pathologies or conditions which are clearly contraindications for Pediatric Manipulative Treatment. (Ped MT)
 - Update of Research Literature on Possible Adverse Events and Ped MT:
 - Hayes and Bezilla (2006). No serious complications were found associated with Osteopathic Manipulative Treatment, but Humphreys though that the results should be viewed with caution because contains numerous methodological flaws (defectes).
 - Miller and Benfield (2008). A total of seven minor adverse events out of 697 pediatric patients were elicited and did not require medical care. Humphreys says that this article have some methodological limitations (see text).
 - Alcantara, Ohm and Kunz (2009). They reported that 0.83% of pediatric patients or one in 1812 patients visits resulted in a minor adverse event after chiropractic treatment. Humphreys though that the results should be viewed with caution because contains numerous methodological flaws (defectes).
 - A Recent Systematic Review of Adverse Events and Manual Therapy:
 - Carnes et al (2010). They estimated the risk of an SAE after manual therapy at the upper 95% confidence interval to be approximately 0.13%. According to Humphreys the study of Carnes et al had some methodological limitations related to the methodological quality of the included studies.

Condition treated: Back pain

(+ / -)

First study analyzed:

- Material and methods:
 - 95 subjects
 - Participants were randomly assigned to either receive OMT or soft tissue massage
- Results: There were no statistically significant differences between the two groups at time of discharge or at three weeks after discharge

Second study analyzed:

- Material and methods:
 - 178 subjects
 - Participants were randomly assigned to either standard medical treatment or OMT
- Results: There was no significant difference in pain or function at the end of the study.

Third study analyzed:

- Material and methods:
 - 199 subjects
 - Participants were randomly assigned to either OMT, sham treatment, or no intervention.
 - The sham treatment consisted of range-of-motion activities, light touch, and simulated OMT techniques.
- Results: The study found that patients in the OMT group had improved subjective pain, less medication use, and less physical therapy use compared with the no intervention group. However, no significant differences were found between the OMT group and the sham treatment group.

Condition treated: Pneumonia

First study analyzed:

- Material and methods:
 - 58 patients over the age of 60 with pneumonia were randomly assigned to either OMT or light touch.
 - Both groups received standard care. In addition, the OMT group received a specified protocol of OMT for 10 to 15 minutes twice daily and the light touch
- For the two studies of spinal manipulation in infants with colic:

(+/-)

- The pooled analysis of these studies about the effects of chiropractic treatment in infants with colic showed no statistically significant effect of this treatment (see Table 2 in the article)

- The median of visits per patient was six. (+)
- No OMT-related complications were documented.
- 31 (9%) of 346 patients (mean age 8.43 years; 409 office visits) reported an OMT-associated aggravation:
 - The average number of visits per patient in this subgroup was greater than 13, with a median of 8.
 - Patients whose medical records were reviewed received CR (cranial treatment), MFR (myofascial release/Soft tissue techniques), or both. Muscle energy and HVLA (high velocity/Low amplitude) techniques were also incorporated into the treatment regimen for some adolescents.
 - To obtain more information about the most common OMT-associated aggravations and its evolution (treatment-associated aggravations resolved over time, and these patients did not require an additional visit for the aggravation) see Table 2 at the article and the associated text.

... There is currently insufficient research evidence related to adverse events and manual therapy ... very few high quality studies are currently available in this area Neutre

- There is a high-quality evidence that SMT has a small, statistically significant but (+ / -) not clinically relevant, short term effect on pain relief (alivio) and functional status in comparison with other interventions:
 - Pain relief: mean difference 4.16, 95% confidence interval (6.97 to 1.36)
 - Functional status: standardized mean difference 0.22, 95% confidence interval (0.36 to 0.07)
 - There is a varying quality of evidence that SMT has a significant short-term effect on pain relief and functional status when added to another intervention.
 - There is a very low-quality evidence that SMT is not more effective than inert interventions or sham SMT for short-term pain relief or functional status.
 - Data were particularly sparse for recovery, return to work, quality of life, and costs of care.
 - No serious complications were observed with SMT.
-
- There is a fair (B) level of evidence for the treatment of a variety of common rotator cuff disorders, shoulder disorders, adhesive capsulitis, and soft tissue disorders using MMT to the shoulder, shoulder girdle (faixa, ceñir), and/or the full kinetic chain (FKC) combined with or without exercise and/or multimodal therapy. (+ / -)
 - There is a limited level of evidence (C) for the treatment of minor neurogenic shoulder pain with MMT (cervical lateral glide (lliscar) mobilization and/or high-velocity-low-amplitude manipulation with soft tissue release and exercise)
 - There is an insufficient level of evidence (I) for MMT with or without exercise or multimodal therapy in the treatment of osteoarthritis of the shoulder.

Las manipulaciones vertebrales en las cervicalgias mecánicas:

(+ / -)

- Efectividad: Los estudios analizados muestran que aunque los resultados obtenidos con las manipulaciones vertebrales cervicales son prometedores, su efectividad no ha sido demostrada convincentemente hasta el momento actual debido a la baja calidad metodológica de los estudios encontrados.

