

1. LUMBAR SPINE

Age variation of lordosis

Eur Spine J. 2019 Oct 19. doi: 10.1007/s00586-019-06185-w

The standing and sitting sagittal spinopelvic alignment of Chinese young and elderly population: does age influence the differences between the two positions?

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PURPOSE:

To investigate the characteristics of standing and sitting spinopelvic sagittal alignment among Chinese healthy population with different age groups.

METHOD:

This cross-sectional, prospective study included a total of 235 volunteers aged 19 to 71 years. Volunteers were divided into two groups: group A (age \leq 40 years; n = 140) and group B (age > 40 years, n = 95). Student's t test was performed to compare the sagittal parameters including sagittal vertical axis (SVA), T1 pelvic angle (TPA), cervical lordosis (CL), thoracic kyphosis (TK), lumbar lordosis (LL) and pelvic tilt (PT) between standing and sitting positions of two groups. Multiple regression was performed to explore the influence factors of differences between two positions.

RESULTS:

In the standing position, group B had larger SVA, TK, PT and TPA than group A. When moving from standing to sitting position, increased SVA and PT were found in both groups, accompanied by decreased LL and TK. However, despite similar change in SVA, group B presented with lesser changes in LL, PT and TPA than group A in sitting position. Age and gender independently influenced the difference in PT and LL.

CONCLUSION:

In the standing position, the older volunteers showed larger SVA, TPA, TK, CL and PT than young population. Both groups showed similar changes when moving from standing to sitting, but the differences between the positions were smaller in older population. These characteristics in the standing and sitting positions of different age groups should be considered when planning surgical reconstruction of sagittal alignment. These slides can be retrieved under Electronic Supplementary Material.

Pelvic inclination and lumbar spine

European Spine Journal pp 1–8| Cite as

Correlation between the apex of lumbar lordosis and pelvic incidence in asymptomatic adult

Changyu Pan Guodong Wang Jianmin Sun

Purpose

The objective of this study was to test the correlation between the apex of lumbar lordosis (LLA) and pelvic incidence (PI) in asymptomatic adults, and to establish predictive formulae based on the PI to obtain the reference values of lumbar sagittal parameters.

Methods

A cohort of 183 asymptomatic volunteers older than 18 years was enrolled in this study between April 2017 and May 2019. A full-spine, standing X-ray was taken for each subject. The following parameters in the sagittal plane were measured: the LLA, the distance between the plumb line of the lumbar apex (LAPL) and gravity plumb line, lumbar lordosis (LL), the upper arc of lumbar lordosis (LLUA), the lower arc of lumbar lordosis (LLLA) and the PI. The correlations between lumbar parameters and PI were analysed, and simple linear regressions were simultaneously constructed. The statistical significance level was $P < 0.05$.

Results

The PI was statistically correlated with the LLA ($r_s = -0.595$, $P < 0.001$), LAPL ($r_s = 0.503$, $P < 0.001$), LL ($r_s = 0.605$, $P < 0.001$), LLUA ($r = 0.354$, $P < 0.001$) and the LLLA ($r = 0.658$, $P < 0.001$). The corresponding regression formulae were as follows: $LLA = -0.042*PI + 6.134$ ($R^2 = 0.306$), $LAPL = 0.448*PI + 26.570$ ($R^2 = 0.279$), $LL = 0.888*PI - 2.667$ ($R^2 = 0.370$), $LLUA = 0.272*PI - 2.297$ ($R^2 = 0.126$) and $LLLA = 0.607*PI + 0.177$ ($R^2 = 0.433$).

Conclusion

The PI has strong correlations with the LLA, LAPL, LL, LLUA and LLLA, which demonstrates that the specific lumbar shape can be affected by the pelvic morphology. Moreover, predictive models for ideal lumbar sagittal parameters based on the PI have been developed, contributing to the design of precise and individualized preoperative plans.

2. LBP

Changes in muscles

Spine J. 2019 Sep 27. pii: S1529-9430(19)31019-8. doi: 10.1016/j.spinee.2019.09.023.

Biopsy samples from the erector spinae of persons with nonspecific chronic low back pain display a decrease in glycolytic muscle fibers.

Agten A¹, Stevens S², Verbrugghe J², Timmermans A², Vandenabeele F².

BACKGROUND CONTEXT: Low back pain (LBP) in Western Europe was classified as having the highest disability and overall burden among 291 studied conditions. For an extensive period of time, evidence related to morphological changes (eg, atrophy and fat infiltration) of the paraspinal muscles in persons with LBP has accumulated. Despite this evidence, there is limited knowledge on muscle fiber type composition of these muscles, and their relation to LBP.

PURPOSE: The aim of the study is to investigate differences in muscle fiber type composition between persons with nonspecific chronic low back pain (NSCLBP) and healthy controls for the lumbar erector spinae (ES) and multifidus (MF) muscle.

STUDY DESIGN AND SETTING: A cross-sectional study took place in the REVAL Rehabilitation Research Center, Hasselt University, Diepenbeek, Belgium.

PATIENT SAMPLE: Twenty persons with NSCLBP (age: 44.5±7.42) and 18 healthy controls (age: 39.89±7.90) participated in this study.

OUTCOME MEASURES: The primary outcome measure was paraspinal muscle fiber type composition. Secondary outcomes consisted of physiologic measures (maximal aerobic capacity and back muscle strength) and functional measures (activity level).

METHODS: Biopsy samples were taken from the lumbar ES and MF muscle at the L4 spinal level. These samples were stained using immunofluorescent antibodies against myosin heavy chains. In each sample, number and size (CSA) of type I, I/IIa, IIa, IIa/x, and IIx muscle fibers were quantified. From these data the relative cross-sectional fiber areas (RCSA) were calculated. To analyze differences in fiber type composition between healthy persons and persons with NSCLBP, a repeated measurements analysis of variance was used. Secondary outcome measures were analyzed using a Student's t test, and Wilcoxon test. This study was supported by the research fund of Hasselt University without potential conflict of interest.

RESULTS: There were no significant differences between both groups regarding anthropometric data. There were no significant between group differences for CSA in the ES. Persons with NSCLBP displayed a nonsignificant (p=.0978) increase in the number of type I muscle fibers, and a significant decrease (p=.0019) in the number of type IIx muscle fibers in the ES muscle. Persons with NSCLBP also displayed a trend toward a higher (p=.0596) RCSA for type I fibers and a significantly lower RCSA for type IIx fibers (p=.0411). There were no significant between group differences within the MF. Regarding the secondary outcome measures, there was a significant between group difference in activity level (p=.0004) and isokinetic back muscle strength (p=.0342).

CONCLUSIONS:

This is the first study to examine muscle fiber type characteristics in both the ES and MF muscle of persons with NSCLBP. Based on muscle fiber characteristics, the paraspinal muscles of persons with NSCLBP seems to display a larger oxidative potential based on an increase of the number type I fibers at the expense of type IIx glycolytic fibers.

