

1. LUMBAR SPINE

2. LBP

Behavior related factors

Spine (Phila Pa 1976). 2018 Jan 1;43(1):28-34. doi: 10.1097/BRS.0000000000001665.

Behavior-Related Factors Associated With Low Back Pain in the US Adult Population.

Yang H¹, Haldeman S.

STUDY DESIGN:

This study is based on data from the 2009-2012 National Health Interview Survey (NHIS) of the civilian population of the United States. The NHIS focuses on a number of health conditions, including low back pain.

OBJECTIVE:

The objective of this study is to explore behavior-related factors associated with low back pain in the US adult population, including leisure-time physical activity, alcohol use, tobacco use, sleep duration, and obesity.

SUMMARY OF BACKGROUND DATA:

Low back pain is a prevalent musculoskeletal health disorder with profound impact on individuals, business, and society. Addressing behavior-related factors holds the potential to reduce the burden of low back pain on a societal basis.

METHODS:

To account for the complex sampling design of the NHIS, the Taylor linearized variance estimation methods were used to conduct weighted descriptive statistics and multivariate logistic regression analyses in exploring the relationships between low back pain and a set of behavior-related risk factors.

RESULTS:

This study shows associations between self-reported lower back pain and reported leisure-time physical inactivity, current or former smoking, current or former alcohol drinking, short sleep duration, and obesity.

CONCLUSION:

This study identified a number of behavior-related factors that appear to have a significant relationship with low back pain. Public health policy makers and clinicians should consider these factors to reduce the burden of low back pain. This study supports the need for longitudinal study design in future research.

Neuromodulation

Neuromodulation. 2017 Dec 12. doi: 10.1111/ner.12738.

Muscle Control and Non-specific Chronic Low Back Pain.

Russo M¹, Deckers K², Eldabe S³, Kiesel K⁴, Gilligan C⁵, Viececi J⁶, Crosby P⁷.

OBJECTIVES:

Chronic low back pain (CLBP) is the most prevalent of the painful musculoskeletal conditions. CLBP is a heterogeneous condition with many causes and diagnoses, but there are few established therapies with strong evidence of effectiveness (or cost effectiveness). CLBP for which it is not possible to identify any specific cause is often referred to as non-specific chronic LBP (NSCLBP). One type of NSCLBP is continuing and recurrent primarily nociceptive CLBP due to vertebral joint overload subsequent to functional instability of the lumbar spine. This condition may occur due to disruption of the motor control system to the key stabilizing muscles in the lumbar spine, particularly the lumbar multifidus muscle (MF).

METHODS:

This review presents the evidence for MF involvement in CLBP, mechanisms of action of disruption of control of the MF, and options for restoring control of the MF as a treatment for NSCLBP.

RESULTS:

Imaging assessment of motor control dysfunction of the MF in individual patients is fraught with difficulty. MRI or ultrasound imaging techniques, while reliable, have limited diagnostic or predictive utility. For some patients, restoration of motor control to the MF with specific exercises can be effective, but population results are not persuasive since most patients are unable to voluntarily contract the MF and may be inhibited from doing so due to arthrogenic muscle inhibition.

CONCLUSIONS:

Targeting MF control with restorative neurostimulation promises a new treatment option.

3. DISC

4. INJECTIONS

5. SURGERY

6. PELVIC GIRDLE

7. PELVIC ORGANS/WOMAN'S HEALTH

Suicide increases after stillborn or abortion

BJOG. 2017 Dec 20. doi: 10.1111/1471-0528.15105.

Do Stillbirth and Abortion Increase Risks of Attempted and Completed Suicide Within a Year? A Population-Based Nested Case-Control Study.

Weng SC¹, Chang JC², Yeh MK³, Wang SM^{4,5}, Lee CS^{6,7}, Chen YH⁸.

OBJECTIVE:

To investigate the risks of attempted and completed suicide in women who experienced a stillbirth or abortion within 1 year postnatally and compared this risks with that in women who experienced a live birth.

DESIGN:

A nested case-control study.

SETTING:

Linking three nationwide population-based datasets in Taiwan: National Health Insurance Research Database, National Birth Registry, and National Death Registry.

SAMPLE:

485 and 350 cases of attempted and completed, respectively, were identified during 2001-2011; for each case, 10 controls were randomly selected and matched to the cases according to the age and year of delivery.

METHODS:

Conditional logistic regression.

MAIN OUTCOME MEASURES:

Attempted and completed suicidal statuses were determined.

RESULTS:

The rates of attempted suicide increased in the women who experienced foetal loss. The risk of completed suicide was higher in women who experienced a stillbirth (adjusted odds ratio (aOR)=5.2; 95% confidence interval (CI)=1.77-15.32), miscarriage (aOR=3.81; 95% CI=2.81-5.15), or termination of pregnancy (aOR=3.12; 95% CI=1.77-5.5) than in those who had a live birth. Furthermore, the risk of attempted suicide was significantly higher in women who experienced a miscarriage (aOR=2.1; 95% CI=1.66-2.65) or termination of pregnancy (aOR=2.5; 95% CI=1.63-3.82). In addition to marital and educational statuses, psychological illness increased the risk of suicidal behaviour.

CONCLUSIONS:

The risk of suicide might increase in women who experienced foetal loss within 1 year postnatally. Healthcare professionals and family members should enhance their sensitivity to care for possible mental distress, particularly for women who have experienced a stillbirth. This article is protected by copyright. All rights reserved.

Previous C section increase risk during hysterectomy

Association of previous cesarean delivery with surgical complications after a hysterectomy later in life

JAMA Surgery | December 22, 2017

Lindquist SAI, et al.

Researchers here investigate if previous cesarean delivery increases the risk of reoperation, perioperative and postoperative complications, and blood transfusion when undergoing a benign hysterectomy later in life. An increased risk of complications was evident for women with at least 1 previous cesarean delivery when undergoing a hysterectomy later in life. Results thus support the policies and clinical efforts to prevent cesarean deliveries that are not medically indicated.

Anesthesia and IQ

BMC Anesthesiol. 2017 Dec 19;17(1):170. doi: 10.1186/s12871-017-0462-8.

Long-duration general anesthesia influences the intelligence of school age children.

Zhang Q¹, Peng Y¹, Wang Y².

BACKGROUND:

General anesthesia has been linked to impaired brain development in immature animals and young children. In this study the influence of orthopedic surgery under general anesthesia on the intelligence of school age children has been evaluated.