- Seguridad:

- Las técnicas que empleaban un impulso rotacional tendían a producir un mayor porcentaje de efectos adversos, por lo que algunos autores recomiendan el abandono de los procedimientos rotacionales.

- Con respecto a los tests de screening pemanipulativo, se concluye que no se ha demostrado su sensibilidad y especificidad por lo que es muy complicado la identificación a priori de los individuos de riesgo.

- Más conclusiones y datos estadísticos en texto.

Las manipulaciones vertebrales en las lumbalgias mecánicas:

- Efectividad:

- La evidencia disponible se sustenta en general en artículos con serios fallos en cuanto a metodología. A pesar de ello la mayor parte de los autores reflejan en sus conclusiones que las manipulaciones parecen ser más efectivas en algunos grupos de pacientes que otros tratamientos alternativos con los que se compararon.

- Suelen ser más efectivas cuando se aplican simultáneamente con otros tratamientos que ejecutadas independientemente.

- Existe prácticamente unanimidad en cuanto a que es importante enfatizar la necesidad de diseñar estudios de calidad superior y con un seguimiento a largo plazo para poder definir con precisión la efectividad de la técnica.

- Seguridad: la aparición de complicaciones serias derivadas de las manipulaciones de la columna lumbar tiene una baja incidencia.

Las manipulaciones vertebrales en las cefaleas (migraña, cefalea tensional y cefalea cervicogénica):

- Efectividad: Los resultados son esperanzadores cuando se compara la técnica con otros tratamientos. Necesidad de realizar mejores estudios.

Formación académica de los profesionales que realizan terapia manual:

Osteopatía, Quiropraxia, Especialidad de rehabilitación y medicina física, Fisioterapia (Ver información sobre estado actual en el texto: páginas 42 y

El tractament manipulatiu redueix significativament el dolor lumbar

Positiva

- Osteopaths or chiropractors tend to publish low methodological quality systematic reviews associated with positive conclusions (Saw Table 3 and 4 in the article).

(-)

- Seven (38%) of the 18 SRs (Systematic Reviews) published either by chiropractors or osteopaths arrived at overtly positive conclusions and 11 (62%)

Occ-C1-C2-C3 poden ser font directe de la cefalea d'origen cervical

Positiva

- Osteopaths used manipulative approaches to release systems to improve the body's ability to heal (guarir) itself.
- The use of manual medicine, or joint manipulation, for the treatment of athletic injuries dates back thousands of years. Hippocrates was well known for his use of manipulation with the ancient Greek athletes around 400 BCE.
- Current evidence on OMM (Osteopathic Manipulative Medicine) for the spine: som estudies were reviewed by the authors (see the text for the results).
- Current evidence for osteopathic manipulation in athletes: There are little data on the efficacy of OMM in an athletic population. Some results from the reviewed studies were:
 - There have been reports on the relationship between cervical manipulation and changes in brain function, as well as visual function.
 - Several investigators have assesed the effects of spinal manipulation in various kinematic parameters of spine, pelvis and hip motion and have shown positive benefit, once again rationalizing that manipulation, wich improves range of motion, will lead to better performance and successful outcomes in an athletic competition.
 - A pilot study indicates that a significant portion of athletes access pre-game manipulative services for both pain control and performance enhancement.
- Safety of osteopathic manipulation:
 - Many of thereported cases of adverse outcomes do not distinguish the type of manipulative treatment provided (e.g., thrust vs muscle energy) or the training of the practitioner.
 - One of the most commonly studied adverse events following cervical manipulation is vertebrobasilar accident (VBA). However, the risk of VBA occurring spontaneously is nearly twice the risk of a VBA resulting from cervical spine manipulation.

Comentaris

Mateix resultat però amb menys medicació

Aquests estudis són necessaris per confirmar els resultats i fer-los extensibles a tota la població

Hi han petites variables en el estudi estadístic amb pacients que entren en un grup no aleatori i al atzar que dona una millora significativa en vers al tractament osteopàtic.

En aquesta cerca resalten de forma específica que els tractaments i el protocols de diagnostic, tractament i control s'han fet seguint les normes d'actuació refrendades per el College Osteopathique de Montreal

Hi han dades que demostren clarament que una sola sessió amb tècniques estructurals directes poden tenir un efecte significatiu positiu en el tractament de les lesions agudes de turmell.

L'associació entre el tractament farmacològic convencional i el tractament amb tècniques d'osteopatia suggereix un benefici del dolor crònic

Aquest estudi no ha aportat cap prova que demostrï que un tractament confereix avantatges terapèutics sobre els altres. A més, en absència d'un grup de control, no va ser possible avaluar la possible contribució de millora espontània amb el temps.

