5. SPINAL SURGERY

Conservative vs surgery

Clin Spine Surg. 2019 Jun;32(5):E228-E234. doi: 10.1097/BSD.0000000000000797.

Cost-utility Analysis for Recurrent Lumbar Disc Herniation: Conservative Treatment Versus Discectomy Versus Discectomy With Fusion.

Selva-Sevilla C[1], Ferrara P[2], Gerónimo-Pardo M[3].

STUDY DESIGN:
This study was an ambispective long-term cost-utility analysis with retrospective chart review and included the prospective completion of health questionnaires by patients.

OBJECTIVE:
This was a cost-utility analysis, comparing conservative treatment, discectomy, and discectomy with spinal fusion for patients with recurrent lumbar disc herniation after a previous discectomy.

SUMMARY OF BACKGROUND DATA:
Lumbar disc herniation is an important health problem, with recurrence rates ranging from 5% to 15%. Management of recurrences is controversial due to a lack of high-level evidence. Cost-effectiveness analyses are useful when making clinical decisions. There are economic assessments for first herniations, but not in the context of recurrent lumbar disc herniations.

MATERIALS AND METHODS:
Fifty patients with disc herniation recurrence underwent conservative treatment (n=11), discectomy (n=20), or discectomy with fusion (n=19), and they completed the Short-Form 36, EuroQol-5D, and Oswestry Disability Index.Baseline case quality-adjusted life year (QALY) values, cost-utility ratios, and incremental cost-utility ratios were calculated on the basis of the SF-36. Direct health costs were calculated by applying the health care system perspective. Both QALY and costs were discounted at a rate of 3%. One-way sensitivity analyses were conducted for uncertainty variables, such as other health surveys or 2-year follow-up.

RESULTS:
Cost-utility analysis of conservative treatment versus discectomy showed that the former is dominant, mainly because it is significantly more economical (&OV0556;904 vs. &OV0556;6718, P<0.001), while health results were very similar (3.48 vs. 3.18, P=0.887). Cost-utility analysis of discectomy versus discectomy with fusion revealed that discectomy is dominant, showing a trend to be both more economical (&OV0556;6718 vs. &OV0556;9364, P=0.054) and more effective (3.18 vs. 1.92 QALY, P=0.061).

CONCLUSIONS:
This cost-utility analysis showed that conservative treatment is more cost-effective than discectomy in patients with lumbar disc herniation recurrence. In cases of recurrence in which conservative treatment is not feasible, and another surgery must be performed for the patient, discectomy is a more cost-effective surgical alternative than discectomy with fusion.

7. PELVIC ORGANS/WOMAN'S HEALTH

Diabetes and increase risk of endometrial CA

The effect of diabetes on the risk of endometrial Cancer: an updated a systematic review and meta-analysis

Lotfolah Saed, Fatemeh Varse, Hamid Reza Baradaran, Yousef Moradi
Sorour Khateri,Emilie Friberg, Zaher Khazaei, Saeedeh Gharahjeh, Shahrzad Tehrani, Amir-Babak Sioofy-Khojine and Zahra Najmi

*BMC Cancer*2019**19**:527 https://doi.org/10.1186/s12885-019-5748-4

Background

Previous studies conducted on the association between diabetes and the risk of endometrial cancer have reported controversial results that have raised a variety of questions about the association between diabetes and the incidence of this cancer. Thus, the aim of this systematic review and meta-analysis was to more precisely estimate the effect of diabetes on the risk of endometrial cancer incidence.

Methods

All original articles were searched in international databases, including Medline (PubMed), Web of sciences, Scopus, EMBASE, and CINHAL. Search was done from January 1990 to January 2018 without language limitations. Also, logarithm and standard error logarithm relative risk (RR) were used for meta-analysis.

Results

A total of 22 cohort and case-control studies were included in this meta-analysis, of which 14 showed statistically significant associations between diabetes and risk of endometrial cancer. Diabetes was associated with increased risk of endometrial cancer (RR = 1.72, 95% CI 1.48–2.01). The summary of RR for all 9 cohort studies was 1.56 (95% CI 1.21–2.01), and it was 1.85 (95% CI 1.53–2.23) for 13 case control studies. The summary of RR in hospital-based studies was higher than other studies. Thirteen of the primary studies-controlled BMI as a confounding variable, and the combined risk of their results was 1.62 (95% CI 1.34–1.97).

Conclusions

Diabetes seems to increases the risk of endometrial cancer in women, and this finding can be useful in developing endometrial cancer prevention plans for women having diabetes.

ABSTRACTS

Hormone replacement reduces knee OA

Menopause. 2018 Dec 21;26(6):598-602. doi: 10.1097/GME.0000000000001280.

Knee osteoarthritis and menopausal hormone therapy in postmenopausal women: a nationwide cross-sectional study.

Jung JH[1,2], Bang CH[3], Song GG[1,2], Kim C[4], Kim JH[1,2], Choi SJ[1,5].

OBJECTIVE:
The incidence of osteoarthritis (OA) increases after menopause, and may be related to hormonal changes in women. Estrogen deficiency is known to affect the development of OA, and menopausal hormone therapy (MHT) is suggested to be related to the development of OA. However, the relationship between knee OA and MHT remains controversial. The association between knee OA prevalence and MHT was investigated using large-scale national data.

METHODS:
Data were collected from 4,766 postmenopausal women from the Korea National Health and Nutrition Examination Survey (2009-2012). MHT was defined as regular hormone medication for ≥1 year, and demographic and lifestyle variables were compared between the MHT and non-MHT groups. Knee OA was defined according to symptoms and radiographic findings.

RESULTS:
In the multiple logistic regression models, the OA odds ratio was 0.70 for the MHT group (95% confidence interval 0.50-0.99), compared with the non-MHT group.

CONCLUSIONS:
The prevalence of knee OA was lower in participants with MHT than in those without MHT.

Sleep and pregnancy

Arch Womens Ment Health. 2019 Jun;22(3):327-337. doi: 10.1007/s00737-018-0903-5. Epub 2018 Aug 18.

Sleeping problems during pregnancy-a risk factor for postnatal depressiveness.

Pietikäinen JT[1,2], Polo-Kantola P[3], Pölkki P[4], Saarenpää-Heikkilä O[5,6], Paunio T[7,8], Paavonen EJ[7,9].

In the general population, sleeping problems can precede an episode of depression. We hypothesized that sleeping problems during pregnancy, including insomnia symptoms, shortened sleep, and daytime tiredness, are related to maternal postnatal depressiveness.