Chronic LBP and poor judgement of verticality**Perception of verticality is altered in people with severe chronic low back pain compared to healthy controls: A cross-sectional study**

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DOI: <https://doi.org/10.1016/j.msksp.2019.102074>

Highlights

- Chronic low back pain appears to increase the person's reliance on visual input.
- People with severe chronic low back pain seem not to perceive verticality accurately.
- The more complex the visual environment, the more inaccurate the vertical perception.

Abstract**Background**

People with chronic low back pain (CLBP) have abnormal lumbar proprioception, which increases their reliance on visual input to maintain body verticality. Maintaining verticality is important for spatial orientation, balance and movement coordination. It is unknown if these patients also have altered perception of verticality.

Objective

To compare whether the perception of verticality is different between people with and without CLBP.

Design

Cross-sectional.

Methods

Two comparisons of perception of verticality were done between a group of people with CLBP ($n = 25$) and healthy people ($n = 25$); and between a subgroup of people with severe CLBP ($n = 14$) and healthy people ($n = 25$). In a dark room, the subjective visual vertical test was performed under 3 conditions: rod, rod-and-frame, and rod-and-disc. In each condition, the rod was tilted 40° clockwise and counterclockwise, and the participants were asked to bring it back to vertical 0° position. The rod deviation from verticality was recorded in degrees.

Results

When considering the CLBP group, analysis of variance showed that deviation from verticality had no significant group interaction with condition ($p = 0.2$), or group main effect ($p = 0.2$). However, deviation from verticality was significantly different between the conditions ($p < 0.001$). When considering the severe CLBP subgroup, the interaction effect was significant ($p = 0.046$). Simple main effects showed that the severe CLBP subgroup had larger deviations from verticality (7.5 ± 0.9 deg) compared to the healthy group (4.2 ± 0.7 deg) specifically on the rod-and-frame condition ($p = 0.007$).

Conclusion

People with severe CLBP appear to have larger deviations in judging verticality compared to the healthy group.

5. SPINAL SURGERY

Comparisons

Eur Spine J. 2019 Nov;28(11):2588-2601. doi: 10.1007/s00586-019-06142-7. Epub 2019 Sep 16.

Complication rates of different discectomy techniques for the treatment of lumbar disc herniation: a network meta-analysis.

Chen X¹, Chamoli U^{2,3}, Lapkin S⁴, Castillo JV¹, Diwan AD¹.

PURPOSE:

The aim of this network meta-analysis (NMA) was to compare the complication rates of discectomy/microdiscectomy, percutaneous laser disc decompression (PLDD), percutaneous endoscopic lumbar discectomy (PELD), microendoscopic discectomy (MED), and tubular discectomy for symptomatic lumbar disc herniation (LDH).

METHODS:

We searched three online databases for randomized controlled trials (RCTs). Overall complication rates, complication rates per general and modified Clavien-Dindo classification schemes, and reoperation rates were considered as primary outcomes. Odds ratio with 95% confidence intervals for direct comparisons and 95% credible intervals for NMA results were reported. Surface under cumulative ranking curve (SUCRA) was used to estimate ranks for each discectomy technique based on the complication rates.

RESULTS:

In total, 18 RCTs with 2273 patients were included in this study. Our results showed that there was no significant difference in any of the pairwise comparisons. PELD (SUCRA: 0.856) ranked the lowest for overall complication rates. Discectomy/microdiscectomy (SUCRA: 0.599) and PELD (SUCRA: 0.939) ranked the lowest for intraoperative and post-operative complication rates, respectively. Concerning modified Clavien-Dindo classification scheme, PELD (SUCRA: 0.803), MED (SUCRA: 0.730), and PLDD (SUCRA: 0.605) ranked the lowest for the occurrence of type I, II, and III complications, respectively. Tubular discectomy (SUCRA: 0.699) ranked the lowest for reoperation rates.

CONCLUSIONS:

The results of this NMA suggest that discectomy/microdiscectomy and PELD are the safest procedures for LDH with minimal intraoperative and post-operative complications, respectively. PELD, MED, and PLDD are the safest procedures for LDH in terms of minimal rates for complications necessitating conservative care

7. PELVIC ORGANS/WOMAN'S HEALTH

Hyaluronic acid helps

Meta-analysis of the use of hyaluronic acid gel to prevent intrauterine adhesions after miscarriage

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DOI: <https://doi.org/10.1016/j.ejogrb.2019.10.018>

Background

Intrauterine adhesions are a severe complication after miscarriage. Hyaluronic acid gel has been used to prevent intrauterine adhesions after miscarriage.

Objective

To systematically evaluate the efficacy of adjuvant therapy with hyaluronic acid gel to prevent intrauterine adhesions after miscarriage.

Search strategy

The Cochrane Library, Embase and PubMed databases were searched for articles published before 31 July 2018 using the terms: ('hyaluronic acid gel' or 'gel') and ('dilatation and curettage' or 'D&C' or 'abortion' or 'miscarriage' or 'hysteroscopic') and ('intrauterine adhesions' or 'Asherman syndrome' or 'IUA' or 'endometrial injury' or 'intrauterine adhesion').

Selection criteria

Randomized controlled trials of hyaluronic acid gel therapy after miscarriage.

Data collection and analysis

Four studies were included in the meta-analysis (625 patients in total). Dichotomous outcomes were expressed as relative risk (RR) with 95% confidence intervals (CI). Continuous variables were expressed as standardized mean differences (SMD).

Main results

Hyaluronic acid gel reduced the intrauterine adhesion scores after miscarriage (SMD -0.68, 95% CI -1.08~-0.28; $p = 0.0008$) and the incidence of postoperative intrauterine adhesions after miscarriage (RR 0.44, 95% CI 0.29~0.67; $p = 0.0001$). Subgroup analysis found that hyaluronic acid gel reduced the incidence of moderate and severe intrauterine adhesions after miscarriage (RR 0.18, 95% CI: 0.07~0.47; $p = 0.0004$), but had no effect on the incidence of mild intrauterine adhesions (RR 0.77, 95% CI 0.42~1.19; $p = 0.19$). Hyaluronic acid gel also improved the pregnancy rate after miscarriage (RR 1.94, 95% CI 1.46~2.60; $p < 0.00001$).

Conclusion

Hyaluronic acid gel significantly reduced the incidence of moderate and severe intrauterine adhesions and significantly improved the pregnancy rate after miscarriage.

Pelvic pain and childhood abuse

Obstet Gynecol. 2019 Nov;134(5):1087-1095. doi: 10.1097/AOG.0000000000003533.

Adverse Childhood Experiences Among Gynecology Patients With Chronic Pelvic Pain.

Krantz TE¹, Andrews N, Petersen TR, Dunivan GC, Montoya M, Swanson N, Wenzl CK, Zambrano JR, Komesu YM.

OBJECTIVE:

To compare adverse childhood experiences (ACEs) in women with chronic pelvic pain with a control group, and describe occurrence of specific ACEs in women with chronic pelvic pain.