METHODS:

A total of 209 subjects aged 6-12 years were recruited and allocated into 4 groups according to the duration of general anesthesia, including a control group (n=30), short (< 1 h, n=49), moderate- (1-3 h, n=51) and long-duration groups (> 3 h, n=79), respectively. The intelligence quotient (IQ) of the subjects was measured by the Raven's Standard Progressive Matrices (RSPM) before and after orthopedic surgery under general anesthesia of various durations (vide supra).

RESULTS:

The IQ score decreased significantly in the long-duration group at 1 month post-operation compared with the pre-operation score ($P < 0.001$), and IQ did not recover completely at 3 months postoperatively ($P < 0.05$), but had recovered when measured at the 1-year follow-up. Moreover, this study showed that the development of children's intelligence was affected by the exposure time to anesthetics at a younger age (OR = 5.26, 95% CI: 2.70-8.41, $P < 0.001$), having a mother with a low education level (OR = 2.71, 95% CI: 1.24-6.14, $P = 0.014$) and premature birth (OR = 2.76, 95% CI: 1.34-5.46, $P = 0.005$).

CONCLUSIONS:

More than 3 h general anesthesia influenced the IQ of school age children for up to 3 months after orthopedic surgery. Beside extended exposure time to anesthetics additional factors for post-operative IQ reduction were younger children age, mothers with low educational levels and premature birth.

Breastfeeding

J Pediatr. 2018 Jan;192:80-85.e1. doi: 10.1016/j.jpeds.2017.09.071.

The Association of Breastfeeding Duration and Early Childhood Cardiometabolic Risk.

Wong PD¹, Anderson LN², Dai DDW³, Parkin PC⁴, Maguire JL⁵, Birken CS⁴;

OBJECTIVE:

To evaluate the association between breastfeeding duration and early childhood cardiometabolic risk.

STUDY DESIGN:

A cross-sectional study of 1539 healthy children, 3-6 years of age, recruited through The Applied Research Group for Kids! practice-based research network between October 2009 and August 2015. Adjusted multivariable linear regression was used to examine the association between breastfeeding duration and cardiometabolic risk z score and individual cardiometabolic risk factors of waist circumference, systolic blood pressure, glucose, high-density lipoprotein cholesterol, and triglycerides.

RESULTS:

The mean breastfeeding duration was 12.5 months (SD = 8.4). Breastfeeding duration was associated with lower cardiometabolic risk z score (beta = -0.03; 95% CI -0.05, -0.01). In analysis of cardiometabolic risk factors, each additional 3 months of breastfeeding was associated with a 0.13 cm (95% CI -0.20, -0.05) lower waist circumference and 0.16 mm Hg (95% CI -0.30, -0.02) lower systolic blood pressure. Compared with children who breastfed for 6-12 months, those who breastfed for 12-24 months had a lower systolic blood pressure of 1.07 mm Hg (95% CI -2.04, -0.10). There was no association between breastfeeding duration and cardiometabolic risk for those who breastfed beyond 24 months.

CONCLUSIONS:

Breastfeeding duration is associated with lower cardiometabolic risk, although the magnitude of association is small. Causation cannot be inferred. Breastfeeding beyond 24 months may not have an added benefit for cardiometabolic health.

Vit D

Hum Reprod. 2018 Jan 1;33(1):65-80. doi: 10.1093/humrep/dex326.

Vitamin D and assisted reproductive treatment outcome: a systematic review and meta-analysis.

Chu J^{1,2}, Gallos I^{1,2}, Tobias A^{1,3}, Tan B^{4,5}, Eapen A^{1,2}, Coomarasamy A^{1,2}.

STUDY QUESTION: Is serum vitamin D associated with live birth rates in women undergoing ART?

SUMMARY ANSWER: Women undergoing ART who are replete in vitamin D have a higher live birth rate than women who are vitamin D deficient or insufficient.

WHAT IS KNOWN ALREADY: Vitamin D deficiency has been associated with an increased risk of abnormal pregnancy implantation as well as obstetric complications such as pre-eclampsia and fetal growth restriction. However, the effect of vitamin D on conception and early pregnancy outcomes in couples undergoing ART is poorly understood.

STUDY DESIGN, SIZE, DURATION: A systematic review and meta-analysis of 11 published cohort studies (including 2700 women) investigating the association between vitamin D and ART outcomes.

PARTICIPANTS/MATERIALS, SETTINGS, METHODS: Literature searches were conducted to retrieve studies which reported on the association between vitamin D and ART outcomes. Databases searched included MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials and CINAHL. Eleven studies matched the inclusion criteria.

MAIN RESULTS AND THE ROLE OF CHANCE: Live birth was reported in seven of the included studies (including 2026 patients). Live birth was found to be more likely in women replete in vitamin D when compared to women with deficient or insufficient vitamin D status (OR 1.33 [1.08-1.65]). Five studies (including 1700 patients) found that women replete in vitamin D were more likely to achieve a positive pregnancy test than women deficient or insufficient in vitamin D (OR 1.34 ([1.04-1.73])). All 11 of the included studies (including 2700 patients) reported clinical pregnancy as an outcome. Clinical pregnancy was found to be more likely in women replete in vitamin D (OR 1.46 [1.05-2.02]). Six studies (including 1635 patients) reported miscarriage by vitamin D concentrations. There was no association found between miscarriage and vitamin D concentrations (OR 1.12 [0.81-1.54]). The included studies scored well on the Newcastle-Ottawa quality assessment scale.

LIMITATIONS REASONS FOR CAUTION: Although strict inclusion criteria were used in the conduct of the systematic review, the included studies are heterogeneous in population characteristics and fertility treatment protocols.

WIDER IMPLICATIONS OF THE FINDINGS: The findings of this systematic review show that there is an association between vitamin D status and reproductive treatment outcomes achieved in women undergoing ART. Our results show that vitamin D deficiency and insufficiency could be important conditions to treat in women considering ARTs. A randomized controlled trial to investigate the benefits of vitamin D deficiency treatment should be considered to test this hypothesis.

STUDY FUNDING/COMPETING INTERESTS: No external funding was either sought or obtained for this study. The authors have no competing interests to declare.

Fibroids and IVF

Arch Gynecol Obstet. 2017 Dec 14. doi: 10.1007/s00404-017-4607-2.

Effect of intramural fibroid on uterine and endometrial vascularity in infertile women scheduled for in-vitro fertilization.

Kamel A¹, El-Mazny A², Ramadan W², Abdelaziz S², Gad-Allah S², Saad H², Hussein AM², Salah E².

PURPOSE:

To study the effect of intramural fibroids on uterine and endometrial vascularity in infertile women scheduled for in-vitro fertilization (IVF).

