

## RESEARCH ABSTRACTS RE: YOUNG PEOPLE WITH FIBROMYALGIA

*The abstracts in this collection have been selected by the National Fibromyalgia Partnership (NFP) from the extensive literature on fibromyalgia and related conditions so as to cover a wide range of subjects in limited space. Entries are included in alphabetical order by lead author. To obtain the full text of these abstracts, visit a medical library, use a document delivery service, or check with your local library about an interlibrary loan of material. Some journals also offer article reprints for sale on their websites. For more information on fibromyalgia or the NFP, visit: [www.fmpartnership.org](http://www.fmpartnership.org) or send a self-addressed, stamped envelope to: NFP, Inc., P.O. Box 2355, Centreville, VA 20122 USA.*

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**FAMILY STUDY OF FIBROMYALGIA**

**OBJECTIVE:** To assess for familial aggregation of fibromyalgia (FM) and measures of tenderness and pain, and for familial coaggregation of FM and major mood disorder (major depressive disorder or bipolar disorder). **METHODS:** Probands meeting the American College of Rheumatology criteria for FM and control probands with rheumatoid arthritis (RA) and no lifetime diagnosis of FM were recruited from consecutive referrals to 2 community-based rheumatology practices. Probands were ages 40-55 years and had at least 1 first-degree relative age 18 years or older who was available for interview and examination. All probands and interviewed relatives underwent a dolorimeter tender point examination and a structured clinical interview. Interviewed relatives were asked about first-degree relatives who were not available for interview, using a structured family interview. Logistic and linear regression models, adjusting for the correlation of observation within families, were applied to study the aggregation and coaggregation effects. **RESULTS:** Information was collected for 533 relatives of 78 probands with FM and 272 relatives of 40 probands with RA. FM aggregated strongly in families: the odds ratio (OR) measuring the odds of FM in a relative of a proband with FM versus the odds of FM in a relative of a proband with RA was 8.5 (95% confidence interval [95% CI] 2.8-26, P = 0.0002). The number of tender points was significantly higher, and the total myalgic score was significantly lower in the relatives of probands with FM compared with the relatives of probands with RA. FM coaggregated significantly with major mood disorder: the OR measuring the odds of major mood disorder in a relative of a proband with FM versus the odds of major mood disorder in a relative of a proband with RA was 1.8 (95% CI 1.1-2.9, P = 0.013). **CONCLUSION:** FM and reduced pressure pain thresholds aggregate in families, and FM coaggregates with major mood disorder in families. These findings have important clinical and theoretical implications, including the possibility that genetic factors are involved in the etiology of FM and in pain sensitivity. In addition, mood disorders and FM may share some of these inherited factors.

*Arthritis Rheum* (2004 Mar) 50(3):944-52--Comment in: *Arthritis Rheum* 2004 Sep;50(9):3059-60; author reply 3060

BUSKILA D

## **PEDIATRIC FIBROMYALGIA**

Fibromyalgia is an idiopathic chronic pain syndrome defined by widespread nonarticular musculoskeletal pain and generalized tender points. The syndrome is associated with a constellation of symptoms, including fatigue, nonrefreshing sleep, irritable bowel, and more. Central nervous system sensitization is a major pathophysiologic aspect of fibromyalgia; in addition, various external stimuli such as trauma and stress may contribute to development of the syndrome. Fibromyalgia is most common in midlife, but may be seen at any age. This article reviews the epidemiology, clinical characteristics, etiology, management, and outcome of pediatric fibromyalgia.

*Rheum Dis Clin North Am.* 2009 May;35(2):253-61

BUSKILA D, NEUMANN L

## **FIBROMYALGIA SYNDROME (FM) AND NONARTICULAR TENDERNESS IN RELATIVES OF PATIENTS WITH FM**

**OBJECTIVE:** To determine the prevalence of fibromyalgia (FM) and to assess nonarticular tenderness in relatives of patients with FM. **METHODS:** Thirty female patients with FM randomly chosen from 117 of their close relatives (parents, brothers, sisters, children, husbands) were assessed for nonarticular tenderness. A count of 18 tender points was conducted by thumb palpation, and tenderness thresholds were assessed by dolorimetry at 9 tender sites. FM was diagnosed according to the 1990 American College of Rheumatology criteria. **RESULTS:** The prevalence of FM among blood relatives of patients with FM was 26%, and among their husbands 19%. FM prevalence in male relatives was 14%, and in female relatives 41%. The mean tender point counts of male and female young relatives was significantly higher than that of controls: 6.1 vs 0.2 ( $p < 0.01$ ), and 4.4 vs 0.4 ( $p < 0.01$ ) respectively. Similarly, adult relatives had considerably higher mean tender point counts than controls: 4.0 vs 0.04 ( $p < 0.01$ ) and 10.3 vs 0.28 ( $p < 0.01$ ) respectively, for males and females. **CONCLUSION:** Relatives of patients with FM have a higher prevalence of FM and are more tender than the general population, as recently reported and shown in a healthy control group. This finding can be attributed to genetic and environmental factors.