METHODS:

This case-control study examined the relationship between history of ACEs, traumatic events occurring during childhood as defined by the Centers for Disease Control and Prevention (CDC), and chronic pelvic pain. Patients diagnosed with chronic pelvic pain (n=60) were age-matched to a control group of women without chronic pelvic pain (n=60). All participants completed validated measures to detect for presence of any of the 11 ACEs as identified by the CDC's Behavioral Risk Factor Surveillance System ACE Module.

RESULTS:

Mean participant age was 40 (± 11 years). Total numbers of ACEs were elevated in chronic pelvic pain participants compared with a control group (median 4 [interquartile range 2-6] vs median 1 [interquartile range 0-4], $P < .001$) and 53% of chronic pelvic pain participants had four or more ACEs, compared with 27% of the control group (odds ratio [OR] 3.14; 95% CI 1.46-6.75). All categories of abuse were more prevalent in chronic pelvic pain compared with the control group: physical (43% vs 15%, OR 4.3; 95% CI 1.8-10.4; $P = .001$), sexual (55% vs 23%, OR 4.0; 95% CI 1.8-8.8; $P < .001$) and verbal or emotional (62% vs 33%, OR 3.2; 95% CI 1.5-6.8; $P = .003$). Regarding household challenges, the subcategory most prevalent in chronic pelvic pain participants compared with the control group was that of witnessed domestic violence (35% vs 8%, OR 5.9; 95% CI 2.1-17.1, $P < .001$).

CONCLUSION:

Chronic pelvic pain participants had a greater than threefold odds of having a history of childhood abuse and having witnessed domestic violence during childhood compared with the control group. Women with chronic pelvic pain had increased numbers of ACEs and 53% had four or more ACEs, crossing a threshold that others have found to predict poor overall health outcomes.

Abnormal fetal weight gain or loss detrimental

Obstet Gynecol. 2019 Nov;134(5):1075-1086. doi: 10.1097/AOG.0000000000003504.

Gestational Weight Gain and Adverse Birth Outcomes in Twin Pregnancies.

Bodnar LM¹, Himes KP, Abrams B, Lash TL, Parisi SM, Eckhardt CL, Braxter BJ, Minion S, Hutcheon JA.

OBJECTIVE:

To evaluate the association between gestational weight gain in twin pregnancies and small-for-gestational-age (SGA) and large-for-gestational-age (LGA) birth, preterm birth before 32 weeks of gestation, cesarean delivery, and infant death within each prepregnancy body mass index (BMI) category.

METHODS:

Data in this population-based study came from Pennsylvania-linked infant birth and death records (2003-2013). We studied 54,836 twins born alive before 39 weeks of gestation. Total pregnancy weight gain (kg) was converted to gestational age-standardized z scores. Multivariable modified Poisson regression models stratified by prepregnancy BMI were used to estimate associations between z scores and outcomes. A probabilistic bias analysis, informed by an internal validation study, evaluated the effect of BMI and weight gain misclassification.

RESULTS:

Gestational weight gain z score was negatively associated with SGA and positively associated with LGA and cesarean delivery in all BMI groups. The relation between weight gain and preterm birth was U-shaped in nonobese women. An increased risk of infant death was observed for very low weight gain among normal-weight women and for high weight gain among women without obesity. Most excess risks of these outcomes were observed at weight gains at 37 weeks of gestation that are equivalent to less than 14 kg or more than 27 kg in underweight or normal-weight women, less than 11 kg or more than 28 kg in overweight women, and less than 6.4 kg or more than 26 kg in women with obesity. The bias analysis supported the validity of the conventional analysis.

CONCLUSION:

Very low or very high weight gains were associated with the adverse outcomes we studied. If the associations we observed are even partially reflective of causality, targeted modification of pregnancy weight gain in women carrying twins might improve pregnancy outcomes.

Cord Vit D and inflammation

Am J Reprod Immunol. 2019 Oct 22:e13201. doi: 10.1111/aji.13201

Altered cord serum 25-hydroxyvitamin D signalling and placental inflammation is associated with pre-term birth.

Budhwar S¹, Verma P¹, Verma R¹, Gupta S², Rai S², Singh R³, Singh K¹.

PROBLEM:

Vitamin D is well-known for having anti-inflammatory and immunomodulatory properties. Impaired maternal Vitamin D status has been known to increase the risk of adverse pregnancy outcomes like pre-term birth. The present study aims to evaluate the impact of fetal cord serum 25-hydroxyvitamin D mediated signalling in mediating inflammatory responses in placenta during pre-term birth.

METHODS OF STUDY:

For the above purpose, cord serum 25(OH) D were measured in term (n=20) and pre term (n=20) born babies using ELISA. Vitamin D downstream signalling has also been checked in placenta (VDR, CYP27B1, Cathelicidin LL37) along with expression of inflammatory markers (S100A8, HMGB1, TLR2, pNF-kappaB) using Western blotting and immunohistochemistry. Pearson correlation model was used to do correlation study.

RESULTS:

Compared with term born babies (59.31+3.476), decline in cord serum 25(OH) D levels is observed in pre-term born babies (22.26+1.083, $p < 0.0001$) that showed strong positive correlation with gestational age ($r = 0.9368^{***}$), and birth weight ($r = 0.9559^{***}$). On the other hand, Vitamin D signalling markers were found to be downregulated and inflammatory markers were upregulated in placental tissue of pre-term born babies.

CONCLUSION:

Thus, our study demonstrated that insufficient cord 25(OH) D levels may disturb the homeostasis of inflammation in placenta. Altered cord serum 25(OH) D mediated anti-inflammatory signalling may be acting as trigger signals in modulating inflammatory responses in placenta and eliciting premature activation of spontaneous labor in pre-term birth.

High starch intake impacts fetus

BMC Pregnancy Childbirth. 2019 Oct 21;19(1):362. doi: 10.1186/s12884-019-2524-z.

High starchy food intake may increase the risk of adverse pregnancy outcomes: a nested case-control study in the Shaanxi province of Northwestern China.

Huang L¹, Shang L¹, Yang W^{2,3}, Li D^{1,4}, Qi C¹, Xin J¹, Wang S¹, Yang L¹, Zeng L⁵, Chung MC^{1,6}.

BACKGROUND:

There was a wider disparity in the diet characterization among most studies on diet and pregnancy outcomes in different countries, and the research in northern China is limited. Therefore, the purpose of the present study that was conducted in northwest China was to understand the dietary characteristics of periconceptional women and to explore the relationship between and specific dietary patterns with adverse pregnancy outcomes.

METHODS:

A nested case-control study was conducted from October 2017 to November 2018 in Shaanxi, China. Based on a prospective cohort of 368 women who were pregnant or prepared for pregnancy, 63 participants who developed the outcomes of gestational hypertension, gestational diabetes, preterm birth, low birth weight, and birth defects were included in the case group. A total of 237 healthy pregnant women were included during the same period in the control group. Dietary intake was assessed using a validated food frequency questionnaire for the three months before pregnancy and the first trimester. Information on delivery details and antenatal pregnancy complications was obtained from the hospital maternity records. Dietary patterns were derived using factor analysis. Stratified analysis was performed on the overall, single and multiple adverse pregnancy outcomes categories. Adjustment was made for sociodemographic characteristics and nutritional supplement status.