METHODS:

3D power Doppler was used to measure the endometrial volume and blood flow indices in 182 women with intramural fibroids not affecting the uterine cavity and compared them to a matched control group without fibroids.

RESULTS:

There was significantly increased vascularity in the endometrium of the fibroid group as denoted by higher endometrial VI ($p = 0.018$), FI ($p = 0.027$) and Endometrial VFI. No significant difference in mean uterine artery RI ($p = 0.277$) or PI ($p = 0.187$). Among the fibroid group 62.6% had a fibroid > 4 cm. Women with fibroids > 4 cm had a significantly higher Endometrial FI ($p = 0.037$), and VFI ($p = 0.02$). Uterine artery blood flow was not affected, as uterine RI ($p = 0.369$) and PI ($p = 0.321$) were not statistically different. Compared with the control group (non fibroid), women with fibroids > 4 cm had significantly higher endometrial VI ($p = 0.013$), FI ($p = 0.004$), and VFI ($p < 0.001$), whereas women with fibroid ≤ 4 cm had no statistically significant differences in VI ($p = 0.292$), FI ($p = 0.198$), and VFI ($p = 0.304$).

CONCLUSION:

Intramural fibroids > 4 cm significantly increase endometrial vascularity. This increase in blood flow may be a factor that affects the outcome of IVF.

Symptoms of endometriosis

Am J Obstet Gynecol. 2017 Dec 13. pii: S0002-9378(17)32482-1. doi: 10.1016/j.ajog.2017.12.007.

Spectrum Of Symptoms In Women Diagnosed With Endometriosis During Adolescence Versus Adulthood.

DiVasta AD¹, Vitonis AF², Laufer MR³, Missmer SA⁴.

BACKGROUND:

Endometriosis symptoms often start at a young age, and the time between symptom onset and endometriosis diagnosis can be several years. It is not clear if symptoms experienced by adolescents differ from adults. Better understanding may shorten the often lengthy delay in diagnosis.

OBJECTIVE:

To further elucidate the symptom presentation of adolescents as compared to adults to determine if differences existed based upon age at surgical diagnosis that could impact time to diagnosis.

STUDY DESIGN:

This investigation was a cross-sectional study at enrollment within a longitudinal cohort of adolescents and women with endometriosis. The population-based cohort was recruited from two tertiary care centers and the surrounding communities. Participants included adolescents (diagnosed ≤ 18 y, n=295) and adults (diagnosed >18 y, n=107) with surgically-confirmed endometriosis who were enrolled into The Women's Health Study: From Adolescence to Adulthood. Participants completed an expanded version of the World Endometriosis Research Foundation Endometriosis Phenome and Biobanking Harmonization Project (WERF EPHeCT) standard clinical questionnaire including items regarding menstrual history, associated symptoms, and pain. Chi-square or Fisher's exact tests were applied to categorical data, and Wilcoxon rank sum tests to continuous data.

RESULTS:

Most participants (90%) experienced moderate-severe menstrual pain. On average, 3 doctors were seen before diagnosis, regardless of age at presentation (range 0-25). Time from symptoms to diagnosis averaged 2y for adolescents and 5y for adults ($p<0.001$). More adolescents (50%) than adults (33%) reported pain starting at menarche ($p=0.002$) and nausea accompanying pain (69% vs. 53%, $p=0.01$). Non-cyclic, general pelvic pain was prevalent. Half of participants reported relief of their general pelvic pain after a bowel movement. Pain interfered with work/school, daily activities, exercise, and sleep to a moderate-extreme degree; difficulties were similar by age at diagnosis.

CONCLUSIONS:

Pelvic pain was severe, non-cyclical, and negatively impacted quality of life. At our tertiary care centers, symptoms of endometriosis did not differ between women surgically diagnosed during adolescence compared to those diagnosed as adults. Adolescents had more nausea and symptom onset at menarche. Multi-year delays in diagnosis were common. Clinicians should be aware of these alternate symptom patterns, and include endometriosis in their differential diagnosis for both adolescent and young adult women experiencing non-cyclic pelvic pain and nausea.

Pediatric IBS

Am J Reprod Immunol. 2017 Dec 15. doi: 10.1111/aji.12799.

Maternal history of recurrent pregnancy loss is associated with increased risk for long-term pediatric gastrointestinal morbidity in the offspring.

Lichtman Y¹, Sheiner E¹, Wainstock T², Segal I³, Landau D³, Walfisch A¹.

PROBLEM:

Recurrent pregnancy loss (RPL) potentially involves an abnormal maternal inflammatory response. We investigated whether children of mothers with a history of RPL are at an increased risk for childhood gastrointestinal (GI) morbidity, with a specific focus on inflammatory bowel diseases (IBD).

METHOD OF STUDY:

A population-based cohort analysis comparing the risk for long-term GI morbidity in children born to mothers with and without a history of RPL. Gastrointestinal (GI) morbidity included hospitalizations involving a pre-defined set of ICD-9 codes.

RESULTS:

During the study period, 242 186 newborns met the inclusion criteria; 5% of which were offspring to mothers with a history of RPL. Gastrointestinal morbidity was significantly more common in the RPL group (6.6% vs 5.3%). Specifically, offspring to mothers with a history of RPL had significantly higher rates of IBD (2.1% vs 1.7%).

CONCLUSION:

Maternal history of RPL is associated with an increased risk for pediatric GI morbidity in the offspring.

8. VISCERA

Low Fodmap diet helps IBS

Published in Gastroenterology Journal Scan / Research · December 22, 2017

Outcomes of a Low FODMAP Diet in Patients With Irritable Bowel Syndrome and Diarrhea

Clinical Gastroenterology and Hepatology

TAKE-HOME MESSAGE

- A prospective, single-blind trial of 92 patients with irritable bowel syndrome and diarrhea was conducted to compare outcomes of a 4-week diet low in FODMAPs with a modified diet recommended by the National Institute for Health and Care Excellence (mNICE).
- After 4 weeks, participants on the low FODMAPs diet had a greater increase in health-related quality of life, reduced anxiety, and less impairment of activities compared with those on the mNICE diet. Further longitudinal studies with larger cohorts will be required to confirm these findings and evaluate long-term outcomes.

BACKGROUND & AIMS We investigated the effects of a diet low in fermentable oligo-, di-, and monosaccharides and polyols (FODMAPs) vs traditional dietary recommendations on health-related quality of life (QOL), anxiety and depression, work productivity, and sleep quality in patients with irritable bowel syndrome and diarrhea (IBS-D).