Es requereix futurs estudis amb una N major que reproduï els resultats amb un grup control que rebi tractament placebo en un llarg termini de seguiment

Aquesta troballa requereix una investigació addicional amb una mida de mostra més gran i més llarga la intervenció i els períodes de seguiment

Treatments groups:

- Each subject was randomized to one of three treatment groups, and also were stratified by age and gravida number (nombre d'embarasos)
- Treatment groups:
 - (1) usual obstetrical care and osteopathic manipulative treatment (UOBC + OMT)
 - (2) usual obstetrical care and sham (simulat) ultrasound treatment (UOBC + SUT)
 - (3) usual obstetrical care only (UOBC only)
- Treatment:
 - The UOBC+OMT and UOBC+SUT groups were scheduled to receive treatment (30 minutes) at the 30th week (visit 1), 32nd week (visit 2), 34th week (visit 3), 36th week (visit 4), 37th week (visit 5), 38th week (visit 6), and 39th week (visit 7).
 - UOBC consist in conventional prenatal care during pregnancy
 - The OMT protocol included treatment modalities as soft tissue, myofascial release, muscle energy, and range-of-mobilizaton in the following regions: cervical, thoracic and lumbar spine; thoracic outlet and clavicles; ribcage and diaphragm; and pelvis and sacrum. CV-4 and high velocity, low amplitude techniques were prohibited.

Data for subjects (back pain and back-specific functioning) were collected at the time of randomization and during third trimester visits 1 through 7 by:

- Visual analogue scale for pain
- The Roland-Morris Disability Questionnaire for back-specific functioning

Treatments groups:

- Each subject was randomized to one of three treatment groups
- Treatment groups:
 - (1) palpatory examination for restricted movement in the axial skeleton + osteopathic manipulation involving soft tissue procedures (kneading (amassment), deep pressure, and stretching) over the entire axial skeleton and high-velocity, low-amplitude procedures to release restriction
 - (2) palpatory examination for restricted movement in the axial skeleton
 - (3) rest in the supine position for 10 minutes

Data collected from subjects, by an independent team of investigators, before and after treatment were:

- Objective evaluations: Measurements of the EMG level in the frontalis muscle and temperature in the dominant hand.
- Subjective evaluations for headache severity: rate discomfort from 0 to 7 (where 0 represented complete absence of headache symptoms and 7 represented incapacitating pain).

Treatment:

• Male Sprague-Dawley rats (250–350 g, Harlan, Indianapolis, IN; n = 113) were anesthetized briefly with halothane (2–5% v/v) and injected with 50 µl of 0.2% w/v capsaicin (Sigma, St Louis, MO) into the left ankle joint. This produces a robust secondary mechanical hyperalgesia of the paw, which is fully developed in 2 h after injection (Sluka, 2002). Two hours after capsaicin injection, the following drugs were administered intrathecally: bicuculline, blocks γ -aminobutyric acid (GABAA) receptors; naloxone, blocks opioid receptors; yohimbine blocks, α 2-adrenergic receptors; and methysergide, blocks 5-HT_{1/2} receptors. In addition, NAN-190, ketanserin, and MDL-72222 were administered to selectively block 5-HT_{1A}, 5-HT_{2A}, and 5-HT₃ receptors, respectively. Knee joint manipulation was performed 15 min after administration of drug.

Treatment group:

• The knee joint manipulation was performed under anesthesia 15 min after drug administration. The femur ipsilateral to the injection site was stabilized, and manipulation was performed by moving the tibia on the femur. The knee joint was flexed and extended to the end range of extension while the tibia was simultaneously translated in an anterior to posterior direction. The treatment group received three applications of manipulation, each 3 min in duration separated by 1 min of rest.

Three control groups were utilized:

- (1) vehicle was given with manipulation
- (2) vehicle was given with anesthesia only
- (3) drugs were given with anesthesia only

Note: Isotonic, sterile saline adjusted to pH 7.2 served as a vehicle control (n = 12)

Behavioral measurements: Animals were tested for withdrawal thresholds to mechanical stimuli (von Frey filaments) applied to the plantar aspect of the hindpaw (hind=posterior).

Comments: The antihyperalgesia produced by joint manipulation appears to involve descending inhibitory mechanisms that utilize serotonin and noradrenaline.

- The spinal manipulation package included manual elements (soft tissue techniques, articular techniques (mobilizations) and thrust techniques) and non-manual elements (exercises and some advices (consells)).
- The Spinal manipulation package was devised (ideado) for use in the UK Back pain Exercise And Manipulation (UK BEAM) trial – a national study of physical treatments in primary care funded by the Medical Research Council and the National Health Service Research and Development Programme.

Treatment:

- All subjects received conventional treatment dor pneumonia directed by their attending physicians.
- OMT or LT groups received protocol treatments for 15 minutes, twice daily beginning within 24 hours of admision and continuing until hospital discharge, cessation of antibiotic therapy for pneumonia, respiratory failure (ventilator dependent), death, or study withdrawal.
- The OMT protocol was administered in the following sequence: thoracolumbar soft tissue, rib raising, doming of the diaphragm myofascial release, cervical spine soft tissue, suboccipital decompression, thoracic inlet myofascial release, thoracic lymphatic pump, and pedal lymphatic pump (see more details in the text: page 2).
- The LT protocol (sham control treatment) applied lighth touch to the same regions, in the same sequence, and for the same duration as the OMT protocol.

Primary outcomes:

- Length of stay (LOS)
- Time to clinical stability: was defined as the hospital calendar day whwn all seven clinical parameters first met criteria for stability (more details in page 4 of the article)
- Symptomatic and functional recovery score: was calculated from a pneumonia-specific, validated questionnaire addressing five symptoms: cough, dyspnea, sputum production, pleuritic chest pain, and fatigue. Higher scores indicate more symptoms.