RESULTS:

Six major dietary patterns were identified. The 'starchy' dietary pattern, composed of high intake in noodle and flour products and/or rice and its products, was associated with the odds of developing of adverse pregnancy outcomes (OR: 2.324, 95% CI: 1.293-4.178). This risk remained significant following adjustment for potential confounders of maternal demographic characteristics and nutritional status (aOR: 2.337, 95% CI:1.253-4.331). Strong association were found during the first trimester of pregnancy, but showed no association during the three months before pregnancy (aOR:1.473, 95% CI: 0.682-3.234).

CONCLUSIONS:

High starchy food intake was associated with adverse pregnancy outcomes, particularly during the first trimester of pregnancy. Health education focusing on periconceptional dietary patterns could be a practical strategy for preventing adverse pregnancy outcomes.

Antidepressant use and impact on infants

Acta Psychiatr Scand. 2019 Oct 24. doi: 10.1111/acps.13120.

In utero exposure to antidepressant medication and neonatal and child outcomes: a systematic review.

Fitton CA¹, Steiner MF¹, Aucott L¹, Pell JP², Mackay DF², Fleming M², Mclay J¹.

OBJECTIVE:

The aim of this study is to systematically review published studies, reporting outcomes to offspring following in utero exposure to antidepressant medications, which used an untreated depressed comparison group.

METHODS:

OVID, Scopus, EBSCO Collections, the Cochrane Library and Web of Science databases were searched for relevant publications published between January 1950 and May 2018 and a total of 188 potentially eligible studies were identified.

RESULTS:

Following review, 16 primary studies were eligible for inclusion. Antidepressant exposure was associated with an increased risk of lower gestational age, preterm birth, but not low birth weight or being small for gestational age compared to untreated depression. There is some evidence that congenital defects are associated with antidepressant use, particularly between cardiac defects and paroxetine use. There is conflicting evidence regarding neurodevelopment in offspring, with some reports of increased incidence of autistic spectrum disorders and depression, but also reports of no problems when measuring emotional symptoms, peer problems, conduct problems, and hyperactivity-inattention scores.

CONCLUSION:

When compared with an untreated depressed group, antidepressant exposure was associated with adverse outcomes at birth, while there is insufficient data to determine whether the association between antidepressants and congenital defects or developmental disorders is a true association. However although we compared treated versus untreated depression there still may be residual confounding as an untreated depressed group is likely to have less severe depression.

Hemorrhoid occurrence increases risk of ED

Haemorrhoids are associated with erectile dysfunction: A population-based study

International Journal of Andrology —
Keller JJ, et al. | October 29, 2019

By using population-based data in Taiwan, researchers estimated the connection between haemorrhoids and erectile dysfunction (ED).

This case-control study identified 6,310 individuals with ED as cases and randomly selected 31,550 controls. The authors discovered that the odds ratio (OR) for previous haemorrhoids among cases was 1.90 when compared with controls after adjusting for monthly income, geographical location, hypertension, diabetes, coronary heart disease, hyperlipidemia, obesity and alcohol abuse/alcohol dependence syndrome. When compared with controls, younger cases showed a higher risk for prior haemorrhoids. In particular, when compared with controls, the adjusted OR among cases < 30 years old was 3.71.

Overall, the authors concluded that an association was found between ED and a prior diagnosis of haemorrhoids.

8. VISCERA

IBS increase worldwide

The global, regional, and national burden of inflammatory bowel disease in 195 countries and territories, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017

The Lancet: Gastroenterology & Hepatology
October 31, 2019

Background

The burden of inflammatory bowel disease (IBD) is rising globally, with substantial variation in levels and trends of disease in different countries and regions. Understanding these geographical differences is crucial for formulating effective strategies for preventing and treating IBD. We report the prevalence, mortality, and overall burden of IBD in 195 countries and territories between 1990 and 2017, based on data from the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2017.

Methods

We modelled mortality due to IBD using a standard Cause of Death Ensemble model including data mainly from vital registrations. To estimate the non-fatal burden, we used data presented in primary studies, hospital discharges, and claims data, and used DisMod-MR 2.1, a Bayesian meta-regression tool, to ensure consistency between measures. Mortality, prevalence, years of life lost (YLLs) due to premature death, years lived with disability (YLDs), and disability-adjusted life-years (DALYs) were estimated. All of the estimates were reported as numbers and rates per 100 000 population, with 95% uncertainty intervals (UI).

Findings

In 2017, there were 6·8 million (95% UI 6·4–7·3) cases of IBD globally. The age-standardised prevalence rate increased from 79·5 (75·9–83·5) per 100 000 population in 1990 to 84·3 (79·2–89·9) per 100 000 population in 2017. The age-standardised death rate decreased from 0·61 (0·55–0·69) per 100 000 population in 1990 to 0·51 (0·42–0·54) per 100 000 population in 2017. At the GBD regional level, the highest age-standardised prevalence rate in 2017 occurred in high-income North America (422·0 [398·7–446·1] per 100 000) and the lowest age-standardised prevalence rates were observed in the Caribbean (6·7 [6·3–7·2] per 100 000 population). High Socio-demographic Index (SDI) locations had the highest age-standardised prevalence rate, while low SDI regions had the lowest age-standardised prevalence rate. At the national level, the USA had the highest age-standardised prevalence rate (464·5 [438·6–490·9] per 100 000 population), followed by the UK (449·6 [420·6–481·6] per 100 000). Vanuatu had the highest age-standardised death rate in 2017 (1·8 [0·8–3·2] per 100 000 population) and Singapore had the lowest (0·08 [0·06–0·14] per 100 000 population). The total YLDs attributed to IBD almost doubled over the study period, from 0·56 million (0·39–0·77) in 1990 to 1·02 million (0·71–1·38) in 2017. The age-standardised rate of DALYs decreased from 26·5 (21·0–33·0) per 100 000 population in 1990 to 23·2 (19·1–27·8) per 100 000 population in 2017.

Interpretation

The prevalence of IBD increased substantially in many regions from 1990 to 2017, which might pose a substantial social and economic burden on governments and health systems in the coming years. Our findings can be useful for policy makers developing strategies to tackle IBD, including the education of specialised personnel to address the burden of this complex disease.

Increased risk of CA with PPI use

J Gastroenterol Hepatol. 2019 Jun 17. doi: 10.1111/jgh.14759.

Relationship between long-term use of proton pump inhibitors and risk of gastric cancer: A systematic analysis.

Jiang K¹, Jiang X¹, Wen Y¹, Liao L¹, Liu FB².

BACKGROUND AND AIM:

This study aims to systematically analyze the effect of long-term therapy with proton pump inhibitors (PPIs) on the risk of gastric cancer.

METHODS:

PubMed, EMBASE, Cochrane Library, China National Knowledge Infrastructure (CNKI), and China biomedical literature database (CBM) were searched for studies before February 2019. We evaluated the quality of the included articles through the Newcastle-Ottawa Scale and gathered relevant data to calculate the pooled odds ratio (OR) through Stata14.0.