We conducted a prospective study evaluating sleep and depressive symptoms, both prenatally (around gestational week 32) and postnatally (around 3 months after delivery) in the longitudinal CHILD-SLEEP birth cohort in Finland. Prenatally, 1667 women returned the questionnaire, of which 1398 women participated also at the postnatal follow-up. Sleep was measured with the Basic Nordic Sleep Questionnaire (BNSQ) and depressive symptoms with a 10-item version of the Center for Epidemiological Studies Depression Scale (CES-D). Altogether, 10.3% of the women had postnatal depressiveness (CES-D ≥ 10 points). After adjusting for main background characteristics and prenatal depressiveness (CES-D ≥ 10), poor general sleep quality (AOR 1.87, 95% CI 1.21-2.88), tiredness during the day (AOR 2.19, 95% CI 1.41-3.38), short sleep ≤ 6 and ≤ 7 h, sleep latency > 20 min, and sleep loss ≥ 2 h were associated with postnatal depressiveness (all $p < .050$).

Postnatally, after the adjustment for background characteristics, virtually all sleeping problems (i.e., difficulty falling asleep (AOR 7.93, 95% CI 4.76-13.20)), except frequent night awakenings per week or severe sleepiness during the day, were related to concurrent postnatal depressiveness.

Thus, several prenatal and postnatal sleeping problems are associated with increased depressive symptoms 3 months postnatally.

Screening of maternal prenatal sleeping problems, even without depressive symptoms during pregnancy or lifetime, would help to identify women at an increased risk for postnatal depressiveness.

C section and metabolic challenges

Association of elective cesarean delivery with metabolic measures in childhood: a prospective cohort study in China

Author links open overlay panelY.-B.Zhou[1]H.-T.Li[1]K.-Y.SiY.-L.ZhangL.-L.WangJ.-M.Liu
https://doi.org/10.1016/j.numecd.2019.04.007Get rights and content

Highlights

• Elective cesarean was not associated with childhood metabolic syndrome.
• Elective cesarean was associated with childhood central obesity and hypertension.
• Elective cesarean-delivered children had higher levels of metabolic indices.

Abstract

Background and Aims

Cesarean delivery may increase the risk of childhood obesity, a precursor of metabolic syndrome (MetS). We aimed to investigate the association of elective cesarean delivery (ElCD) with MetS and its components in a Chinese birth cohort.

Methods and Results

This cohort included 1467 children (737 delivered by ElCD and 730 by spontaneous vaginal delivery [SVD]) who were followed up at 4–7 years of age in 2013. MetS was defined as the presence of ≥3 components: central obesity, hypertriglyceridemia, low high-density lipoprotein (HDL), high fasting glucose, and hypertension. Of the 1467 children, 93 (6.3%) were categorized as having MetS: 50 (6.8%) delivered by ElCD and 43 (5.9%) by SVD. After multivariable adjustment, ElCD was not associated with MetS (adjusted odds ratio [AOR] 1.15, 95% confidence interval [CI] 0.74, 1.78) or certain components including hypertriglyceridemia, low HDL, and high fasting glucose, but was associated with central obesity (AOR 1.33, 95% CI 1.02, 1.72) and hypertension (AOR 1.50, 95% CI 1.15, 1.96), as well as higher levels of total cholesterol (3.43 *vs.* 3.04 mmol/L; P <0.001), low-density lipoprotein cholesterol (1.77 *vs.* 1.67 mmol/L, *P =0.002*), fasting glucose (5.08 *vs.* 5.02 mmol/L, *P* =0.022), systolic (97.57 *vs.* 94.69 mmHg, *P* < 0.001)/diastolic blood pressure (63.72 *vs.* 62.24 mmHg, *P* < 0.001), and BMI (15.46 *vs.* 14.83 kg/m^2, *P* < 0.001), compared with SVD.

Conclusions

Elective cesarean is not associated with MetS in early to middle childhood, but is associated with its components including central obesity and hypertension, as well as various continuous indices.

ABSTRACTS

IVF and CA

Association of in vitro fertilization with childhood cancer in the United States
JAMA Pediatrics
Spector LG, et al. | June 05, 2019
The incidence of childhood cancers among children conceived in vitro was contrasted by researchers with those conceived naturally. This research discovered a tiny connection of IVF with overall cancers of early childhood but observed an increased rate of embryonic cancers, especially hepatic tumors, which could not be ascribed to IVF instead of underlying infertility. Continued cancer follow-up among IVF-conceived kids is warranted.

Methods

A retrospective, population-based cohort study linking cycles reported to the Society for Assisted Reproductive Technology Clinical Outcomes Reporting System from January 1, 2004, to December 31, 2012, resulting in live births from September 1, 2004, to December 31, 2013, at the birth and cancer registries of 14 states, comprising 66% of US births and 75% of IVF-conceived births, follow-up from September 1, 2004, to December 31, 2014.

Participants in the study were 275,686 IVF-conceived kids and a cohort of 2,266,847 kids, randomly chosen 10 births for each IVF birth.

From April 1, 2017, to October 1, 2018, statistical analysis was performed.

Exposure included in vitro fertilization.

Main outcomes and measures included cancer diagnosed in the first decade of life.

Results

- A total of 321 cancers have been identified among kids conceived through IVF (49.1% girls and 50.9% boys; mean [SD] age, 4.6 [2.5] years for singleton births and 5.9 [2.4] years for multiple births), and a total of 2042 cancers have been identified among kids not conceived through IVF (49.2% girls and 50.8% boys; mean [SD] age, 6.1 [2.6] years for singleton births and 4.7 [2.6] years for multiple births).
- Data reported that the overall cancer rate (per 1 000 000 person-years) for the IVF group was 251.9 and 192.7 for the non-IVF group (hazard ratio, 1.17; 95% CI, 1.00-1.36).
- The hepatic tumors rate was higher among the IVF group vs the non-IVF group (hepatic tumor rate: 18.1 vs 5.7; hazard ratio, 2.46; 95% CI, 1.29-4.70).
- The rates of other cancers between the two groups were not different.
- There have been no associations with particular modalities for IVF treatment or IVF indication.

Hysterectomy and mortality

Am J Obstet Gynecol. 2019 Jun;220(6):573.e1-573.e13. doi: 10.1016/j.ajog.2019.02.018. Epub 2019 Feb 12.

Increased risk of osteoporosis with hysterectomy: A longitudinal follow-up study using a national sample cohort.

Choi HG[1], Jung YJ[2], Lee SW[3].

BACKGROUND:
Premenopausal hysterectomy is associated with a decreased ovarian reserve, follicular atresia, and subsequently reduced long-term estrogen secretion. Therefore, women who undergo hysterectomy will experience greater gradual bone mineral loss than women with an intact uterus and have an increased risk of osteoporosis.

OBJECTIVE:
This study aimed to evaluate the association between hysterectomy without/with bilateral oophorectomy and the occurrence of osteoporosis using a national sample cohort from South Korea.