Secondary outcomes were also used: duration of intravenous and oral antibiotics; treatment endpoint (including death and respiratory failure); and others.

Treatment:

- Treatment groups: Participants were randomly assigned to receive treatment with neck manipulation (n=91) or mobilization (n=91). Patients in both groups received 4 treatments over 2 weeks.
- The treating practitioners chose the particular manipulation or mobilization technique according to their clinical judgement.
- The use of manipulation or mobilization for other body regions, such as the thoracic or lumbar regions, was not constrained in either group.
- Treatment using a combination of neck manipulation and mobilization was not permitted.

Main outcome measure:

- The number of days taken to recovery from the episode of neck pain. The day of recovery was defined as the first of 7 consecutive days in which the patient rated the intensity of neck pain as less than 1 out of 10.

Treatments groups:

- The three groups were comparable in age, sex, race, pain duration and intensity, self-reported functional assessments, and the number of work or school days lost in the past 4 weeks as a result of back pain.

Primary outcomes:

- Subjects completed a treatment-credibility rating scale comparing two written descriptions of the study interventions offered: Treatment 1 (OMT) and Treatment 2 (sham manipulative treatment). The scale was administered to subjects before trial entry and at 6-month follow-up.

- The primary outcome measure was the ratio of credibility in OMT relative to sham manipulative treatment for each subject.

• Treatment groups:

- Control group: not receive any additional intervention.

- The intervention group: they received three or four sessions of osteopathic treatment at intervals of 1 – 2 weeks. The treatment package consisted mainly of osteopathic spinal manipulation, but also advice about keeping

• Treatment:

- OMT group: in OMT there were used any of the following osteopathic manipulative techniques, as appropriate: rib raising, muscle energy for ribs, and myofascial release.

- Sham procedure (Control group): an allopathic physician placed his hands on different regions of the body where OMT was performed for patients in the OMT group.

Examiners: Four physician examiners participated in the study.

Spinous process identification:

- 1) Identification of T12 by the smaller size of its spinous process compared with that of L1 to determine the location of L1.
- 2) Identification of 12th ribs and their attachment site at T12 to determine the location of T12 and its spinous process and subsequently the location of L1.
- 3) Identification of iliac crests to approximately determine the location of the vertebral body of L4 (Tuffier's line).
- 4) Identification of sacral base to determine the location of L5.
- 5) Identification of L5 spinous process by the smaller size of its spinous process to determine the location of L4.

Treatment:

- Only 3 examiners participated in any individual palpatory session.
- The first examiner marked the spinous process of L1-L4 using a specially bony landmark, and then a posteroanterior lumbar radiograph was taken.
- The markers were removed, and 2 other examiners independently repeated the examination, marker placement, and posteroanterior lumbar radiograph.

Grups control i estudi:

- Assignació de forma estratificada per edat, sexe i feina amb/sense càrrega de pesos, per tal de garantir la homogeneïtat entre els grups control i estudi.

• Tractament: 4 sessions en 2 setmanes

- Grup control (n=12): Tècnica de muscle-energy per al múscul psoas i tècnica de stretching del piramidal, ambdues de forma bilateral.

- Grup d'estudi (n=18): Igual que grup control + manipulacions vertebrals d'alta velocitat i baixa amplitut a les articulacions lumbars, lumbosacres o sacroilíaqes (tècnica de Lumbar Roll per a ERS, o bé tècnica de Lumbar Metodologia en el disseny de les tècniques placebo poc explicada (no indicat número de participants ni condicions de tractament). Sí indica número de experts consultats (16) un cop dissenyades les tècniques.

- TPD threshold was measured according to established protocol by a plastic calliper ruler in the area between the first lumbar vertebra and iliac crest left and right, both horizontally and vertically.
- Lumbopelvic movement control was evaluated by a battery of six individual tests

Palpatory diagnosis of somatic dysfunction:

- Participants were evaluated from L1 to L4 in the prone position by 2 blinded examiners using 4 osteopathic palpatory assessments: 1) Tissue texture abnormalities (localized edema, tissue tension, or fibrotic changes in the tissue)
- The visceral mobilization consist in digital palpation, efforts to manually lyse restrictions, and mobilization of their abdominal walls and viscera. It was
- All treatments were performed on unsedated and unrestrained (contener, controlar, refrenar) rats.
- All rats were killed 7 days following surgery and their adhesions were inmediatelly evaluated: The therapist could palpate adhesions between the cecum and other viscera of the abdominal wall.
- Adhesion remnants (restes) were evidenced by shallow (poc profund, superficial) peritoneal defects that did not appear inflamed, as compared to the autely lysed adhesions.

Treatments groups:

- Each subject was randomized to one of the two treatment groups:
 - Group G1: (10 patients; 2 female) received pulmonary rehabilitation program (PR) plus soft manipulation (sham (fingido, simulado) osteopathy treatment)
 - Group G2: (10 patients; 3 female) received OMT + PR

Primary and secondary outcomes:

- Exercise capacity (primary outcome): was evaluated with 6 min walk test (6MWT)
- Pulmonary function (secondaire outcome): was evaluated with spirometry
- Those outcomes were assessed at baseline and at the end of the treatment.