RESULTS:

Seven relevant articles conformed to the inclusion criteria; 943 070 patients were included. The pooled OR was 2.50; 95% CI (1.74, 3.85); the subgroup analysis results showed that patients who had used PPIs for more than 36 months were most likely to develop gastric cancer, and an increased risk was observed among patients after *Helicobacter pylori* eradication. Noncardia gastric cancer was more likely to develop.

CONCLUSIONS:

Long-term use of PPIs can possibly increase the risk of gastric cancer even among patients after *H. pylori* eradication; in particular, for noncardia gastric cancer, the risk increases with longer durations of PPI use. Due to the limited number of studies, more high-quality studies are required to be designed.

Low Vit D and IBS

Aliment Pharmacol Ther. 2019 Oct 24. doi: 10.1111/apt.15506.

Systematic review with meta-analysis: association of vitamin D status with clinical outcomes in adult patients with inflammatory bowel disease.

Gubatan J^{1,2}, Chou ND¹, Nielsen OH³, Moss AC¹.

BACKGROUND:

Vitamin D deficiency is highly prevalent among patients with IBD, however, data on its association with clinical outcomes are conflicting.

AIM:

To perform a systematic review and meta-analysis to explore the association of low vitamin D status with clinical outcomes in patients with IBD.

METHODS:

We searched PubMed, Embase, Scopus and Web of Science from inception to February 2018 for observational studies evaluating the association of low 25(OH)D status on IBD disease activity, mucosal inflammation, clinical relapse and quality of life. Odds ratios (ORs) were pooled and analysed using a random effects model.

RESULTS:

Twenty-seven studies were eligible for inclusion comprising 8316 IBD patients (3115 ulcerative colitis, 5201 Crohn's disease). Among IBD patients, low 25(OH)D status was associated with increased odds of disease activity (OR 1.53, 95% CI 1.32-1.77, $I^2 = 0\%$), mucosal inflammation (OR 1.25, 95% CI 1.06-1.47, $I^2 = 0\%$), low quality of life (QOL) scores (OR 1.30, 95% CI 1.06-1.60, $I^2 = 0\%$) and future clinical relapse (OR 1.23, 95% CI 1.03-1.47, $I^2 = 0\%$). In subgroup analysis, low vitamin D status was associated with Crohn's disease activity (OR 1.66, 95% CI 1.36-2.03, $I^2 = 0\%$), mucosal inflammation (OR 1.39, 95% CI 1.03-1.85, $I^2 = 0\%$), clinical relapse (OR 1.35, 95% CI 1.14-1.59, $I^2 = 0\%$), and low QOL scores (OR 1.25, 95% CI 1.04-1.50, $I^2 = 0\%$) and ulcerative colitis disease activity (OR 1.47, 95% CI 1.03-2.09, $I^2 = 0\%$) and clinical relapse (OR 1.20, 95% CI 1.01-1.43, $I^2 = 0\%$).

CONCLUSIONS:

Low 25(OH)D status is a biomarker for disease activity and predictor of poor clinical outcomes in IBD patients.

10 A. CERVICAL SPINE

Comparison of muscle volume

Cervical muscle volume in individuals with idiopathic neck pain compared to asymptomatic controls: A cross-sectional magnetic resonance imaging study

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Highlights

- Cervical muscle volumes C3-T1 from MRI were measured.
- Muscle volume differed between spinal levels, muscles and muscle groups.
- Those with idiopathic neck pain had larger sternocleidomastoid compared to controls.
- Older age and female sex were related to less volume, extensor strength with more.
- Body mass index was not associated with volume.

Background Neck muscle compositional changes may represent potential biomarkers contributing towards chronic neck-related pain and disability.

Objectives To determine differences in muscle volume in the cervical muscles of individuals with chronic idiopathic neck pain compared with age- and sex-matched asymptomatic individuals, and to determine if these muscle variables relate to spinal level, side (left or right), age, sex, body mass index (BMI) or muscle strength.

Study design Cross-sectional magnetic resonance imaging (MRI) study.

Methods

Muscle volume of five muscle (groups) from cervical levels C3-T1 in 20 pain and 17 asymptomatic participants were quantified using MRI: levator scapulae, multifidus including semispinalis cervicis, semispinalis, splenius capitis including splenius cervicis, and sternocleidomastoid. Isometric extensor and flexor muscle strength were assessed with a dynamometer. Linear mixed modelling determined differences between groups in muscle volume accounting for participant characteristics.

Results

Individuals with pain had greater muscle volume (adjusted mean difference 71.2 mm³ (95% CI 14.2–128.2, $p = .015$) of the sternocleidomastoid, accounting for spinal level, side, muscle group (extensors vs flexor), sex, age, body mass index and strength. Modelling indicated muscle volume differed between spinal levels ($p < .001$); greater extensor muscle strength was associated with greater volume ($p = .011$); female sex ($p < .001$) and older age ($p = .012$) were associated with less volume.

Conclusion

Between-group differences in cervical flexor muscle volume, and volume differences across spinal levels and muscles suggest the contribution of cervical muscles to chronic idiopathic neck pain is multifaceted and complex.

13 B. TMJ/ORAL

Bruxism and cervical pain in females

Bruxism, temporomandibular dysfunction and cervical impairments in females – Results from an observational study

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DOI: <https://doi.org/10.1016/j.msksp.2019.102073>

Highlights

- Bruxism is significantly associated with neck disability with medium sized effect.
- TMD is an independent predictor for head/neck pain and cervical dysfunction.
- Pain associated with movement tests and tissue sensitivity are factors in bruxism.
- Cervical tests of pain and not ROM impairment are important in bruxism.

Abstract

Purpose

Bruxism is highly prevalent and defined as abnormal habitual mouth activity including clenching of the teeth and increased jaw muscle activity. The association between bruxism and temporomandibular dysfunction (TMD) is debated, in particular the association between cervical spine impairments, bruxism, and TMD. Hence the purpose of this study was to identify the relationship between bruxism, TMD, and cervical spine impairments.

Methods

This observational study categorized 55 female volunteers suitable for evaluation to a bruxism (n = 33) or non-bruxism group (n = 22) based on comprehensive screening using questionnaires and visual observation of the mouth by 2 independent dentists. Following this, both groups were evaluated for TMD, severity and location of head/neck pain, neck disability index (NDI), cervical spine impairments, and tissue mechanosensitivity. Regression analysis was used to evaluate the relationship between bruxism, TMD severity, and cervical impairments.

Results

Coefficients of pain and bruxism were significantly associated with NDI scores (0.43, $p < 0.001$; 3.24, $p = 0.01$) with large and medium sized effects. As a consequence, both severity of TMD and bruxism status are independently associated with cervical impairments. Having TMD is an independent predictor for head/neck pain and cervical impairments. Pain associated with movement tests and tissue mechanosensitivity was found to be an important factor in bruxism.