STUDY DESIGN:
Using the national cohort study from the Korean National Health Insurance Service, we extracted data for patients who had undergone hysterectomy (n=9082) and for a 1:4 matched control group (n=36,328) and then analyzed the occurrence of osteoporosis. The patients were matched according to age, sex, income, region of residence, and medical history. A Cox proportional hazards model was used to analyze the hazard ratios and 95% confidence intervals. Subgroup analyses were performed based on age and bilateral oophorectomy status. The age of the participants was defined as the age at the time of hysterectomy.

RESULTS:
The adjusted hazard ratio for osteoporosis was 1.45 (95% confidence interval, 1.37-1.53, P<.001) in the hysterectomy group. The adjusted hazard ratios for osteoporosis in the different age subgroups of this group were 1.84 (95% confidence interval, 1.61-2.10) for ages 40-44 years, 1.52 (95% confidence interval, 1.39-1.66) for ages 45-49 years, 1.44 (95% confidence interval, 1.28-1.62) for ages 50-54 years, 1.61 (95% confidence interval, 1.33-1.96, all P<.001) for ages 55-59 years, and 1.08 (95% confidence interval, 0.95-1.23, P=.223) for ages ≥60 years. The adjusted hazard ratios for osteoporosis according to hysterectomy/oophorectomy status were 1.43 (95% confidence interval, 1.34-1.51) in the hysterectomy without bilateral oophorectomy group and 1.57 (95% confidence interval, 1.37-1.79) in the hysterectomy with bilateral oophorectomy group.

CONCLUSION:
The occurrence of osteoporosis was increased in patients who had undergone hysterectomy compared with that in matched control subjects regardless of bilateral oophorectomy status.

8. VISCERA

Pro-inflammatory diet increases depression

The Inflammatory Potential of the Diet is Directly Associated with Incident Depressive Symptoms Among French Adults

Moufidath Adjibade Cédric Lemogne Mathilde Touvier Serge Hercberg Pilar GalanKaren E Assmann Chantal Julia Emmanuelle Kesse-Guyot

The Journal of Nutrition, nxz045, https://doi.org/10.1093/jn/nxz045

Background
Low-grade chronic inflammation has been suggested to play a substantial role in the etiology of depression; however, studies on the prospective association between the inflammatory potential of the diet and depression are limited.
Objective
The aim of this study was to investigate the association between the inflammatory potential of the diet (measured using the Alternate Dietary Inflammatory Index, ADII) and incident depressive symptoms. We also tested the potential modulating effect of sex, age, BMI, and lifestyle indicators.
Methods
The study sample consisted of 26,730 participants (aged 18–86 y) from the NutriNet-Santé study. Baseline ADII was computed using repeated 24-h dietary records collected during the first 2 y of the follow-up. Incident cases of depressive symptoms were defined by a Center for Epidemiologic Studies Depression scale ≥17 for men and ≥23 for women at least once during follow-up. HR and 95% CI were estimated using multivariable Cox proportional hazards models.
Results
A total of 2221 incident cases of depressive symptoms were identified over a mean follow-up of 5.4 y. After accounting for a wide range of potential confounders, the highest quartile of the ADII was associated with a 15% (95% CI: 2, 31) increase in the risk of depressive symptoms compared with the lowest quartile. In the stratified analyses, associations were statistically significant only among women ($HR_{quartile4\ vs.\ quartile1}$: 1.19; 95% CI: 1.02, 1.37), middle-age adults ($HR_{quartile4\ vs.\ quartile1}$: 1.16; 95% CI: 1.00, 1.35), and participants with a BMI ≥25 ($HR_{quartile4\ vs.\ quartile1}$: 1.29; 95% CI: 1.04, 1.60).
Conclusions
Overall, a proinflammatory diet was associated with a higher risk of depressive symptoms, especially among women, middle-age adults, and participants with overweight or obesity. These findings contribute to the increasing scientific evidence showing a detrimental role of the proinflammatory diet. The NutriNet-Santé study is registered at clinicaltrials.gov as NCT03335644.

ABSTRACTS

IBS sufferers increased cases of depression

Systematic review with meta-analysis: the prevalence of anxiety and depression in patients with irritable bowel syndrome

Mohammad Zamani Shaghayegh Alizadeh-Tabari Vahid Zamani

https://doi.org/10.1111/apt.15325

Background

Irritable bowel syndrome (IBS) is a common and potential disabling functional gastrointestinal disorder. Studies have revealed a possible association between IBS and psychological problems, such as anxiety and depression. Existing systematic reviews have addressed only the levels of anxiety or depression in patients with IBS.

Aim

To investigate systematically the prevalence of anxiety or depression in IBS patients

Methods

A literature search was conducted using the related keywords from the bibliographic databases of Embase, PubMed, Scopus, Web of Science and POPLINE published until 1 January 2019 with no language restriction. Studies reporting the prevalence of anxiety/depressive symptoms/disorders in adult (≥15 years) IBS patients were evaluated. The pooled prevalence, odds ratio (OR) and 95% CI were calculated using STATA software.

Results

A total of 14 926 articles were initially screened, and finally 73 papers were included. The prevalence rates of anxiety symptoms and disorders in IBS patients were 39.1% (95% CI: 32.4-45.8) and 23% (95% CI: 17.2-28.8) respectively. The ORs for anxiety symptoms and disorders in IBS patients compared with healthy subjects were 3.11 (95% CI: 2.43-3.98) and 2.52 (95% CI: 1.99-3.20) respectively. The prevalence estimates of depressive symptoms and disorders in IBS patients were 28.8% (95% CI: 23.6-34) and 23.3% (95% CI: 17.2-29.4) respectively. The ORs for depressive symptoms and disorders in IBS patients compared to healthy subjects were 3.04 (95% CI: 2.37-3.91) and 2.72 (95% CI: 2.45-3.02) respectively.

Conclusion

Patients with IBS have a three-fold increased odds of either anxiety or depression, compared to healthy subjects.

Nut consumption decreases fatty liver disease onset

Association between nut consumption and nonalcoholic fatty liver disease in adults

Shunming Zhang Kun Song

https://doi.org/10.1111/liv.14164

Background & Aims

Increased nut consumption has been associated with reduced inflammation, insulin resistance, and oxidative stress. Although these factors are closely involved in the pathogenesis of nonalcoholic fatty liver disease (NAFLD), few studies have focused on the association between nut consumption and NAFLD in the general population. We aimed to investigate the association of nut consumption and NAFLD in an adult population.

Methods

A total of 23,915 participants from Tianjin Chronic Low-Grade Systemic Inflammation and Health (TCLSIH) Cohort Study were included in the present study. Information on dietary intake was collected using a validated food frequency questionnaire. Abdominal ultrasonography was applied to diagnose NAFLD. Multivariable logistic regression was used to assess the association of nut consumption with NAFLD.