Treatment:

- Pulmonary rehabilitation program consist of one session on cyclette and one on cycle ergometer for 5 days/week for 4 weeks, for a total of 40 sessions.
- Osteopathic manipulative treatment was performed with emphasis on the neuromuculoskeletal system in the context of total patient care. The treatment was done once a week for 4 weeks for a total of 4 sessions.
- Both PR and OMT were completely tailored (fet a mida) to suit the needs of the individual.

Primary outcomes:

- Patient mental status was measured using scores generated on the Zung Depression Scale, which was administered at the beginning, midpoint and end of the study.
- Patient immunologic status was achieved by measuring endogenous patients levels of $\text{IL-1}\alpha$, $\text{IL-1}\beta$, IL-2 , IL-4 and IL-6 and by DISCARTEED because it's an opinion autor.

Examiners:

- Two examiners who are American Osteopathic Association board (junta directiva), with 10 and 3 years of clinical experience respectively.

Method:

- Consensus training was completed, and after:
 - There were 6 data collections sessions over 4 month period of the study.
- The osteopathic diagnostic palpatory tests used were:
- 1) Static segmental positional asymetry of the transverse processes in the horizontal plane.
 - 2) Tissue texture abnormalities
 - 3) Resistance to anterior springing on the spinous proces
 - 4) Pain provocation to assess tenderness over the spinous processes
- Both examiners performed the tests in the same sequence and in a blinded manner.
 - If lack of agreement for a specific test was found, that test was repeated by both examiners in an unblinded manner as a method for recalibrate the consensus training
 - Only data collected in a blinded manner were used for the assessment of interobserver reliability
 - Data used in the statistical analysis were collected in a blinded manner at pretraining and posttraining and at the 6 data collections sessions of the clinical observational study.

Les facultats de medicina osteopàtica han d'integrar la MBE en els 4 anys d'estudi

Pocs estudis de qualitat s'han fet per extreure conclusions encara que aquests pocs afavoreixen el tractament osteopàtic.

Eligibility of trials:

- Eligibility was limited to randomized controlled trials of OMT that included blinded assessment of low back pain in ambulatory settings (marc). Trials that involve manipulation under anesthesia, industrial settings, or hospitalized patients were not included. Because there is potencial confucion regarding the type of manipulation performed in some trials, the reported methods in each trial were carefully reviewed to assess eligibility for the meta-analysis.
- Each eligible trial was independently evaluated by two reviewers, and conflicting data were resolved by consensus.

Treatments groups:

- In the elegible trials were described 4 groups: OMT; control; active treatment; and placebo control.

DISCARTED Non full text

DISCARTED. It's a Letter to the editor.

DISCARTED

Opinió sobre les guies clíniques en el camp de l'osteopatia

No es pot acceptar de cap manera el terme correcció de sub-luxació

És una hipotesi sense estudi associat

El món mèdic ha d'aprofundir en aquest concepte

Amb aquest estudi estadístic dona com a resultat : que la prescripció d'aines pot generar un AVC per cada mil o el que es el mateix 1000 AVC's per cada mil.lio de prescripcions, es a dir, mil cops mes de possibilitats de sinistre que l'osteopatia.

Els resultats finals son clinicament importants, i hi ha variatbles a tenir en compte: com es l'edat i /o tractaments afegits de forma aleatoria con el ultrassó, estiraments o el caminar. El grups que es tractent de forma especifica amb tecniques de manipulació son els que mostren una variable en cuan al dolor mes marcada en relació a la seva millora.

L'evidència actual no permet escloure resultats positius del tractament osteopàtic.

Aquest article se centra en les dificultats de la investigació osteopàtica i ofereix una visió general dels estudis disponibles, que han investigat l'efecte de les tècniques osteopàtiques

- Conclusions: Very few high quality studies are currently available with the objective to identify possible adverse events associated with pediatric manual therapy.

KISS syndrome in infants:

- The searches for studies on the KISS syndrome yielded no hits at all.

Spinal manipulation in infants with colic:

- This search yielded two studies on chiropractic treatment for colic. The treatment consist in: a) Physical examination included motion palpation of the articulations of vertebral spine and pelvis b) Those articulations found to be restricted in movement were manipulated/mobilized with specific light fingertip pressure. These manipulations were performed in repeated sessions until normal mobility was attained.

Spinal manipulation in infants:

- The autors were not able to locate any additinal studies on spinal manipulation in infants.

Safety of spinal manipulation in infants:

- The search yielded one case report which describes one fatality after spinal manipulation in a 3-month old baby girl referred for asymeric posture who had been treated with Votja therapy (this type of therapy is described in the article). Immediatelly after the manipulation the infant cried and sweated profusely; a few minutes later, she stopped breathing. In a group of 199 infants treated with manual therapy ("soft" non-thrust manipulations of the cervical spine), "vegetative reactions" were found in 54% of patients, including apnea of short duration (<10 sec) in 22% of cases, profuse sweating in 8%, flushing (ruborització) in 49%, and bradycardia for up to 10 sec in 42%.