Conclusion

Clinicians need to be aware that signs of cervical movement impairment are not likely to be associated with bruxism, rather they should focus on improving orofacial function and tissue mechanosensitivity.

13 C. AIRWAYS/SWALLOWING/SPEECH**Airways problems increases risk of CLBP**

Eur Spine J. 2019 Nov;28(11):2502-2509. doi: 10.1007/s00586-019-06071-5. Epub 2019 Jul 19.

Are respiratory disorders risk factors for troublesome low-back pain? A study of a general population cohort in Sweden.

Rasmussen-Barr E^{1,2}, Magnusson C^{3,4}, Nordin M⁵, Skillgate E^{6,7,8}.

PURPOSE:

A multi-morbidity perspective of troublesome low back pain (LBP) has been highlighted for example in relation to respiratory disorders. Our purpose was to investigate whether respiratory disorders are risk factors for reporting troublesome LBP in people with no or occasional LBP at baseline.

METHODS:

This prospective cohort study was based on the Stockholm Public Health Cohort 2006/2010. We included adults reporting no or occasional LBP the last 6 months at baseline (n = 17,177). Exposures were self-reported asthma and/or Chronic Obstructive Pulmonary Disease (COPD). Outcome was troublesome LBP defined as reporting LBP a couple of days per week or more often that restricted work capacity or hindered daily activities to some or to a high degree, the last 6 months. Binomial regression models were used to calculate risk ratios (RR) with 95% confidence intervals (95% CI).

RESULTS:

Adjusted results indicate that those suffering from asthma had a risk of troublesome LBP at follow-up (RR 1.29, 95% CI 0.92-1.81) as do those suffering from COPD (RR 2.0, 95% CI 1.13-3.56). If suffering from asthma and concurrent COPD the RR was 3.55 (95% CI 1.58-7.98).

CONCLUSION:

Our findings indicate that suffering from asthma and/or COPD increases the risk of developing troublesome LBP, which highlights the importance to consider the overall health of people at risk of troublesome LBP and to take the multi-morbidity perspective into consideration. Future longitudinal studies are needed to confirm our findings. These slides can be retrieved under Electronic Supplementary Material.

Vit D maternal use improves airways

J Asthma. 2019 Dec;56(12):1266-1273. doi: 10.1080/02770903.2018.1536142. Epub 2018 Nov 5.

Vitamin D supplementation during pregnancy and the risk of wheezing in offspring: a systematic review and dose-response meta-analysis.

Li W¹, Qin Z¹, Gao J¹, Jiang Z², Chai Y¹, Guan L¹, Ge Y¹, Chen Y¹.

Background: In the past few years, growing evidence supports a preventive role of vitamin D supplementation during pregnancy for wheezing or asthma in offspring. However, the optimal dose of vitamin D intake is unclear. We conducted a meta-analysis to examine the linear and nonlinear dose-response pattern of vitamin D intake during pregnancy and asthma or wheezing in offspring.

Questions/purposes: The purpose of this study was to answer the following question: Which dose of vitamin D is more effective in preventing wheezing in offspring? *Method:* We identified relevant studies by searching PubMed, EMBASE and CENTRAL up to December 2017 and by hand-searching reference lists. Meta-analysis and subgroup analysis were performed. Fixed or random effects model linear trends analyses were conducted based on the heterogeneity test. Then, if the data did not show linear trends, we considered a nonlinear trend analysis instead.

Results: A total of 6068 participants were included in the study. Our analysis showed an inverse relationship between the intake of vitamin D during pregnancy and the occurrence of wheezing in offspring (pooled OR = 0.68, 95% CI = 0.55-0.83, $I^2 = 24%$, Z statistic = 3.64, $p < 0.01$). We found a nonlinear U-shaped association between vitamin D supplementation during pregnancy and asthma or wheezing in offspring, with the lowest risk at approximately 800 IU/d. Publication bias was shown in a funnel plot without Egger's test.

Conclusions: Vitamin D intake during pregnancy is inversely related to wheezing or asthma in offspring. Furthermore, the trend analysis indicates that offspring may benefit from approximately 800 IU/d vitamin D intake during pregnancy.

13 D. SLEEP**SA and carotid arteriosclerosis**

Stroke. 2019 Oct 15;STROKEAHA118022184. doi: 10.1161/STROKEAHA.118.022184

Associations Between Sleep Apnea and Subclinical Carotid Atherosclerosis: The Multi-Ethnic Study of Atherosclerosis.

Zhao YY¹, Javaheri S¹, Wang R^{1,2}, Guo N¹, Koo BB³, Stein JH⁴, Korcarz CE⁴, Redline S^{1,5}.

Background and Purpose- Many health effects of sleep apnea (SA) may be mediated through accelerated atherosclerosis. We examined the associations of snoring and several measurements of SA with subclinical carotid atherosclerosis in a large multiethnic population sample.

Methods- This analysis included 1615 participants (mean age, 68 years) from examination 5 (2010-2013) of the MESA study (Multi-Ethnic Study of Atherosclerosis). Sleep measures including SA (apnea-hypopnea index [4%], ≥ 15 events/hour) were derived from full in-home polysomnography. Carotid atherosclerosis was measured using high-resolution B-mode ultrasound. Multivariable linear and logistic regression models were used to evaluate the associations between sleep exposures with carotid intima-media thickness and the presence of carotid plaque, respectively. Effect modification by age, sex, and race/ethnicity was examined.

Results- In multivariable analysis, SA was associated with an increased odds of carotid plaque presence in individuals aged <68 years (odds ratio, 1.47; 95% CI, 1.05-2.06) but not in older individuals (odds ratio, 0.95; 95% CI, 0.67-1.37; *P* interaction=0.078). Greater hypoxemia (sleep time <90% saturation) was associated with increasing carotid intima-media thickness in younger (0.028 \pm 0.014 mm) but not in older individuals (-0.001 \pm 0.013 mm; *P* interaction=0.106). Self-reported snoring was not associated with carotid atherosclerosis. In assessing race-specific outcomes, greater hypoxemia was associated with increased carotid intima-media thickness in blacks (0.049 \pm 0.017 mm; *P* interaction=0.033).

Conclusions- In this large multiethnic population-based sample, sleep disturbances are associated with subclinical carotid atherosclerosis in both men and women, particularly in those <68 years of age. The mechanisms underlying the association between SA and carotid atherosclerosis may differ for carotid plaque and carotid intima-media thickness.

Adolescent insufficient sleep

Insufficient Sleep Duration And Its Association With Breakfast Intake, Overweight/Obesity, Socio-Demographics And Selected Lifestyle Behaviors Among Saudi School Children

Authors Al-Hazzaa HM, Alhussain MH, Alhowikan AM, Obeid OA

DOI <https://doi.org/10.2147/NSS.S225883>

Objective: Adequate sleep is an important factor for maintaining good health among children. However, there have been few studies reporting on the association of sleep duration with breakfast intake frequency. This study examined the prevalence of nocturnal sleep duration among Saudi children and its association with breakfast intake, screen time, physical activity levels and socio-demographic variables.