Results

After adjusting for sociodemographic, medical, dietary, and lifestyle variables, the odds ratios (95% confidence interval) for NAFLD across categories of nut consumption were 1.00 (reference) for <1 time/week, 0.91 (0.82, 1.02) for 1 time/week, 0.88 (0.76, 1.02) for 2-3 times/week, and 0.80 (0.69, 0.92) for ≥4 times/week (*P* for trend <0.01). These associations were attenuated but remained significant after further adjustment for blood lipids, glucose, and inflammation markers.

Conclusions

Higher nut consumption was significantly associated with lower prevalence of NAFLD. Further prospective studies and randomized trials are required to ascertain the causal association between nut consumption and NAFLD.

IBD prognostics

Gut. 2019 Apr 27. pii: gutjnl-2019-318343. doi: 10.1136/gutjnl-2019-318343.

A **blood-based prognostic biomarker in IBD.**

Biasci D[#1], Lee JC[#1,2], Noor NM[1], Pombal DR[1,2], Hou M[3], Lewis N[4], Ahmad T[5], Hart A[6,7], Parkes M[1], McKinney EF[1,2], Lyons PA[1,2], Smith KGC[1,2].

OBJECTIVE:
We have previously described a prognostic transcriptional signature in CD8 T cells that separates patients with IBD into two phenotypically distinct subgroups, termed IBD1 and IBD2. Here we sought to develop a blood-based test that could identify these subgroups without cell separation, and thus be suitable for clinical use in Crohn's disease (CD) and ulcerative colitis (UC).

DESIGN:
Patients with active IBD were recruited before treatment. Transcriptomic analyses were performed on purified CD8 T cells and/or whole blood. Phenotype data were collected prospectively. IBD1/IBD2 patient subgroups were identified by consensus clustering of CD8 T cell transcriptomes. In a training cohort, machine learning was used to identify groups of genes ('classifiers') whose differential expression in whole blood recreated the IBD1/IBD2 subgroups. Genes from the best classifiers were quantitative (q)PCR optimised, and further machine learning was used to identify the optimal qPCR classifier, which was locked down for further testing. Independent validation was sought in separate cohorts of patients with CD (n=66) and UC (n=57).

RESULTS:
In both validation cohorts, a 17-gene qPCR-based classifier stratified patients into two distinct subgroups. Irrespective of the underlying diagnosis, IBDhi patients (analogous to the poor prognosis IBD1 subgroup) experienced significantly more aggressive disease than IBDlo patients (analogous to IBD2), with earlier need for treatment escalation (hazard ratio=2.65 (CD), 3.12 (UC)) and more escalations over time (for multiple escalations within 18 months: sensitivity=72.7% (CD), 100% (UC); negative predictive value=90.9% (CD), 100% (UC)).

CONCLUSION:
This is the first validated prognostic biomarker that can predict prognosis in newly diagnosed patients with IBD and represents a step towards personalised therapy.

13 B. TMJ/ORAL

Powered toothbrushing no better than non

Oral cleanliness in daily users of powered vs. manual toothbrushes – a cross-sectional study

Waldemar Petker, Ulrike Weik, Jutta Margraf-Stiksrud and Renate Deinzer

*BMC Oral Health*2019**19**:96
https://doi.org/10.1186/s12903-019-0790-9

Background

Toothbrushing is a daily routine. Still, when adults are asked to manually perform oral hygiene to the best of their abilities, a considerable amount of plaque persists. Little is known about the performance of people who use a powered toothbrush. The present study thus analysed whether the capability to achieve oral cleanliness is better in people for whom powered toothbrushing is a daily routine.

Methods

University students, who either performed powered ($N = 55$) or manual ($N = 60$) toothbrushing for more than 6 months on a daily basis were asked to clean their teeth to the best of their abilities by their own device. Plaque was assessed prior to and immediately after brushing. Furthermore, gingival bleeding, recessions, periodontal pocket depths and dental status were assessed. Oral hygiene performance was video-taped and analyzed with respect to brushing duration, sites of brushing and application of interproximal cleaning devices.

Results

No differences between groups were found with respect to plaque before and after brushing, clinical parameters and overall brushing duration (all $p > 0.05$, all $d < 0.156$). After brushing, plaque persisted at approximately 40% of the sections adjacent to the gingival margin in both groups.

Conclusions

No advantage of daily powered toothbrushing as compared to daily manual toothbrushing was seen with respect to oral hygiene or clinical parameters. The capability to achieve oral cleanliness was low, irrespective of the type of toothbrush under consideration. Additional effort is thus needed to improve this capability.

Periodontal disease increases dementia

J Gerontol A Biol Sci Med Sci. 2008 May;63(5):495-500.

Cognitive function and oral health among community-dwelling older adults.

Wu B[1], Plassman BL, Crout RJ, Liang J.

BACKGROUND:
Both oral health problems and cognitive impairment are relatively common among older adults. Poorer oral health appears to contribute to a decline in quality of life and to be related to various medical conditions. Little is known about the relationship of cognitive function to oral health among community-dwelling older adults.

METHODS:
The sample included 1984 dentate community-dwelling older adults 60 years old or older from the National Health and Nutrition Examination Survey (NHANES, 1999-2002) who completed both the study cognitive measure and dental examination. Weighted descriptive and multivariate regression analyses were performed.

RESULTS:
Multivariate analyses showed that cognitive function was associated with oral health. Individuals with lower cognitive scores had a higher number of decayed and missing teeth and a higher proportion of periodontitis sites. The predicted number of decayed teeth increased by 0.01 with each 1-point decrease in the Digit Symbol Substitution Test score; the number of missing teeth increased by 0.02; and the percentage of sites with periodontal disease increased by 0.02. In addition, individuals' sociodemographic characteristics, health behavior, and regular dental checkups were significantly associated with oral health.

CONCLUSIONS:
This study suggests that community-dwelling elders with lower cognitive function scores have greater deterioration of oral health. This study provides a preliminary knowledge base for the development of early intervention strategies to address oral health problems among older adults.

13 D. SLEEP

Sleep improves health

J Sleep Res. 2019 Jun 5:e12865. doi: 10.1111/jsr.12865.

The effects of sleep extension on cardiometabolic risk factors: A systematic review.

Henst RHP[1], Pienaar PR[1], Roden LC[2], Rae DE[1].

Studies have shown bidirectional relationships between short- or long-sleep duration and risk for obesity, non-communicable diseases, all-cause mortality and cardiovascular disease mortality.

Increasing sleep duration may be an appropriate strategy to reduce cardiometabolic risk in short-sleeping individuals. The aim is to review the effects of sleep extension interventions on cardiometabolic risk in adults. The PubMed and Scopus databases were searched for relevant, English, peer-reviewed scientific publications (until August 2018). Seven studies that aimed to increase sleep duration in adults by any sleep extension intervention and described at least one cardiometabolic risk factor were included. These studies had a combined sample size of 138 participants who were either healthy (n = 14), healthy short-sleeping (n = 92), overweight short-sleeping (n = 10), or pre- or hypertensive short-sleeping (n = 22) individuals. The durations of the sleep extension interventions ranged from 3 days to 6 weeks, and all successfully increased total sleep time by between 21 and 177 min.