METHODS We conducted a prospective, single-center, single-blind trial of 92 adult patients with IBS-D (65 women; median age, 42.6 years) randomly assigned to groups placed on a diet low in FODMAPs or a modified diet recommended by the National Institute for Health and Care Excellence (mNICE) for 4 weeks. IBS-associated QOL (IBS-QOL), psychosocial distress (based on the Hospital Anxiety and Depression Scale), work productivity (based on the Work Productivity and Activity Impairment), and sleep quality were assessed before and after diet periods.

RESULTS Eighty-four patients completed the study (45 in the low-FODMAP group and 39 in the mNICE group). At 4 weeks, patients on the diet low in FODMAPs had a larger mean increase in IBS-QOL score than did patients on the mNICE diet (15.0 vs 5.0; 95% CI, -17.4 to -4.3). A significantly higher proportion of patients in the low-FODMAP diet group had a meaningful clinical response, based on IBS-QOL score, than in the mNICE group (52% vs 21%; 95% CI, -0.52 to -0.08). Anxiety scores decreased in the low-FODMAP diet group compared with the mNICE group (95% CI, 0.46-2.80). Activity impairment was significantly reduced with the low-FODMAP diet (-22.89) compared with the mNICE diet (-9.44; 95% CI, 2.72-24.20).

CONCLUSIONS

In a randomized, controlled trial, a diet low in FODMAPs led to significantly greater improvements in health-related QOL, anxiety, and activity impairment compared with a diet based on traditional recommendations for patients with IBS-D.

Celiac disease and periodontal disease

J Clin Periodontol. 2017 Dec 15. doi: 10.1111/jcpe.12856.

The Association Between Celiac Disease and Periodontitis: Results from NHANES 2009-2012.

Spinell T¹, DeMayo F², Cato M², Thai A², Helmerhorst EJ³, Green PHR⁴, Lebowhl B⁴, Demmer RT^{2,5}.

AIM:

To investigate whether celiac disease (CD) was associated with periodontitis among a nationally representative sample of U.S. adults.

MATERIALS AND METHODS:

The National Health and Nutrition Examination Survey (NHANES) 2009-2012 enrolled 6,661 subjects with full-mouth periodontal examination and serological testing for anti-tissue transglutaminase (tTg) and anti-endomysial (EMA) antibodies. CD was defined as i) self-reported physician diagnosis while on a gluten-free diet; ii) or tTg levels >10.0 U/mL and positive EMA results. Positive serology without self-reported diagnosis was defined as undiagnosed CD (UdxCD). Periodontitis was defined according to the CDC/AAP definition. Multivariable linear and logistic models were used to regress the mean probing depth (PD) or attachment loss (AL) outcomes across CD categories (none, diagnosed and undiagnosed).

RESULTS:

The prevalence of moderate/severe periodontitis and diagnosed/undiagnosed CD was 40% and 0.74% respectively. Mean AL was lower among those with CD although results were not statistically significant ($p=0.67$). The odds of periodontitis among individuals with diagnosed and undiagnosed CD were: 0.5(0.22, 1.16) and 0.62(0.1, 3.75), respectively. Mean PD levels among those without CD, or with diagnosed or undiagnosed CD were 1.49 ± 0.02 , 1.36 ± 0.11 and 1.31 ± 0.11 ($p=0.03$).

CONCLUSION:

CD is associated with modestly lower levels of mean probing depth but was not associated with mean attachment loss or periodontitis. Larger studies are necessary to enhance precision and strengthen conclusions. This article is protected by copyright. All rights reserved.

Misdiagnosis of celiac disease

J Clin Gastroenterol. 2018 Jan;52(1):25-29. doi: 10.1097/MCG.0000000000000676.

Celiac Disease is Misdiagnosed Based on Serology Only in a Substantial Proportion of Patients.

Vavricka SR^{1,2}, Stelzer T², Lattmann J², Stotz M², Lehmann R², Zeitz J¹, Scharl M¹, Misselwitz B¹, Pohl D¹, Fried M¹, Tutuian R³, Fasano A⁴, Schoepfer AM⁵, Rogler G¹, Biedermann L¹, Greuter T¹.

BACKGROUND:

Although the diagnostic process in celiac disease (CeD) has been addressed in several international guidelines, little is known about the actual proceeding in current clinical practice. This study investigated the initial presentation, the diagnostic process, follow-up evaluations, and adherence to a gluten-free diet in CeD patients in a real-life setting in Switzerland from a patient's perspective.

METHODS:

We performed a large patient survey among unselected CeD patients in Switzerland.

RESULTS:

A total of 1689 patients were analyzed. The vast majority complained of both gastrointestinal and nonspecific symptoms (71.5%), whereas 1.8% reported an asymptomatic disease course. A total of 35.8% CeD patients were diagnosed by a nongastroenterologist. The diagnostic process differed between nongastroenterologists and gastroenterologists, with the latter more often using duodenal biopsy alone or in combination with serology (94.7% vs. 63.0%) and nongastroenterologists more frequently establishing the diagnosis without endoscopy (37.0% vs. 5.3%, $P < 0.001$). Follow-up serology after 6 months was performed only in half of all patients (49.4%), whereas 69.9% had at least 1 follow-up serology within the first year after diet initiation. About 39.7% had a follow-up endoscopy with duodenal biopsies (after a median of 12 mo; range, 1 to 600 mo). The likelihood of receiving any follow-up examination was higher in patients initially diagnosed by a gastroenterologist.

CONCLUSIONS:

A significant proportion of CeD patients are diagnosed by nongastroenterologists. Under the diagnostic lead of the latter, more than a third of the patients receive their diagnosis on the basis of a positive serology and/or genetics only, in evident violation of current diagnostic guidelines, which may lead to an overdiagnosis of this entity.

Asthma and anxiety

Am J Epidemiol. 2017 Dec 13. doi: 10.1093/aje/kwx366.

Maternal Psychosocial Stress Associates With Increased Risk of Asthma Development in Offspring.

Magnus MC, Wright RJ, Røysamb E, Parr CL, Karlstad Ø, Page CM, Nafstad P, Håberg SE, London SJ, Nystad W.

Abstract

Prenatal maternal psychosocial stress might influence childhood asthma development.

Evaluating paternal psychosocial stress and conducting a sibling comparison could provide further insight into the role of unmeasured confounding. We examined the associations of parental psychosocial stress during and after pregnancy with asthma at 7 years in the Norwegian Mother and Child Cohort Study (n = 63,626). Measures of psychosocial stress included lifetime major depressive symptoms, current anxiety/depression symptoms, use of antidepressants, anxiolytics and/or hypnotics, life satisfaction, relationship satisfaction, work stress and social support. Childhood asthma was associated with maternal lifetime major depressive symptoms, adjusted relative risk (aRR) = 1.19 (95% CI: 1.09, 1.30), in addition to symptoms of anxiety/depression during pregnancy, aRR = 1.17 (95% CI: 1.06, 1.29), and 6 months after delivery, aRR = 1.17 (95% CI: 1.07, 1.28). Maternal negative life events during pregnancy, aRR = 1.10 (95% CI: 1.06, 1.13), and 6 months after delivery, aRR = 1.14 (95% CI: 1.11, 1.18), were also associated with asthma. These associations were not replicated when evaluated within sibling groups.