- Definition of Treatment associated aggravations: worsening of symptoms or complaints (queixes, demandes) posttreatment.
- Definition of Treatment complications: cerebrovascular accidents, dislocation, fracture, pneumothorax, sprains (torceduras) and strains (tensiones), or death as an outcome of treatment.

... Most evidence comes from studies on adult patients and spinal manipulative therapy. From these studies, current evidence suggests that minor or moderate adverse events after manual therapy are common but that serious adverse events are rare

- Outcomes:
 - Primary outcomes: pain, functional status, and perceived recovery.
 - Secondary outcomes: return to work and health-related quality of life
- Note: The term Spinal manipulative therapy (SMT) used in this systematic review includes spinal manipulation and mobilization
- The effect of the SMT was compared versus:
 - Effect of SMT versus inert interventions (i.e., detuned (desintonizat) short-wave diathermy and detuned ultrasound)
 - Effect of SMT versus sham SMT
 - Effect of SMT versus all other interventions
 - Effect of SMT plus another intervention versus the intervention alone

- In the McHardy et al review, it was found that with manipulative or manual therapy treatment of shoulder pain and disorders, chiropractors generally used the “multimodal” approach.

Multimodal approach includes: the use of exercise, strengthening (enfortiment), stretching, manipulation, mobilization, procedures such as proprioceptive neuromuscular facilitation (PNF), electrical and mechanical modalities and techniques...

The present review (Brantingham et al, 2011) replaces the term chiropractic by the term manipulative therapy to facilitate inclusion and review of all literature.

- In these 35 articles are treated the following shoulder conditions:
 - Rotator cuff injuries and/or diseases
 - Shoulder complaints (queixes), dysfunctions, disorders, or pain
 - Frozen shoulder or Adhesive capsulitis
 - Soft tissue disorders
 - Neurogenic shoulder pain(NSP) or minor NSP
 - Shoulder osteoarthritis
- Evidence grades of A (maximum), B, C, and I (insufficient) were applied.

S'ha de continuar estudiant els efectes concrets del tractament manipulatiu osteopàtic

- The systematic reviews included chiropractic or osteopathic manipulations as well as manual therapy or any type of spinal manipulation.
- It seems that the notion that spinal manipulation is an effective treatment option for any condition is currently not based on the evidence from rigorous systematic reviews.

Lancet

Materials and methods:

This article answers these questions by:

- Discussing the philosophy of osteopathic medicine,
- delineating the differences between osteopathic physicians and other practitioners who perform manual medicine,
- and reviewing some of the current literature available.

When evaluating evidence, one must take into consideration the many factors involved with research. Osteopathic manipulation is not a drug, but it is often studied using a “pharmaceutical” approach (double-blind, placebo-controlled research model).

Article	Revista
Effectiveness of Osteopathy in the Cranial Field and Myofascial Release Versus	JAOA • Vol 108 • No 10 • October 2008 • 559
Acupuncture as Complementary Treatment for Children With Spastic Cerebral Palsy: A Pilot Study A COMPARISON OF OSTEOPATHIC SPINAL MANIPULATION WITH STANDARD CARE FOR PATIENTS WITH LOW BACK PAIN OSTEOPATHic Health outcomes In Chronic low back pain: The OSTEOPATHIC Trial	The New England Journal of Medicine November 4, 1999 Osteopathic Medicine and Primary Care 2008, 2:5
Osteopathic manual therapy versus conventional conservative therapy in the treatment of temporomandibular disorders: A randomized controlled trial	Journal of Bodywork & Movement Therapies (2010) 14, 179e184 Elsevier
The Use of Osteopathic Manipulative Treatment as Adjuvant Therapy in Children With Recurrent Acute Otitis Media Infantile postural asymmetry and osteopathic treatment: a randomized therapeutic trial	ARCH PEDIATR ADOLESC MED/VOL 157, SEP 2003 Developmental Medicine & Child Neurology 2006, 48: 5–9 5
Effect of osteopathic manipulative treatment on gastrointestinal function and length of stay of preterm infants: an exploratory study Incidence of Iatrogenesis Associated With Osteopathic Manipulative Treatment of Pediatric Patients	Chiropractic & Manual Therapies 2011, 19:15 JAOA • Vol 106 • No 10 • October 2006 • 605
Improving functional ability in the elderly via the Spencer technique, an osteopathic manipulative treatment: A randomized, controlled trial	JAOA • Vol 102 • No 7 • July 2002 • 387
Single-blind randomised controlled trial of chemonucleolysis and manipulation in the treatment of symptomatic lumbar disc herniation Exploring the impact of osteopathic treatment on cranial asymmetries associated with nonsynostotic plagiocephaly in infants	Eur Spine J (2000) 9 :202–207 © Springer-Verlag 2000 Complementary Therapies in Clinical Practice 17 (2011) 193e198
Osteopathic Manipulative Treatment in the Emergency Department for Patients With Acute Ankle Injuries	JAOA • Vol 103 • No 9 • September 2003 • 417

Osteopathic manipulative treatment is effective on pain control ass Spinal Cord 2011, 49, 515-519

A prospective study of patients with chronic back pain
randomised to
group exercise, physiotherapy or osteopathy

Physiotherapy 94 (2008) 21–28

Efficacy of Osteopathic Manipulative Treatment
of Female Patients with Migraine:
Results of a Randomized Controlled Trial

THE JOURNAL OF ALTERNATIVE
AND COMPLEMENTARY MEDICINE
Volume 17, Number 3, 2011, pp.
225–230

Effect of Osteopathy in the Cranial Field on Visual Function—A Pilot Study
JAOA • Vol 110 • No 4 • Brief Report •
April 2010 • 239

Osteopathic Manipulative Treatment of Back Pain and Related
Symptoms during Pregnancy: A Randomized Controlled Trial

Am J Obstet Gynecol. Author
manuscript; available in PMC 2011
January 1.