Sleep extension was associated with improved direct and indirect measures of insulin sensitivity, decreased leptin and peptide tyrosine-tyrosine, and reductions in overall appetite, desire for sweet and salty foods, intake of daily free sugar, and percentage of daily caloric intake from protein. This review provides preliminary evidence for a role for sleep extension to improve cardiometabolic outcomes and directive towards future studies in the field of cardiometabolic health and sleep.

Post stroke breathing disorders

Sleep-disordered Breathing and Post-Stroke Outcomes

Lynda D Lisabeth PhD Brisa N Sánchez PhD David Lim MS Ronald D Chervin MD
Erin Case BA Lewis B Morgenstern MD Susan Tower MD Devin L Brown MD

https://doi.org/10.1002/ana.25515

Objective

To examine the association between sleep-disordered breathing and stroke outcomes, and determine the contribution of sleep-disordered breathing to outcome disparities in Mexican Americans.

Methods

Ischemic stroke patients (N=995), identified from the population-based Brain Attack Surveillance in Corpus Christi Project (2010-2015), were offered participation in a sleep-disordered breathing study including a home sleep apnea test (ApneaLink Plus). Sleep-disordered breathing (respiratory event index≥10) was determined soon after stroke. Neurologic, functional, cognitive, and quality of life outcomes were assessed at 90 days post-stroke. Regression models were used to assess associations between sleep-disordered breathing and outcomes, adjusted for socio-demographics, pre-stroke function and cognition, health-risk behaviors, stroke severity, and vascular risk factors.

Results

Median age was 67 years (IQR:59-78); 62.1% were Mexican American. Median respiratory event index was 14 (IQR:6-25); 62.8% had sleep-disordered breathing. Sleep-disordered breathing was associated with worse functional outcome (mean difference in activities of daily living/instrumental activities of daily living score 0.15, 95% CI:0.01,0.28) and cognitive outcome (mean difference in modified Mini Mental State Examination -2.66, 95% CI:-4.85,-0.47) but not neurologic or quality of life outcomes. Sleep-disordered breathing accounted for 9-10% of ethnic differences in functional and cognitive outcome and was associated with cognitive outcome more strongly for Mexican Americans (β=-3.97, 95% CI:-6.63,-1.31) than non-Hispanic whites (β=-0.40, 95% CI:-4.18,3.39, p-interaction=0.15).

Interpretation

Sleep-disordered breathing is associated with worse functional and cognitive function at 90 days post-stroke. These outcomes are reasonable endpoints for future trials of sleep-disordered breathing treatment in stroke. If effective, sleep-disordered breathing treatment may somewhat lessen ethnic stroke outcome disparities.

Sleep and pregnancy

Arch Womens Ment Health. 2019 Jun;22(3):327-337. doi: 10.1007/s00737-018-0903-5. Epub 2018 Aug 18.

Sleeping problems during pregnancy-a risk factor for postnatal depressiveness.

Pietikäinen JT[1,2], Polo-Kantola P[3], Pölkki P[4], Saarenpää-Heikkilä O[5,6], Paunio T[7,8], Paavonen EJ[7,9].

In the general population, sleeping problems can precede an episode of depression. We hypothesized that sleeping problems during pregnancy, including insomnia symptoms, shortened sleep, and daytime tiredness, are related to maternal postnatal depressiveness.

We conducted a prospective study evaluating sleep and depressive symptoms, both prenatally (around gestational week 32) and postnatally (around 3 months after delivery) in the longitudinal CHILD-SLEEP birth cohort in Finland. Prenatally, 1667 women returned the questionnaire, of which 1398 women participated also at the postnatal follow-up. Sleep was measured with the Basic Nordic Sleep Questionnaire (BNSQ) and depressive symptoms with a 10-item version of the Center for Epidemiological Studies Depression Scale (CES-D). Altogether, 10.3% of the women had postnatal depressiveness (CES-D ≥ 10 points). After adjusting for main background characteristics and prenatal depressiveness (CES-D ≥ 10), poor general sleep quality (AOR 1.87, 95% CI 1.21-2.88), tiredness during the day (AOR 2.19, 95% CI 1.41-3.38), short sleep ≤ 6 and ≤ 7 h, sleep latency > 20 min, and sleep loss ≥ 2 h were associated with postnatal depressiveness (all $p < .050$).

Postnatally, after the adjustment for background characteristics, virtually all sleeping problems (i.e., difficulty falling asleep (AOR 7.93, 95% CI 4.76-13.20)), except frequent night awakenings per week or severe sleepiness during the day, were related to concurrent postnatal depressiveness.

Thus, several prenatal and postnatal sleeping problems are associated with increased depressive symptoms 3 months postnatally.

Screening of maternal prenatal sleeping problems, even without depressive symptoms during pregnancy or lifetime, would help to identify women at an increased risk for postnatal depressiveness.

16. CONCUSSIONS

Concussions and neck pain

J Orthop Sports Phys Ther. 2019 Jun 1:1-31. doi: 10.2519/jospt.2019.8547.

Can the Neck Contribute to Persistent Post-Concussion Symptoms? A Prospective Descriptive Case Series.

Kennedy E[1], Quinn D[2], Chapple C[1], Tumilty S[1].

STUDY DESIGN:
Prospective case series.

BACKGROUND:
Persistent post-concussion symptoms can arise from a range of sources, including the neck. There is little description of neck assessment findings in people with persistent post-concussion symptoms.

OBJECTIVES:
To assess people with persistent symptoms following a concussion to determine if the neck has also been injured, and evaluate the potential for the neck to contribute to their symptoms.

METHODS:
A consecutive series of participants (n=20) referred for neck assessment were prospectively recruited from two providers of a multidisciplinary concussion service for people with persistent symptoms. Data were collected at initial assessment and on completion of neck treatment, which included standard questionnaires (Rivermead post-concussion symptoms questionnaire, neck disability index, dizziness handicap inventory); patient-reported measures of headache, dizziness and neck pain; physical examination findings and details of co-morbidities.

RESULTS:
Participants were a mean of 7.5 weeks post-concussion (median 5 weeks). On neck assessment, 90% were considered by the clinician to have a neck problem contributing to their current symptoms. Multiple findings were consistent with this view, including: moderate-severe neck disability index scores (mean 33.4, SD 9.5), frequent neck pain (85%), frequent moderate-severe pain on occiput-C4 segmental assessment (85%), positive flexion-rotation test (45%), and muscle tenderness (50-55%).