There were no associations with paternal psychosocial stress. In conclusion, maternal anxiety/depression and negative life events was associated with offspring asthma, but this might be explained by unmeasured maternal background characteristics that remain stable across deliveries.

9. THORACIC SPINE

10 A. CERVICAL SPINE

10 B. CERVICAL EXERCISES

11. UPPER C SPINE

12 A. WHIPLASH

12 B. CERVICAL SURGERIES

13 A. CRANIUM

13 B. TMJ/ORAL

13 C. AIRWAYS/SWALLOWING/SPEECH

Sleep and fish in adolescents

Eating fish weekly improves kids' sleep, intelligence

Healthline/Medical News Today | December 22, 2017

A good night's sleep and a higher IQ could be achieved by eating fish at least once per week—for children, at least. Researchers found that children aged 9–11 years who ate fish at least once weekly had higher IQ test scores and better sleep quality, compared with children who consumed fish less frequently. Study co-author Jianghong Liu, of the School of Nursing at Pennsylvania State University (Penn State) in State College, and colleagues recently reported their findings in the journal *Scientific Reports*. Fish is considered an important part of a healthful diet. Not only is it low in saturated fat and rich in protein, vitamins, and minerals, but fish is also a good source of omega-3 fatty acids. Research has suggested that omega-3 fatty acids can benefit heart health by reducing the risk of irregular heartbeat, or arrhythmia, decreasing triglyceride levels, and slightly lowering blood pressure. Omega-3 fatty acids have also been independently associated with better sleep and increased intelligence. For their study, Liu and colleagues sought to learn more about the associations between omega-3 and sleep and intelligence, by assessing the fish consumption of 541 children from China aged between 9 and 11 years. Using a dietary questionnaire, the children reported how much fish they consumed over the past month. The IQ of the children was assessed using the Wechsler Intelligence Scale for Children-Revised. The children's parents were asked to complete the Children Sleep Habits Questionnaire, which asks about sleep duration, frequency of waking, and daytime sleepiness. **Sleep may mediate fish-intelligence link** Compared with children who "rarely" or "never" ate fish, those who consumed fish at least once per week scored an average of 4.8 points higher on the IQ test, while children who "sometimes" ate fish scored 3.3 points higher. Furthermore, children who ate fish at least once weekly had fewer sleep disturbances than those with lower fish intake, which the researchers say is an indicator of "better overall sleep quality." **The researchers believe that their findings not only support previous research linking omega-3 fatty acids with better sleep and increased intelligence, but they also indicate that better sleep may mediate the association between fish-derived omega-3 and intelligence.** "Lack of sleep is associated with antisocial behavior; poor cognition is associated with antisocial behavior," explains study co-author Professor Adrian Raine, of the School of Arts and Sciences at Penn State's Perelman School of Medicine. "We have found that omega-3 supplements reduce antisocial behavior, so it's not too surprising that fish is behind this." The researchers say that their study also provides further evidence of the health benefits of fish, and they encourage children to eat more of it. "Children should be introduced to it early on," explains study co-author Jennifer Pinto-Martin, also of the School of Nursing at Penn State. She adds that introduction to fish should start from the age of 2 years, but it could begin as early as 10 months old. She cautions, however, that the fish should be bone-free and finely chopped. "Introducing the taste early makes it more palatable," she adds. "It really has to be a concerted effort, especially in a culture where fish is not as commonly served or smelled. Children are sensitive to smell. If they're not used to it, they may shy away from it." Whether the team's findings may be relevant to adults remains to be seen, but this is something they plan to investigate in future research, as well as which types of fish are most beneficial. —Honor Whiteman

Restless leg syndrome

J Pain Symptom Manage. 2017 Dec 13. pii: S0885-3924(17)31223-X. doi: 10.1016/j.jpainsymman.2017.12.472.

Effects of exercise training on restless legs syndrome, depression, sleep quality and fatigue among hemodialysis patients: A systematic review and meta-analysis.

Song YY¹, Hu RJ¹, Diao YS², Chen L², Jiang XL³.

CONTEXT:

Hemodialysis patients experience a heavy symptom burden that leads to a decreased quality of life. Pharmacological treatment is effective but costly and has adverse effects. Exercise is a promising approach for symptom management, but the effect of exercise on restless legs syndrome, depression, sleep quality and fatigue in hemodialysis patients is still uncertain.

OBJECTIVES:

This meta-analysis was conducted to identify whether exercise training is beneficial in the treatment of the symptoms of restless legs syndrome, depression, poor sleep quality, and fatigue in patients receiving hemodialysis.

METHODS:

A systematic search of PubMed, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, Cochrane Central Register of Controlled Trials (CENTRAL) and Web of Science was conducted to identify randomized controlled trials (RCTs) comparing exercise training with routine care on restless legs syndrome, depression, sleep quality and fatigue among hemodialysis patients. Quality assessment was conducted using the Cochrane risk of bias tool, and RevMan (5.3) was used to analyze the data.

RESULTS:

Fifteen RCTs met our inclusion criteria were included. The pooled effect size showed that exercise training was effective on restless legs syndrome ($P < 0.001$), depression ($P < 0.001$) and fatigue ($P < 0.001$). However, effect size combinations for sleep quality were not performed due to the sensitivity analysis results.

CONCLUSIONS:

Exercise training may help hemodialysis patients to reduce the severity of restless legs syndrome, depression, and fatigue. More high-quality RCTs with larger samples and comparative RCTs focused on different exercise regimens are needed.

14. HEADACHES 15. VESTIBULAR 16. CONCUSSIONS 17. SHOULDER GIRDLE 18. CLAVICLE 19. GLENOHUMERAL/SHOULDER 20 A. ROTATOR CUFF 20 B. LABRUM 21. ADHESIVE CAPSULITIS 22 A. IMPINGMENT 22 B. INSTABILITY 23. SURGERY 24. ELBOW

25. WRIST AND HAND

26. CARPAL TUNNEL SYNDROME

27. HIP

28. REPLACEMENTS

29. OA**Changes in spinal alignment with OA****Sagittal alignment and mobility of the thoracolumbar spine are associated with radiographic progression of secondary hip osteoarthritis**

Hiroshige Tateuchi, PT, PhD Haruhiko Akiyama, MD, PhD Koji Goto, MD, PhD Kazutaka So, MD, PhD Yutaka Kuroda, MD, PhD Noriaki Ichihashi, PT, PhD

DOI: <http://dx.doi.org/10.1016/j.joca.2017.12.005>

Summary**Objective**

To identify predictors of radiographic progression of hip osteoarthritis (OA) over 12 months among functional hip impairments and spinal alignment and mobility.