Osteopathic manipulation in the treatment of muscle-contraction h Journal AOA/vol 78. January 1979

Joint manipulation reduces hyperalgesia by activation of monoamine receptors but not opioid or GABA receptors in the spinal cord

Pain. 2003 November ; 106(1-2): 159–168.

Spinal manipulation for low-back pain: a treatment package agreed by the UK chiropractic, osteopathy and physiotherapy professional associations

Manual Therapy (2003) 8(1), 46–51

Hands-on Osteopathic Treatment Cuts Hospital Stays for Pneumonia Patients, Study finds

ScienceDaily (May25, 2010)

Efficacy of osteopathic manipulation as an adjunctive treatment for hospitalized patients with pneumonia: a randomized controlled trial

Osteopathic Medicine and Primary Care 2010, 4:2

A Randomized Controlled Trial Comparing Manipulation With Mobic Arch Phys Med Rehabil Vol 91, September 2010

Blinding Protocols, Treatment Credibility, and Expectancy: Methodc JAOA • Vol 106 • No 8 • August 2006 • 457

Randomized osteopathic manipulation study (ROMANS): pragmat Family Practice Vol. 20, No. 6 © Oxford University Press 2003

Effects of Osteopathic Manipulative Treatment JAOA • Vol 105 • No 1 • January 2005
on Pediatric Patients With Asthma: A Randomized Controlled Trial • 7

PALPATORY ACCURACY OF LUMBAR SPINOUS PROCESSES Journal of Manipulative and
Physiological Therapeutics Volume
34, Number 5

Manipulaciones vertebrales en la lumbalgia mecánica crónica Revista Mexicana de Medicina Física
y Rehabilitación 2010; 22:21-25

Selecting an appropriate placebo for a trial of spinal
manipulative therapy

Australian Journal of Physiotherapy
2006 Vol. 52

Tactile acuity and lumbopelvic motor control in patients with back p Br J Sports Med 2011;45:437–440.
doi:10.1136/bjism.2009.060731

Low Back Pain, Somatic Dysfunction, and Segmental Bone Mineral Density: JAOA • Vol 111 • No 2 • Snider et al •
Original Contribution February 2011

Visceral mobilization can lyse and prevent peritoneal adhesions in Journal of Bodywork & Movement
Therapies (2012) 16, 76e82

Osteopathic manipulative treatment effectiveness in severe chronic obstructive pulmonary disease: A pilot study

Complementary Therapies in Medicine (2012) 20, 16—22 Elsevier

Adjunctive osteopathic manipulative treatment in women with depression
JAOA • Vol 101 • No 9 • September 2001

Clinical reasoning in osteopathy e More than just principles?
International Journal of Osteopathic Medicine 14 (2011) 71e76

Maintenance and Improvement of Interobserver Reliability of Osteopathic
JAOA • Vol 110 • No 10 • Degenhardt et al • Original Contribution October 2010 • 579

- Development, Implementation, and Outcomes of an Initiative to Integrate Evidence-Based Medicine Into an Osteopathic Curriculum
JAOA • Vol 110 • No 10 • Medical Education October 2010 • 593
- Changes in pain sensitivity following spinal manipulation: A systematic review and meta-analysis
Journal of Electromyography and Kinesiology xxx (2012) xxx–xxx
Elsevier
- Efficacy of Spinal Manipulation for Chronic Headache: A Systematic Review
Journal of Manipulative and Physiological Therapeutics
Volume 24 • Number 7 • September 2001
- American Osteopathic Association Guidelines for Osteopathic Manipulative Treatment (OMT) for Patients With Low Back Pain
JAOA • Vol 110 • No 11 • Clinical Guideline Subcommittee on Low Back Pain • Special Communication
November 2010 • 653
- La tensegridad, modelo biomecánico para la Osteopatía
APOSTILL n° 14 (Invierno 2004)
- Osteopathy for musculoskeletal pain: a systematic review
Clin Rheumatol (2012) 31:197–198
- Oral Health Awareness for Osteopathic Medical Students: A Medical Student Survey
JAOA • Vol 112 • No 2 • February 2012
- How the AOA Established the First National Guidelines for OMT
636 • JAOA • Vol 110 • No 11 • November 2010
- Neck Manipulation: Risk vs. Benefit
The Scientific Review of Alternative Medicine (Vol. 2, 2007, published in 2009) and Skeptical Inquirer (Vol. 33, No. 4, 2009).
- The Pressurestat Model Explains the Craniosacral Rhythm
Massage Today
November, 2008, Vol. 08, Issue 11
- Cranial Osteopathic Manipulative Medicine's Growing Evidence Base
JAOA • Vol 112 • No 1 King • Editorial • January 2012 • 9
- Are Clinical Protocols for Osteopathic Manipulative Procedures Truly Evidence-Based?
J Am Osteopath Assoc May 1, 2011
vol. 111 no. 5 322-347