CONCLUSION:
Multiple findings were indicative of concurrent neck injury, particularly involving the upper cervical spine. These neck-related findings are important to recognise as they have the potential to contribute to persistent post-concussion symptoms, and may respond to neck treatment. *J Orthop Sports Phys Ther, Epub 1 Jun 2019. doi:10.2519/jospt.2019.8547.*

39 A. ORTHOTICS

Foot taping

Can short-term effectiveness of anti-pronation taping predict the long-term outcomes of customized foot orthoses: developing predictors to identify characteristics of patients with plantar heel pain likely to benefit from customized foot orthoses

- Fu-Lien Wu, Yi-Fen Shih, Si-Huei Lee, Hong-Ji Luo and Wendy Tzyy-Jiuan Wang

*BMC Musculoskeletal Disorders*2019**20**:264 https://doi.org/10.1186/s12891-019-2648-3

Background

Foot orthoses are widely used to manage plantar heel pain (PHP). However, the evidence concerning the effect of foot orthoses on PHP is not conclusive. The study aims to identify the characteristics of patients with PHP likely to achieve a positive outcome after customized foot orthoses and to verify the concept that patients who respond positively to anti-pronation taping would achieve a positive prognosis after wearing foot orthoses for six months.

Methods

This is a prospective observational cohort study. Seventy-four patients with PHP underwent a baseline examination and received anti-pronation taping to their painful feet. The taping effects on pain and function were assessed at the 7-day follow-up visit. Then, all patients received an intervention for their PHP with customized foot orthoses for six months. Outcome was assessed with a numeric pain rating scale, the patient-specific functional scale, the foot function index, and the global rating of perceived change. Significant reduction of pain, increase of function, and perception of a meaningful improvement were considered a positive response.

Results

Of 74 patients, 49 had a positive response to the customized foot orthosis treatment. Five predictors were identified: (1) the average pain intensity decreased by over 1.5 points with taping, (2) the range of ankle plantarflexion > 54 degrees, (3) the strength of ankle plantarflexors on the symptomatic side was equal to or stronger than that on the other side, (4) the range of hip internal rotation < 39 degrees, and (5) the range of hip external rotation > 45 degrees. The presence of three or more predictors increased the rate of achieving positive outcome from 66 to 89%.

Conclusions

The predictors of customized foot orthosis outcome in patients with PHP are related to several physical measures of a lower extremity. Findings of the study can be used to screen and select patients with PHP for foot orthosis intervention. Moreover, patients who respond positively to anti-pronation taping would also benefit from the customized foot orthoses. However, since there was no control group in the current study, it is inappropriate to draw conclusions about the effectiveness of the foot orthoses treatment.

52. EXERCISE

Exercise reduces falls

JAMA. 2019 Jun 4;321(21):2092-2100. doi: 10.1001/jama.2019.5795.

Effect of a Home-Based Exercise Program on Subsequent Falls Among Community-Dwelling High-Risk Older Adults After a Fall: A Randomized Clinical Trial.

Liu-Ambrose T[1,2,3], Davis JC[2,4], Best JR[1,2,3], Dian L[5], Madden K[2,5], Cook W[5], Hsu CL[1,2,3], Khan KM[2,6].

IMPORTANCE:
Whether exercise reduces subsequent falls in high-risk older adults who have already experienced a fall is unknown.

OBJECTIVE:
To assess the effect of a home-based exercise program as a fall prevention strategy in older adults who were referred to a fall prevention clinic after an index fall.

DESIGN, SETTING, AND PARTICIPANTS:
A 12-month, single-blind, randomized clinical trial conducted from April 22, 2009, to June 5, 2018, among adults aged at least 70 years who had a fall within the past 12 months and were recruited from a fall prevention clinic.

INTERVENTIONS:
Participants were randomized to receive usual care plus a home-based strength and balance retraining exercise program delivered by a physical therapist (intervention group; n = 173) or usual care, consisting of fall prevention care provided by a geriatrician (usual care group; n = 172). Both were provided for 12 months.

MAIN OUTCOMES AND MEASURES:
The primary outcome was self-reported number of falls over 12 months. Adverse event data were collected in the exercise group only and consisted of falls, injuries, or muscle soreness related to the exercise intervention.

RESULTS:
Among 345 randomized patients (mean age, 81.6 [SD, 6.1] years; 67% women), 296 (86%) completed the trial. During a mean follow-up of 338 (SD, 81) days, a total of 236 falls occurred among 172 participants in the exercise group vs 366 falls among 172 participants in the usual care group. Estimated incidence rates of falls per person-year were 1.4 (95% CI, 0.1-2.0) vs 2.1 (95% CI, 0.1-3.2), respectively. The absolute difference in fall incidence was 0.74 (95% CI, 0.04-1.78; P = .006) falls per person-year and the incident rate ratio was 0.64 (95% CI, 0.46-0.90; P = .009). No adverse events related to the intervention were reported.

CONCLUSIONS AND RELEVANCE:
Among older adults receiving care at a fall prevention clinic after a fall, a home-based strength and balance retraining exercise program significantly reduced the rate of subsequent falls compared with usual care provided by a geriatrician. These findings support the use of this home-based exercise program for secondary fall prevention but require replication in other clinical settings.

53. CORE

Core testing

Int J Sports Phys Ther. 2016 Feb; 11(1): 15–23. PMCID: PMC4739044PMID: 26900496

VALIDATION OF TWO CLINICAL MEASURES OF CORE STABILITY

Courtney M. Butowicz, MSEd, CSCS,[1] D. David Ebaugh, PhD, PT,[1,2] Brian Noehren, PhD, PT,[3] andSheri P. Silfies, PhD, PT[1]

Background Emerging evidence suggests poor core stability is a risk factor for low back and lower extremity injuries in athletes. Recently the trunk stability test (TST) and unilateral hip bridge endurance test (UHBE) were developed to clinically assess core stability. Although these and other clinical tests of core stability exist, how well they assess core stability when compared to biomechanical measures of isolated core stability has not been thoroughly evaluated.

Purpose/Hypothesis The purposes of this study were to 1) determine concurrent validity of two novel clinical core stability assessments (TST and UHBE), and 2) assess relationships between these assessments and the trunk endurance and Y-Balance tests. The authors' hypothesized that the TST and UHBE would be highly correlated to the lab-based biomechanical measure of isolated core stability. Also, the TST and UHBE would be moderately correlated with each other, but not with the trunk extensor endurance and Y-Balance.

Study Design Cross-Sectional design

Methods Twenty healthy active individuals completed the TST (recorded number of errors), UHBE (s), trunk extensor endurance (s), Y-Balance (% leg length) test (YBT), and biomechanical test of core stability.