Design

Fifty female patients with secondary hip OA, excluding those with end-stage hip OA, participated in this prospective cohort study. Joint space width (JSW) of the hip was measured at baseline and 12 months later. With radiographic progression of hip OA over 12 months (>0.5 mm in JSW) as dependent variable, logistic regression analyses were performed to identify predictors for hip OA progression among functional impairments of the hip and spine with and without adjustment for age, body mass index (BMI), and minimum JSW at baseline. The independent variables were hip pain, Harris hip score, hip morphological parameters, hip passive range of motion and muscle strength, and alignment and mobility of the thoracolumbar spine at baseline.

Results

Twenty-one (42.0%) patients demonstrated radiographic progression of hip OA. Multivariable logistic regression analysis showed that larger anterior inclination of the spine in standing position (adjusted OR [95% CI], 1.37 [1.04–1.80]; $P = 0.028$) and less thoracolumbar spine mobility (adjusted OR [95% CI], 0.96 [0.92–0.99]; $P = 0.037$) at baseline were statistically significantly associated with radiographic progression of hip OA, even after adjustment for age, BMI, and minimum JSW.

Conclusions

The findings suggest that spinal alignment and mobility should be considered when assessing risk and designing preventive intervention for radiographic progression of secondary hip O

30 A. IMPINGEMENT 30 B. LABRUM 31. KNEE 32 A. KNEE/ACL

32 B. KNEE/PCL

33. MENISCUS

34. PATELLA

35. KNEE/TOTAL

Tibial int rotation negative effects

Knee Surg Sports Traumatol Arthrosc. 2017 Dec 15. doi: 10.1007/s00167-017-4823-0.

Tibial internal rotation negatively affects clinical outcomes in total knee arthroplasty: a systematic review.

Panni AS¹, Ascione F^{2,3}, Rossini M¹, Braile A¹, Corona K⁴, Vasso M¹, Hirschmann MT^{5,6}.

PURPOSE:

The aim of this systematic review is to analyze the effect of tibial rotational alignment after total knee arthroplasty (TKA) on clinical outcomes and assess the eventual cut-off values for tibial TKA rotation leading to poor outcomes.

METHODS:

A detailed and systematic search from 1997 to 2017 of the Pubmed, Medline, Cochrane Reviews, and the Google Scholar databases was performed using the keyword terms "total knee arthroplasty", "total knee replacement", "tibial alignment", "tibial malalignment", "tibial rotation", "rotational error", "axis", "angle", "tibial malrotation", "clinical outcome", in several combinations. The modified Coleman scoring methodology (mCMS) was used. All the primary TKAs studies analyzing correlation between clinical results and tibial rotation were included.

RESULTS:

Five articles met the inclusion criteria. A total of 333 arthroplasties were included in this review; 139 had tibial component malalignment, while 194 were in control groups. The mean age of patients was 67.3 (SD 0.57) years. The mean average postoperative follow-up delay was 34.7 months (range 21-70). The mean mCMS score was 59.2 points indicating good methodological quality in the included studies. Functional outcomes were assessed through KSS, OKS, KOOS and VAS, negatively related to tibial internal rotation.

CONCLUSIONS:

Our review confirmed that excessive internal rotation of the tibial TKA component represents a significant risk factor for pain and inferior functional outcomes after TKA (> 10° of internal rotation demonstrated the common value), since external rotation does not affect the results. However, a universal precise cut-off value has not been found in the available literature and there remains a debate about CT rotation assessment and surgical intra-operative landmarks.

- 36. KNEE/EXERCISE**
- 37. OSTEOARTHRITIS/KNEE**
- 38 A. FOOT AND ANKLE**
- 38 B. FOOT TYPES**
- 38 C. FOOT EXERCISE**
- 39 A. ORTHOTICS**
- 39 B. SHOES**
- 40. ANKLE SPRAINS AND INSTABILITY**
- 41 A. ACHILLES TENDON AND CALF**
- 41 B. COMPARTMENT SYNDROME**
- 42. PLANTAR SURFACE**
- 43. HALLUX VALGUS**
- 44. RHUMATOID ARTHRITIS**
- 45 A. MANUAL THERAPY LUMBAR & GENERAL**
- 45 B. MANUAL THERAPY CERVICAL**
- 45 C. MANUAL THERAPY THORACIC**
- 45 D. MANUAL THERAPY EXTREMITIES**
- 46 A. UPPER LIMB NEUROMOBILIZATION**
- 46 B. LOWER LIMB NEUROMOILIZATION**
- 47. STRETCHING/MUSCLES**
- 48 A. STM**
- 48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE**
- 48 C. MUSCLES**
- 49. STRETCHING**

50 A. MOTOR CONTROL

Left right discrimination

Musculoskelet Sci Pract. 2017 Sep 4. pii: S2468-7812(17)30145-5. doi: 10.1016/j.msksp.2017.09.002.

The reliability of card-based and tablet-based left/right judgment measurements.

Zimney KJ¹, Wassinger CA², Goranson J³, Kingsbury T⁴, Kuhn T⁵, Morgan S⁶.

BACKGROUND:

Left/right judgment (LRJ) measurement is a potential way to identify dysfunction in cortical body maps, and to measure improvement related to corresponding treatments. Few studies have explored the reliability of various methods for LRJ measurement.

OBJECTIVES:

To determine measurement reliability of LRJ utilizing two methods: card-based (CB) and tablet-based (TB). Establish minimal detectable difference (MDD) for accuracy and reaction time for both assessments.

METHODS:

Testing was done over two different days. Session 1 consisted of testing LRJ utilizing CB assessment with photos of left and right hands over two trial periods. The TB format was also tested over two trial periods. Session 2 tested with the CB assessment for two trial periods. 40 images were used in the basic upright position for both CB and TB formats.

RESULTS:

Fifty participants (N = 50; female = 35) with an average age of 24.3 (range 19-35) were studied. ICC (2,k) for reaction time for both methods were >0.84. The MDD for reaction time was between 0.19 and 0.49 s for various test points for both methods. Combined left and right accuracy ICC (2,k) for both methods were >0.51, with MDD between 5 and 14%.