Methods: A multistage stratified cluster random sampling technique was used to select 1051 elementary school children in Riyadh. Weight and height were measured and body mass index was computed. The sleep duration, daily breakfast intake frequency, socio-demographic and lifestyle behaviors were assessed using a specifically designed self-reported questionnaire filled by the children's parents.

Results: Over 71% of the Saudi school children did not attain the recommended sufficient sleep duration at night. Results of logistic regression analysis, adjusted for confounders, exhibited significant associations between longer sleep duration and younger age (aOR=1.12, $p=0.046$), being female (aOR=1.39, $p=0.037$), higher father educational levels, daily breakfast intake (aOR=1.44, $p=0.049$) and lower screen time (aOR for >2 hrs/day=0.69, $p=0.033$). However, no significant ($p > 0.05$) association was found for mother education, family income, number of family member in the house, overweight/obesity, or physical activity levels.

Conclusion: The prevalence of insufficient nocturnal sleep among Saudi children was high. Insufficient sleep was associated with breakfast and several important socio-demographic and lifestyle behaviors. The findings of this study support the development of interventions to prevent insufficient sleep and help Saudi children improve their sleeping habits.

Restless leg syndrome

Journal of the Neurological Sciences Volume 407, 15 December 2019, 116519

Involvement of legs and other body parts in patients with restless legs syndrome and its variants

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<https://doi.org/10.1016/j.jns.2019.116519> Get rights and content

Highlights

- We evaluated the detailed distribution of restlessness in RLS/RLS variants.
After excluding augmentation, 36% had restlessness involving other body parts.
- Other body part involvement in RLS patients was not related to RLS severity.
- Severity was significantly correlated between legs and other body parts.
- No link was found between symptom onset for the legs and other body parts.

Abstract

Background

Restless legs syndrome (RLS) is characterized by the urge to move the legs accompanied by movement-responsive, abnormal sensations, which worsen at rest and night. We investigated the distribution of sensory symptoms and clinical correlations in patients with RLS and its variants.

Methods

Eighty-nine patients diagnosed with RLS or RLS variants (age 61.4 ± 18.5 years 40 M/49 F) according to established criteria, with the exclusion of those with augmentation, were included in this study. The international RLS rating scale (IRLS) was used to assess the severity of RLS/RLS variant symptoms.

Results

Eighty-three patients (93.3%) had RLS, and 6 patients (6.7%) had RLS variants. Among the patients with RLS and RLS variants, 33 patients (36.0%) reported restlessness involving other body parts: arms (16.9%) were the most frequent region, followed by the back (10.1%), abdomen (6.7%), and buttocks (4.5%). There were no between-group differences in clinical characteristics, except for the level of sleep disturbances being higher in patients with RLS variants ($n=6$) than in patients with RLS ($n=83$). No significant difference was observed in clinical characteristics including RLS severity and treatment between patients with RLS only ($n=57$) and patients with RLS with other body part involvement ($n=26$). No relationship was observed between the onset of symptoms in the legs and other body parts, but the IRLS scores for legs and other body parts were significantly correlated.

Conclusion

We should recognize that RLS can involve not only legs but also other body parts to varying degrees in each patient.

Nonrestorative sleep

J Pain. 2019 Sep 14. pii: S1526-5900(19)30809-0. doi: 10.1016/j.jpain.2019.09.001

Linking non-restorative sleep and activity interference through pain catastrophizing and pain severity: An intra-day process model among individuals with fibromyalgia.

Mun CJ¹, Davis MC², Campbell C³, Finan P³, Tennen H⁴.

Non-restorative sleep is a key diagnostic feature of the musculoskeletal pain disorder fibromyalgia, and is robustly associated with poor physical functioning, including activity interference.

However, the mechanisms through which non-restorative sleep elicits activity interference among individuals with fibromyalgia at the within-person level remain unclear.

The present study tested the following three-path mediation model, using data gathered from a 21-day electronic daily diary in 220 individuals with fibromyalgia: previous night non-restorative sleep → morning pain catastrophizing → afternoon pain severity → end-of-day activity interference.

Results of multilevel structural equation modeling supported the three-path mediation model. Previous night's non-restorative sleep and morning pain catastrophizing were also directly related to end-of-day activity interference. Previous night non-restorative sleep did not significantly predict afternoon pain severity while controlling for the effect of morning pain catastrophizing. Greater non-restorative sleep during the previous night and a higher level of morning pain catastrophizing appear to serve as risk factors for experiencing greater daily pain and activity interference later in the day.

These findings point to the potential utility of targeted interventions that improve both sleep quality and pain catastrophizing to help individuals with chronic pain engage in important daily activities despite experiencing pain.

37. OSTEOARTHRITIS/KNEE**Varus thrust and pain**

Arthritis Care Res (Hoboken). 2019 Oct;71(10):1353-1359. doi: 10.1002/acr.23766. Epub 2019 Aug 19.

Association of Varus Knee Thrust During Walking With Worsening Western Ontario and McMaster Universities Osteoarthritis Index Knee Pain: A Prospective Cohort Study.

Wink AE¹, Gross KD², Brown CA³, Lewis CE⁴, Torner J⁵, Nevitt MC⁶, Tolstykh I⁷, Sharma L⁸, Felson DT⁹.

OBJECTIVE:

To investigate the 2-year association of varus knee thrust observed during walking to the odds of worsening Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) knee pain in older adults with or at risk of osteoarthritis (OA).

METHODS:

Video recordings of self-paced walking trials of Multicenter Osteoarthritis Study participants were assessed for the presence of varus thrust at baseline. Knee pain was assessed using the WOMAC questionnaire at baseline and at 2 years. Logistic regression was used to estimate the odds of worsening knee pain (defined as either any increase in WOMAC score or as clinically important worsening), adjusting for age, sex, race, body mass index, clinic site, gait speed, and static knee alignment. Analyses were repeated, stratified by baseline radiographic OA status and among the subset of knees without baseline WOMAC pain.

RESULTS:

A total of 1,623 participants contributed 3,204 knees. Varus thrust was observed in 31.5% of knees. Knees with varus thrust had 1.44 times (95% confidence interval [95% CI] 1.19-1.73) the odds of any worsening and 1.37 times (95% CI 1.11-1.69) the odds of clinically important worsening WOMAC pain compared to knees without thrust. Knees with thrust without baseline WOMAC pain had 2.01 times (95% CI 1.47-2.74) the odds of incident total pain.

CONCLUSION:

Results indicate that varus thrust is a risk factor for worsening and incident knee pain. Targeting varus thrust through noninvasive therapies could prevent development or worsening of knee pain in older adults with or at risk for knee OA.

45 A. MANUAL THERAPY LUMBAR & GENERAL**Manual therapy and touch****Manual therapy: Exploiting the role of human touch**

Tommaso Geri* Antonello Viceconti Marco Minacci Marco Testa Giacomo Rossetini
DOI: <https://doi.org/10.1016/j.msksp.2019.07.008>

Highlights

- •Several constructs have proposed the working mechanism of hands-on techniques
- •Manual therapy may be conceived as a specific form of human touch.
- •Touch requires technical skills linked with a sympathetic contact with the patients.