Results Correlational analyses revealed a small, non-significant association between TST and biomechanical measures ($r_s = 0.2 – 0.22$), while a moderate, significant relationship existed between UHBE and biomechanical measures ($r_s = −0.49$ to $−0.56$, $p < 0.05$). There was little to no relationship between TST and UHBE ($r = −0.07$ to $– 0.21$), or TST and extensor endurance ($r = −0.18$ to $−0.24$). A moderate, significant association existed between TST and two reach directions of the YBT ($r = −0.41$ to $−0.43$, $p < 0.05$).

Conclusions

Study data support the utility of UHBE as a clinical measure of core stability. The poor relationship between the TST and biomechanical measures, combined with observation of most control faults occurring in the lower extremity (LE) suggest the TST may not be an appropriate clinical test of core stability. **Levels of Evidence** Level 3

56. ATHLETICS

Athletics helps to overcome childhood abuse

JAMA Pediatr. 2019 May 28. doi: 10.1001/jamapediatrics.2019.1212.

Association of Team Sports Participation With Long-term Mental Health Outcomes Among Individuals Exposed to Adverse Childhood Experiences.

Easterlin MC[1,2], Chung PJ[3,4,5,6], Leng M[7], Dudovitz R[4,5].

IMPORTANCE: Adverse childhood experiences (ACEs) are associated with long-term poor mental health. Less is known about factors that improve long-term mental health among those with ACEs.
OBJECTIVE: To evaluate, among those exposed to ACEs, whether team sports participation during adolescence is associated with better mental health in adulthood and whether the association between team sports participation and mental health varies by sex.
DESIGN, SETTING, AND PARTICIPANTS: This study used data from 9668 individuals who participated in waves 1 (1994-1995) and 4 (2008) of the National Longitudinal Study of Adolescent to Adult Health. Individuals were included if they had complete data on exposure to ACEs (physical and sexual abuse, emotional neglect, parental alcohol misuse, parental incarceration, and living with a single parent) and a valid sample weight. Statistical analysis was performed from November 6, 2017, to January 4, 2019.
MAIN OUTCOMES AND MEASURES: The association between team sports participation in grades 7 to 12 (wave 1) and diagnosis of depression and/or anxiety and current depressive symptoms (determined by Center for Epidemiologic Studies Depression scale-10 scores) at ages 24 to 32 years (wave 4) among individuals exposed to ACEs. Multivariable logistic regression models were weighted based on propensity scores for factors associated with team sports participation and controlled for individual, family, and school characteristics. Interaction terms tested whether associations between team sports participation and mental health varied by sex.
RESULTS: Of 9668 individuals included in the study (4470 male [50.0%]; mean [SD] age, 15.2 [1.75] years), 4888 (49.3%) reported 1 or more ACE and 2084 (21.3%) reported 2 or more ACEs. Among those with ACEs, team sports participation during adolescence was significantly associated with lower odds of receiving a diagnosis of depression (unadjusted rate, 16.8% vs 22.0%; propensity score-weighted [PSW] adjusted odds ratio [aOR], 0.76; 95% CI, 0.59-0.97) or anxiety (11.8% vs 16.8%; PSW aOR, 0.70; 95% CI, 0.56-0.89) and having current depressive symptoms (21.9% vs 27.5%; PSW aOR, 0.85; 95% CI, 0.71-1.01). There were no significant differences in associations between team sports participation and mental health by sex. Stratified analyses showed significant associations for all outcomes among males (depression: PSW aOR, 0.67 [95% CI, 0.46-0.99]; anxiety: PSW aOR, 0.66 [95% CI, 0.45-0.96]; depressive symptoms: PSW aOR, 0.75 [95% CI 0.56-0.99]) but only 1 outcome among females (anxiety: PSW aOR, 0.73; 95% CI, 0.54-0.98).
CONCLUSIONS AND RELEVANCE: Among individuals affected by ACEs, team sports participation in adolescence was associated with better adult mental health. Team sports may be an important and scalable resilience builder.

58. RUNNING

Predicting foot patterns

Int J Sports Phys Ther. 2016 Feb; 11(1): 64–71.PMCID: PMC4739049 PMID: 26900501

THE USE OF A STATIC MEASURE TO PREDICT FOOT POSTURE AT MIDSUPPORT DURING RUNNING

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Background The posture of the foot has been implicated as a factor in the development of running-related injuries. A static measure of foot posture, such as the longitudinal arch angle (LAA), that can be easily performed and is predictive of the posture of the foot at midsupport while running could provide valuable information to enhance the clinician's overall evaluation of the runner.

Purpose The purpose of this study was to determine if the LAA, assessed in relaxed standing, could predict the posture of the foot at midsupport while running on a treadmill.

Study Design Cross-sectional Study

Methods Forty experienced runners (mean age 26.6 years) voluntarily consented to participate. Inclusion criteria included running at least 18 miles per week, previous experience running on a treadmill, no history of lower extremity congenital or traumatic deformity, or acute injury three months prior to the start of the study. Each runner had markers placed on the medial malleolus, navicular tuberosity, and medial aspect 1stmetatarsal head of both feet. A high speed camera (240 Hz) was used to film both feet of each runner in standing and while running on a treadmill at their preferred speed. The LAA in standing and at mid-support while running was determined by angle formed by two lines drawn between the three markers with the navicular tuberosity serving as the apex. The LAA in midsupport was determined using the mean of the middle five running trials.

Results The levels of intra-rater and inter-rater reliability for the dynamic LAA were excellent. The results of the t-tests indicated that mean values between the left and right foot were not significantly different for the standing or running LAA. The results of the t-tests between male and female runners were also not significantly different for standing or running LAA. The Pearson correlation between standing and running LAA for all 80 feet was $r = 0.95$ ($r^2 = 0.90$).

Conclusions The standing LAA was found to be highly predictive of the running LAA at midsupport while running. Approximately 90% of the variance associated with foot posture at midsupport in running could be explained by the standing LAA.

Level of Evidence 4, Controlled laboratory study

Changing from heel strike patterns

Int J Sports Phys Ther. 2016 Feb; 11(1): 54–63. PMCID: PMC4739048 PMID: 26900500

THE EFFECT OF STEP RATE MANIPULATION ON FOOT STRIKE PATTERN OF LONG DISTANCE RUNNERS

Darrell J. Allen, PT, DPT, MS, SCS, CSCS,[1] Hollie Heisler, PT, DPT,[1] Jennifer Mooney, PT, DPT,[1] andRichard Kring, PT, PhD, DMT, DPT, OCS, FAAOMPT[1]

Purpose/Background Running gait retraining to change foot strike pattern in runners from a heel strike pattern to a non heel- strike pattern has been shown to reduce impact forces and may help to reduce running related injuries. Step rate manipulation above preferred is known to help decrease step length, foot inclination angle, and vertical mass excursion, but has not yet been evaluated as a method to change foot strike pattern. The purpose of this study was to investigate the effect of step rate manipulation on foot strike pattern in shod recreational runners who run with a heel strike pattern. A secondary purpose was to describe the effect of step rate manipulation at specific percentages above preferred on foot inclination angle at initial contact.