CONCLUSIONS:

This study examined the reliability and MDD for the LRJ measurement for card and tablet-based assessments. Generally, LRJ reaction time had good reliability, while accuracy had moderate reliability and varied between testing methods.

50 B. PNF 51. CFS/BET 52. EXERCISE

53. CORE

54. POSTURE

55. SCOLIOSIS

56. ATHLETICS

57. GAIT

58. RUNNING

59. PAIN**Medical marijuana**

J Orthop Trauma. 2018 Jan;32(1):e25-e30. doi: 10.1097/BOT.0000000000001002.

Patient Perceptions of the Use of Medical Marijuana in the Treatment of Pain After Musculoskeletal Trauma: A Survey of Patients at 2 Trauma Centers in Massachusetts.

Heng M¹, McTague MF, Lucas RC, Harris MB, Vrahas MS, Weaver MJ.

OBJECTIVE:

To evaluate musculoskeletal trauma patients' beliefs regarding the usefulness of marijuana as a valid medical treatment for postinjury and postoperative pain and anxiety.

DESIGN:

Prospective survey.

SETTING:

Two academic Level 1 trauma centers.

PATIENTS/PARTICIPANTS:

Five hundred patients in an orthopedic outpatient clinic.

INTERVENTION:

Survey.

MAIN OUTCOME MEASUREMENTS:

(1) Do patients believe that marijuana can be used as medicine? (2) Do patients believe that marijuana can help treat postinjury pain? (3) Are patients comfortable speaking with their health care providers about medical marijuana?

RESULTS:

The majority of patients felt that marijuana could be used to treat pain (78%, 390) and anxiety (62%, 309). Most patients (60%, 302) had used marijuana at least once previously, whereas only 14% reported using marijuana after their injury. Of those who used marijuana during their recovery, 90% (63/70) believed that it reduced symptoms of pain, and 81% (57/70) believed that it reduced the amount of opioid pain medication they used.

CONCLUSIONS:

The majority of patients in this study believed that medical marijuana is a valid treatment and that it does have a role in reducing postinjury and postoperative pain. Those patients who used marijuana during their recovery felt that it alleviated symptoms of pain and reduced their opioid intake. Our results help inform clinicians regarding the perceptions of patients with trauma regarding the usefulness of marijuana in treating pain and support further study into the utility of medical marijuana in this population.

Pain neuroscience

Physiother Theory Pract. 2017 Nov;33(11):869-879. doi: 10.1080/09593985.2017.1359870. Epub 2017 Aug 18.

The clinical implementation of pain neuroscience education: A survey study.

Louw A¹, Puentedura EJ², Zimney K³, Cox T⁴, Rico D⁵.

Pain neuroscience education (PNE) has gained considerable attention in research.

Three systematic reviews have shown increasing efficacy of PNE decreasing pain, disability, pain catastrophization, movement restrictions, and healthcare utilization. In the development of any new therapeutic approach, it is proposed that there are three stages: development, validation, and implementation.

To date, the development and validation of PNE have been well-established. The third stage, implementation, however, lacks when it comes to PNE. The purpose of this study was to survey physical therapists (PT) on their experience and implementation of PNE, following a 15-hour PNE class. Upon development and validation of a PT-PNE survey, a random sample of PTs was invited to take the online survey. Two hundred and eighty-six PTs (female 56%) completed the PNE questionnaire. Ninety-one percent of PTs reported not being taught PNE in PT school. PT's are applying PNE into clinical practice to a variety of patients, experience outcomes in line with the current best-evidence, but struggle establishing which patients are ideal for PNE.

The same five patient characteristics associated with success were also associated with failure, albeit in a different ranking order. This finding highlight the need to further investigate the factors associated with success and failure of PNE.

Adolescent pain and pressure

J Pain. 2017 Dec 14. pii: S1526-5900(17)30803-9. doi: 10.1016/j.jpain.2017.11.012.

Feeling the Pressure to be Perfect: Impact on Pain-Related Distress and Dysfunction in Youth with Chronic Pain.

Randall ET¹, Smith KR², Kronman CA³, Conroy C³, Smith AM³, Simons LE⁴.

Despite clinical observation of perfectionistic tendencies among youth with chronic pain and their parents as well as established relationships between perfectionism and functional somatic symptoms in adults and youth, no research in the pediatric pain literature has examined perfectionism. This study explored the role of various types of youth and parent perfectionism on youth and parent pain-related distress and behavior and youth pain-related dysfunction. At admission, 239 parent-child pairs from outpatient and day-treatment rehabilitation settings completed several questionnaires assessing perfectionism, pain-related distress, and pain-related dysfunction. Bivariate correlations indicated that socially prescribed perfectionism in youth and parents was linked to youth pain duration, parent and youth pain-related distress and behavior, and youth somatization. Indirect relations demonstrated that youth socially prescribed perfectionism was the only form of perfectionism directly associated with youth somatization while all forms of youth perfectionism were indirectly associated with somatization and functional disability through increases in youth pain-related fear and catastrophizing. Additionally, socially prescribed perfectionism was the only type of parent perfectionism linked to youth pain-related dysfunction (somatization, functional disability) through its association with youth pain-related fear. Findings support clinical observations that parent and youth perfectionism is a psychosocial factor that should be targeted in pediatric chronic pain treatment.

PERSPECTIVE:

Perfectionism in youth with chronic pain and their parents was indirectly linked to youth pain-related dysfunction through its impact on youth pain-related catastrophizing and fear. Findings support clinical observations that parent and youth perfectionism is a psychosocial factor that should be targeted in pediatric chronic pain treatment.

60. COMPLEX REGIONAL PAIN**Beliefs of CRPS**

Chronic Illn. 2017 Jan 1:1742395317709329. doi: 10.1177/1742395317709329.

The experiences and beliefs of patients with complex regional pain syndrome: An exploratory survey study.

Louw A¹, Zimney K^{1,2}, Cox T³, O'Hotto C⁴, Wassinger CA⁵.

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Objectives To determine the beliefs and describe the health care experiences of patients with complex regional pain syndrome.

Methods A survey tool for patients with complex regional pain syndrome was designed for this study. The survey tool collected self-reported measures associated with pain, disability, health care experiences, education, beliefs, and treatments.

Results Thirty-one patients attending physical therapy for complex regional pain syndrome (mean age 40.48; female n=20) completed the survey. Patients with presented with high levels of pain and disability and reported various changes associated with altered neuroplasticity such as confused body part recognition, left/right discrimination, neglect, and spreading pain. The patients' experiences with diagnostic testing and interventions are not in line with the current pain science research and/or evidence-based practice. Overall, patients are ill-informed, confused, and receive conflicting information.