Manipulación o movilización para el dolor de cuello

La Biblioteca Cochrane Plus 2011
numero 1

État des lieux de la sinistralité en Ostéopathie

Samedi, 14 Janvier 2012 00:00 P.
Renaudeau Reconnaissance -
Proposition de Loi Debré

Towards evidence based medicine for paediatricians

Arch Dis Child July 2009 Vol 94 No 7

MANIPULATIVE THERAPY FOR LOWER EXTREMITY
CONDITIONS: EXPANSION OF LITERATURE REVIEW

Journal of Manipulative and
Physiological Therapeutics 55
Volume 32, Number 1

Therapeutic Effects of Cranial Osteopathic Manipulative
Medicine:
A Systematic Review
An Introduction to Clinical Research in Osteopathic Medicine

JAOA • Vol 111 • No 12 • • Review
December 2011 • 685

Prim Care Clin Office Pract 37 (2010)
49–64
primarycare.theclinics.com
2010 Elsevier Inc.

Possible adverse events in children treated by manual therapy: a review

Chiropractic & Osteopathy 2010,
18:12

Evidence-based osteopathic manipulative treatment for common conditions

Osteopathic Family Physician (2012)
4, 8-12 Elsevier

Systematic Review of Effects of Manual Therapy in Infants with Kinetic Imbalance due to Suboccipital Strain (KISS) Syndrome

The Journal of Manual & Manipulative Therapy
Vol. 13 No. 4 (2005), 209 - 214

Incidence of Iatrogenesis Associated With Osteopathic
Manipulative Treatment
of Pediatric Patients

JAOA • Vol 106 • No 10 • October
2006 • 605

Possible adverse events in children treated by
manual therapy: a review

Chiropractic & Osteopathy 2010,
18:12

Spinal Manipulative Therapy for Chronic
Low-Back Pain

SPINE Volume 36, Number 13, pp
E825–E846 ©2011

MANIPULATIVE THERAPY FOR SHOULDER PAIN AND
DISORDERS: EXPANSION OF A SYSTEMATIC REVIEW

Journal of Manipulative and
Physiological Therapeutics
Volume 34, Number 5

Osteopathic manipulative treatment for low back pain: a systematic review and meta-analysis of randomized controlled trials

[Spinal manipulation: an update of a systematic review of systematic reviews](#)

Cervicogenic headache: an assessment of the evidence on clinical diagnosis, invasive tests, and treatment

BMC Musculoskeletal Disorders 2005, 6:43

[Journal of the New Zealand Medical Association 12 August 2011, Vol 124 No 1340](#)

www.thelancet.com/neurology Vol 8 October 2009 Lancet

Ostéopathie Manipulative Medicine and the Athlete

Volume 7 • Number 1 •
January/February 2008 Current
Sports Medicine Reports

Fac. d'impac de l'any de la publicació de l'article	Quartil	Categoria
no	no	no
28.857	Q1	MEDICINE, GENERAL & INTERNAL
no	no	no
no	no	no
4.320	Q1	PEDIATRICS
2.561	Q2 / Q1	CLINICAL NEUROLOGY / PEDIATRICS
no	no	no
no	no	no
no	no	no
1.994.	Q3 / Q2	CLINICAL NEUROLOGY / ORTHOPEDICS
1.484	Q2	INTEGRATIVE & COMPLEMENTARY MEDICINE
no	no	no
1.826.	Q3 / Q2	CLINICAL NEUROLOGY / REHABILITATION

0.641. Q4 REHABILITATION

no no no

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3.313 Q1 STETRICS & GYNECOLOGY

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5.355. Q1 / Q1 / Q1

ANESTHESIOLOGY /
CLINICAL NEUROLOGY /
NEUROSCIENCES

1.686. Q2 REHABILITATION

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2.254 Q1 / Q1 / REHABILITATION / SPORT SCIENCES

no	no	no
1.709	Q2 / Q2	MEDICINE, GENERAL & INTERNAL / PRIMARY HEALTH CARE

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1.418	Q3 / Q2 / Q2	HEALTH CARE SCIENCES & SERVICES / INTEGRATIVE & COMPLEMENTARY MEDICINE / REHABILITATION
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1.484 Q2 INTEGRATIVE &
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1.418	Q3 / Q2 / Q2	REHABILITATION	

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	no	Q3	RHEUMATOLOGY
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MEDICINE /
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2.510. Q2 /Q1 CLINICAL NEUROLOGY /
Orthopedics

1.418 Q3 / Q2 / Q2 HEALTH CARE SCIENCES
& SERVICES /
INTEGRATIVE &
COMPLEMENTARY
MEDICINE /
REHABILITATION

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Q2 / Q3) PEDICS / RHEUMATOLOGY

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SPORT SCIENCES