Methods Forty volunteer runners, who were self-reported heel strikers and had a weekly running mileage of at least 10 miles, were recruited. Runners were confirmed to be heel strikers during the warm up period on the treadmill. The subject's step rate was determined at their preferred running pace. A metronome was used to increase step rate above the preferred step rate by 5%, 10% and 15%. 2D video motion analysis was utilized to determine foot strike pattern and to measure foot inclination angle at initial contact for each step rate condition.

Results There was a statistically significant change in foot strike pattern from a heel strike pattern to a mid-foot or forefoot strike pattern at both 10% and 15% step rates above preferred. Seven of the 40 subjects (17.5%) changed from a heel- strike pattern to a non- heel strike pattern at +10% and 12 of the 40 subjects (30%) changed to a non-heel strike pattern at +15%. Mean foot inclination angle at initial contact showed a statistically significant change (reduction) as step rate increased.

Conclusion

Step rate manipulation of 10% or greater may be enough to change foot strike pattern from a heel strike to a mid-foot or forefoot strike pattern in a small percentage of recreational runners who run in traditional running shoes. If changing the foot strike pattern is the main goal, other gait re-training methods may be needed to make a change from a heel strike to a non-heel strike pattern. Step rate manipulation shows a progressive reduction of foot inclination angle at 5%, 10%, and 15% above preferred step rate which reduces the severity of the heel strike at initial contact. Step rate manipulation of at least +10% above preferred may be an effective running gait retraining method for clinicians to decrease the severity of heel strike and possibly assist a runner to change to a non-heel strike pattern. **Level of Evidence** 3

62 A. NUTRITION/VITAMINS

Vit D

Serum 25-hydroxyvitamin D levels and depression in older adults: A dose-response meta-analysis of prospective cohort studies
The American Journal of Geriatric Psychiatry — Li H, et al. | June 06, 2019

Via performing a dose-response meta-analysis of prospective cohort studies, researchers investigated the association of serum 25-hydroxyvitamin D [25(OH)D] concentrations with the risk of depression in the older population.

They identified six eligible studies representing 16,287 older adults with 1,157 cases of depression from the PubMed, Cochrane Library, Web of Science, PsycINFO, and EMBASE databases.

Upon analysis, they noted a negative correlation of serum 25(OH)D concentration with the risk of depression in older adults. The risk of depression decrease by 12% in correlation with every 10-ng/mL increase in serum 25(OH)D. Finding thereby suggested a possible utility of increasing 25(OH)D levels to reduce the risk of depression in older adults.

62 B. CRYOTHERAPY

Use in sports

Int J Sports Phys Ther. 2016 Feb;11(1):141-8.

CLINICAL APPLICATIONS OF CRYOTHERAPY AMONG SPORTS PHYSICAL THERAPISTS.

Hawkins SW[1], Hawkins JR[2].

BACKGROUND:
Therapeutic modalities (TM) are used by sports physical therapists (SPT) but how they are used is unknown.

PURPOSE:
To identify the current clinical use patterns for cryotherapy among SPT.

STUDY DESIGN:
Cross-sectional survey.

METHODS:
All members (7283) of the Sports Physical Therapy Section of the APTA were recruited. A scenario-based survey using pre-participation management of an acute or sub-acute ankle sprain was developed. A Select Survey link was distributed via email to participants. Respondents selected a treatment approach based upon options provided. Follow-up questions were asked. The survey was available for two weeks with a follow-up email sent after one week. Question answers were the main outcome measures.

RESULTS:
Reliability: Cronbach's alpha=>0.9. The SPT response rate = 6.9% (503); responses came from 48 states. Survey results indicated great variability in respondents' approaches to the treatment of an acute and sub-acute ankle sprain.

CONCLUSIONS AND CLINICAL RELEVANCE:
SPT applied cryotherapy with great variability and not always in accordance to the limited research on the TM. Continuing education, application of current research, and additional outcomes based research needs to remain a focus for clinicians.

LEVEL OF EVIDENCE:3.

63. PHARMACOLOGY

Opioid use prior to surgery

Spine (Phila Pa 1976). 2019 Jun 15;44(12):887-895. doi: 10.1097/BRS.0000000000002964.

Preoperative Opioids and 1-year Patient-reported Outcomes After Spine Surgery.

Hills JM[1], Pennings JS[1], Archer KR[1,2], Wick JB[3], Daryoush J[4], Butler M[4], Sivaganesan A[5], Khan I[1], Call R[1,5], Devin CJ[1,5,6].

STUDY DESIGN:
Longitudinal Cohort Study.

OBJECTIVE:
Determine 1-year patient-reported outcomes associated with preoperative chronic opioid therapy and high-preoperative opioid dosages in patients undergoing elective spine surgery.

SUMMARY OF BACKGROUND DATA:
Back pain is the most disabling condition worldwide and over half of patients presenting for spine surgery report using opioids. Preoperative dosage has been correlated with poor outcomes, but published studies have not assessed the relationship of both preoperative chronic opioids and opioid dosage with patient-reported outcomes.

METHODS:
For patients undergoing elective spine surgery between 2010 and 2017, our prospective institutional spine registry data was linked to opioid prescription data collected from our state's Prescription Drug Monitoring Program to analyze outcomes associated with preoperative chronic opioid therapy and high-preoperative opioid dosage, while adjusting for confounders through multivariable regression analyses. Outcomes included 1-year meaningful improvements in pain, function, and quality of life. Additional outcomes included 1-year satisfaction, return to work, 90-day complications, and postoperative chronic opioid use.

RESULTS:
Of 2128 patients included, preoperative chronic opioid therapy was identified in 21% and was associated with significantly higher odds (adjusted odds ratio [95% confidence interval]) of not achieving meaningful improvements at 1-year in extremity pain (aOR:1.5 [1.2-2]), axial pain (aOR:1.7 [1.4-2.2]), function (aOR:1.7 [1.4-2.2]), and quality of life (aOR:1.4 [1.2-1.9]); dissatisfaction (aOR:1.7 [1.3-2.2]); 90-day complications (aOR:2.9 [1.7-4.9]); and postoperative chronic opioid use (aOR:15 [11.4-19.7]). High-preoperative opioid dosage was only associated with postoperative chronic opioid use (aOR:4.9 [3-7.9]).

CONCLUSION:
Patients treated with chronic opioids prior to spine surgery are significantly less likely to achieve meaningful improvements at 1-year in pain, function, and quality of life; and less likely to be satisfied at 1-year with higher odds of 90-day complications, regardless of dosage. Both preoperative chronic opioid therapy and high-preoperative dosage are independently associated with postoperative chronic opioid use.