Discussion The suffering associated with complex regional pain syndrome is real, as told by patients. This suffering coincides with a lack of consensus by health care providers and conflicting information on complex regional pain syndrome. Overall, patient experiences show health care providers are not up to date with the current best-evidence regarding complex regional pain syndrome.

61. FIBROMYALGIA

Inflammation and exercise

Acute effects of physical exercises on the inflammatory markers of patients with fibromyalgia syndrome: A systematic review

Alexandro Andrade Guilherme Torres Vilarino Sofia Mendes Sieczkowska Danilo Reis Coimbra Ricardo de Azevedo Klumb Steffens Giovanna Grünewald Vietta

DOI: <http://dx.doi.org/10.1016/j.jneuroim.2017.12.007>

Highlights

- There is a low-grade chronic inflammatory state in patients with FM.
- After exercise it is not possible to identify a pattern of inflammatory responses.
- The most studied inflammatory markers in FM patients are IL-6, IL-8, IL-1 β , TNF- α .

Abstract

Objective

In patients with fibromyalgia (FM), exercise is indicated for symptomatic treatment. However, little is known about the inflammatory response to acute exercise in these patients. This study examines the acute effects of exercise on the inflammatory response in patients with FM.

Methods

A systematic review was conducted using PubMed, PsycINFO, Web of Science, SportDiscus, Scopus, Virtual Health Library (VHL), and Cochrane Library databases.

Results

Six studies that met the inclusion criteria were included in the analysis; three of them evaluated the effects of resistive exercise, while three evaluated the effects of aerobic exercise. Several studies evaluated pro-inflammatory (interleukin [IL]-6, IL-8, IL-1 β , IL-18, tumor necrosis factor- α) and anti-inflammatory cytokine levels (IL-10) and stress (Hsp72) protein levels before and after the intervention with exercise. Studies found a low-grade baseline chronic inflammatory state in patients with FM, demonstrated by the alteration of one or more of the studied markers.

Conclusions

We suggest that patients with FM probably have low-grade chronic inflammation, because studies found higher concentrations of IL-8 and TNF- α and high expression of IL-10 in these patients; however, the effects of exercise on the inflammatory markers in these patients are unclear. Although more research is needed on the effect of exercise on inflammation, none of the studies reported worsening of symptoms with exercise recommended as treatment.

62 A. NUTRITION/VITAMINS

Vit D and allergies

Clinical and immunological effects of vitamin D supplementation during the pollen season in children with allergic rhinitis

Archives of Medical Science | December 22, 2017

Jerzynska J, et al.

The clinical and immunological effects of vitamin D supplementation were compared to placebo during the pollen season in children with allergic rhinitis. Vitamin D 1000 IU as a supplementary treatment of grass pollen allergy during the pollen season markedly reduced the symptoms/medication score in these children. Findings thereby suggest an immunological effect of vitamin D.

62 B. CRYOTHERAPY 63. PHARMACOLOGY

64. ELECTROTHERAPY

65. NEUROLOGICAL CONDITIONS**High intensity ex in Parkinson's disease is safe****High-intensity exercise safe, slows motor decline in Parkinson's patients**

Reuters Health News | December 15, 2017

High-intensity treadmill exercise can safely slow the development of motor symptoms in patients with de novo Parkinson disease (PD), according to a new phase 2 study in *JAMA Neurology*. “People with Parkinson disease should be on an exercise program ideally as soon as possible, and should be at 80% to 85% of maximum heart rate for benefit,” lead author Dr. Margaret Schenkman, director of CU Physical Therapy at the University of Colorado School of Medicine Anschutz Medical Campus in Aurora, told Reuters Health in a telephone interview. “That’s safe, as long as they don’t have any cardiovascular or other health conditions that would preclude high-intensity exercise.” The findings were published online December 11. More than 30 years ago, Dr. Schenkman noted, when she began working in the field, there was concern that exercise could reduce dopamine levels and shouldn’t be prescribed. “That’s been well dispelled by a whole host of work from ourselves and other people,” she said. But she noted that questions remain about the dosage and intensity of exercise that will most benefit PD patients. In a randomized trial, Dr. Schenkman and colleagues at Northwestern University, Rush Medical Center and the University of Pittsburgh enrolled 128 patients (ages 40 to 80) with a diagnosis of idiopathic PD in the past 5 years, none on PD medication or with an expected need to take it for at least 6 months. Participants were assigned to high-intensity exercise, moderate-intensity exercise, or a wait-list control group for 6 months. Each exercise group was instructed to exercise four times a week, at 80% to 85% of maximum measured heart rate (high-intensity group) or 60% to 65% of maximum heart rate (moderate-intensity group). In the high-intensity group, patients exercised an average of 2.8 days per week, at 80.2% intensity, while the moderate-intensity group averaged 3.2 days per week at 65.9% intensity. By 6 months, the mean increase in Unified Parkinson’s Disease Rating Scale (UPDRS) motor score was 0.3 for the high-intensity group, a significant difference from the 3.2 change in the control group, meeting the non-futility threshold. The change of 2.0 for the moderate-intensity exercisers did not reach this threshold. Given the findings, the researchers suggest that a phase 3 exercise study at 80% to 85% of maximum heart rate is warranted. Dr. Schenkman noted that the investigators used a graded exercise test to determine if patients could safely enroll in the trial, and very few were excluded. “As with any exercise, it’s important to build up to it gradually,” she said. “It’s good to do it under the supervision of a professional, such as a physical therapist who knows how to train people to develop that exercise habit, and that’s what they did in this study.” Most participants exercised at home or in their community after training, with only periodic check-ins, she said. Dr. Daniel M. Corcos of Northwestern University in Chicago, who helped conduct the phase 2 trial, will lead the phase 3 investigation of exercise for early PD, Dr. Schenkman said. While most doctors now recognize that exercise is beneficial for PD, Dr. Schenkman added, many don’t give their patients enough guidance on what to do. Physicians should refer PD patients to a physical therapist, she said, and should do so even if that patient doesn’t have apparent motor symptoms. “Our data show that even early in the disease, they have functional loss that wouldn’t be picked up in a physician’s office, and so the idea of beginning intervention early is critical,” she said. “This is the first study that we’re aware of, and certainly of this magnitude of people who have not been on medications for Parkinson’s disease,” Dr. Schenkman explained. “If you can actually slow down the symptoms early in a disease that’s chronic and progressive, that may turn out to be tremendously important in the long term for these patients. That’s really promising.” —Anne Harding