Abstract**Introduction**

The physiotherapy approach to musculoskeletal pain is currently pointing more towards a hands-off management of patients by education and exercise therapy. However, hands-on techniques still represent a core element of musculoskeletal physiotherapy practice appreciated by patients and widely taught in educational program and clinical professional development training.

Purpose

This professional issue explain why hands-on techniques may be considered a specific form of touch and outlines the importance of having a deep and wider understanding of their action mechanisms. Three aspects of the human touch, namely analgesic, affective and somatoperceptual are considered in light of the current literature.

Implications

The view of hands-on techniques as a specific form of human touch implies a change of perspective. Primarily, manual therapy techniques are based on the physical properties of the delivered stimulus (requiring knowledge of anatomy, biomechanics and neurophysiology) as well as on the emotional properties that emerge from the sympathetic contact established with the patient. Secondly, the manual therapists should develop relationship and communicative skills allowing this kind of touch to emerge. Thirdly, accordingly with this new perspective, the study of the multifaceted mechanisms of action of hands-on techniques requires a multidisciplinary team of researchers including specialists apparently far from the clinical field. Finally, the recognition of the therapeutic value of touch as one of the most qualifying professional acts of physiotherapists is needed and guarantees patients of its best evidence-based delivering.

Segmental motion testing not reliable**Evidence and recommendations for the use of segmental motion testing for patients with LBP – A systematic review**

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DOI: <https://doi.org/10.1016/j.msksp.2019.102076>

Highlights

- Evidence for segmental motion testing is poor.
- Clinical use of stand-alone test is not recommended.
- Combination of segmental tests needs further investigation.

Abstract**Background**

Assessment of low back pain (LBP) includes segmental motion tests. Although often used in clinical practice, the validity, inter- and intra-rater reliability of such tests in individuals with LBP are not universally accepted, making it difficult to interpret findings in clinical practice.

Objective

The purposes of this study were to determine the validity and reliability of segmental motion tests for patients with LBP and to give reasoned recommendations for their use in practice.

Design

Systematic review.

Methods

A systematic literature research was conducted of databases PubMed, LIVIVO and Cochrane library. The included studies were appraised for quality by using QUADAS-2 and an adapted version of QAREL tools. Results of studies were appraised to give reasoned recommendations taking quality criteria into account.

Results

Thirteen studies were included covering passive accessory intervertebral motion testing (PAIVMs), passive physiological intervertebral motion testing (PPIVMs) and the prone instability test (PIT). The risk of bias of studies ranged from high to low. When used in isolation, specificity of PAIVMS and PPIVMs was generally high and sensitivity poor. Reliability was overwhelming poor for both. Reliability of the PIT was inconsistent. None of these assessments can be strongly recommended when used in isolation.

Conclusion

The evidence regarding validity and reliability of segmental motion testing is poor and clinical use of stand-alone tests cannot be recommended. Superiority of the combination of tests as a test battery or with other clinical information needs further investigation

45 B. MANUAL THERAPY CERVICAL

Facet kinematics

Measurement of three-dimensional cervical segmental kinematics: Reliability of whole vertebrae and facet-based approaches

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DOI: <https://doi.org/10.1016/j.msksp.2019.07.003>

Highlights

- Cervical kinematics can be reliably measured from MRI data.
- The reliability of measuring cervical kinematics using facet movement is comparable to that using whole vertebrae measures.
- It may be useful to consider facet movements in future studies of cervical kinematics.

Background

Previous studies have used orientation and translation of whole-vertebrae to describe three-dimensional cervical segmental kinematics. Describing kinematics using facet joint movement may be more relevant to pathology and effects of interventions but has not been investigated in the cervical spine. This study compared the reliability of two different methods (whole-vertebrae vs facet joint) to evaluate cervical kinematics.

Methods

Two healthy adults each had six cervical (C1 to T1) magnetic resonance imaging scans, two each in neutral and left and right rotation. A semi-automated method of segmentation and alignment determined the relative orientation and translation of each whole-vertebrae and translation of each facet joint. Intra-rater and inter-rater reliability was determined using limits of agreement (LOA) with 95% confidence intervals and intraclass correlation coefficients (ICC_{3,1} for intra- and ICC_{2,1} for inter-rater).

Results

The LOA for intra-rater evaluation of facet movement was superior to whole vertebra translation. Both methods showed excellent intra-rater ICC_{3,1} (0.80–0.99) and inter-rater ICC_{2,1} (0.79–0.85) for all variables except for Euler angle for flexion/extension which was good (0.65). Intra- and inter-rater ICCs were better for facet movement than all measures of whole of vertebrae movement except Euler angles of axial rotation where no difference was detected.

Conclusions

Measurement of three-dimensional segmental kinematics using either the facet joint or the whole-vertebrae method demonstrated excellent and comparable reliability. These findings support the use of the facet joint method as an option for describing and investigating cervical segmental kinematics.

59. PAIN**Medical Cannabis use**

J Pain. 2019 Sep 24. pii: S1526-5900(19)30814-4. doi: 10.1016/j.jpain.2019.09.006.

High frequency medical cannabis use is associated with worse pain among individuals with chronic pain.

Boehnke KF¹, Scott JR², Litinas E³, Sisley S⁴, Williams DA², Clauw DJ².

Cannabis is widely used for chronic pain. However, there is some evidence of an inverse dose-response relationship between cannabis effects and pain relief which may negatively affect analgesic outcomes.

In this cross-sectional survey, we examined whether daily cannabis use frequency was associated with pain severity and interference, quality of life measures relevant to pain (e.g., anxiety and depressive symptoms), and cannabis use preferences (administration routes, cannabinoid ratio). Our analysis included 989 adults who used cannabis every day for chronic pain. Participant use was designated as light, moderate, and heavy (1-2, 3-4, and 5 or more cannabis uses per day, respectively). The sample was also sub-grouped by self-reported medical only use (designated MED, n=531, 54%) vs. medical use concomitant with a past-year history of recreational use (designated MEDREC, n=458, 46%). In the whole sample, increased frequency of use was significantly associated with worse pain intensity and interference, and worse negative affect, although high frequency users also reported improved positive affect. Subgroup analyses showed that these effects were driven by MED participants. Heavy MED participant consumption patterns showed greater preference for smoking, vaporizing, and high THC products. In contrast, light MED participants had greater preference for tinctures and high CBD products. Selection bias, our focus on chronic pain, and our cross-sectional design likely limit the generalizability our results. Our findings suggest that lower daily cannabis use frequency is associated with better clinical profile as well as lower risk cannabis use behaviors among MED participants. Future longitudinal studies are needed to examine how high frequency of cannabis use interacts with potential therapeutic benefits.

PERSPECTIVE: Our findings suggest that lower daily cannabis use frequency is associated with better clinical profile as well as safer use behaviors (e.g., preference for CBD and non-inhalation administration routes). These trends highlight the need for developing cannabis use guidelines for clinicians to better protect patients using cannabis.