*J Rheumatol* (1997 May) 24(5):941-4

BUSKILA D, NEUMANN L, HAZANOV I, CARMİ R

## **FAMILIAL AGGREGATION IN THE FIBROMYALGIA SYNDROME**

The authors studied the familial occurrence of fibromyalgia (FMS) to determine a possible role of genetic and familial factors in this syndrome. Fifty-eight offspring aged 5 to 46 years (35 males and 23 females) from 20 complete nuclear families ascertained through affected mothers with FMS were clinically evaluated for FMS according to the ACR 1990 diagnostic criteria. FMS symptoms, quality of life, physical functioning, and dolorimetry thresholds were assessed in all subjects. Sixteen offspring (28%) were found to have FMS. The M/F ratio among the affected was 0.8 compared with 1.5 in the whole study group. Offspring with and without FMS did not differ on anxiety, depression, global well-being, quality of life, and

physical functioning. A high prevalence of FMS was observed among offspring of FMS mothers. Because psychological and familial factors were not different in children with and without FMS, the high familial occurrence of this syndrome may be attributable to genetic factors.

*Semin Arthritis Rheum* (1996 Dec) 26(3):605-11

ERASO RM, BRADFORD NJ, FONTENOT CN, ESPINOZA LR, GEDALIA A

### **FIBROMYALGIA SYNDROME IN YOUNG CHILDREN: ONSET AT AGE 10 YEARS AND YOUNGER**

**OBJECTIVE:** To report our experience of fibromyalgia syndrome (FMS) in young children with onset at age 10 years and younger as compared to older children. **METHODS:** Clinical and laboratory data were reviewed in all patients that had been diagnosed with FMS between November 1994 and March 2003. Patients with onset above the of age 18 years, and patients with FMS and concomitant rheumatic diseases were excluded from this study. The study population included two groups: group "A", young children with onset at age 10 years and under and group "B", children with onset above 10 years old. A questionnaire was used at follow-up visits or by telephone interview to evaluate the outcome. **RESULTS:** There were 148 children with the diagnosis of FMS (based on ACR criteria), of these 46 children in group A and 102 children in group B. The mean age at onset and mean age at diagnosis were 7.5 years and 10 years in group A, and 13.2 years and 14.5 years in B, respectively. The mean interval between the age of onset and the age at diagnosis was 32 months in group A, and 18 months in group B ( $p=0.007$ ). There was a predominance of female gender and Caucasian ethnicity in both groups. Diffuse aching was reported in all patients in both groups. Stiffness, subjective joint swelling, abdominal pain and initial presentation on wheelchair were found more frequently in group A, compared with group B ( $p=0.03, 0.001, 0.01, 0.03$  respectively). The mean count of tender points at diagnosis was higher in group A, compared with group B (15.3 vs. 14.2,  $p=0.004$ ). The differences of other clinical features and laboratory tests in both groups were not statistically significant. Thirty-six patients in group A (78%) and 83 in group B (81%) were available for one or more follow-up visits and/or telephone interview. The mean follow-up period was 14 months in group A, and 19 months in group B ( $p$  value = 0.3). There was no difference in the type of treatment or outcome in both groups. **CONCLUSION:** FMS in young children of 10 years old and younger is frequently under-recognized. As compared with the older group, stiffness, subjective joint swelling, abdominal pain, initial presentation on wheelchair and a higher mean count of tender points at diagnosis were significantly more common in the younger age group. However, the type of medications used and outcome were similar in both groups. Prospective studies with large patient population are needed to clarify these findings.

*Clin Exp Rheumatol* (2007 Jul-Aug) 25(4):639-44

EVANS S, DE SOUZA L

### **DEALING WITH CHRONIC PAIN: GIVING VOICE TO THE EXPERIENCES OF MOTHERS WITH CHRONIC PAIN AND THEIR CHILDREN**

Despite the substantial monetary, personal, and social cost of chronic pain, research into the family life of sufferers is wanting. Parents dealing with chronic pain, as well as their children, have been particularly neglected. Using qualitative interview data from 16 mothers suffering from a variety of chronic pain conditions, and their 21 children, aged 6 to 12 years, we explored the impact of maternal chronic pain on mothers and children. Consistent with a gains-and-loss theory and the strengths perspective, the findings revealed both positive and challenging aspects of pain. Despite the presence of risks--including maternal stress, parenting difficulties, and children's distress--maternal chronic pain also provided opportunities for growth in many families. The findings suggest that maternal chronic pain can catalyze enhanced development as well as adversity. Researchers and clinicians should be aware of the pitfalls facing families dealing with chronic pain, while remaining open to the possibility that some families might flourish.

*Qual Health Res.* 2008 Apr;18(4):489-500

GEDALIA A, PRESS J, KLEIN M, BUSKILA D

### **JOINT HYPERMOBILITY AND FIBROMYALGIA IN SCHOOLCHILDREN**

**OBJECTIVES** --To test the hypothesis that joint hypermobility may play a part in the pathogenesis of pain in fibromyalgia, schoolchildren were examined for the coexistence of joint hypermobility and fibromyalgia. **METHODS** --The study group consisted of 338 children (179 boys, 159 girls; mean age 11.5 years, range 9-15 years) from one public school in Beer-Sheva, Israel. In the assessment of joint hypermobility, the criteria devised by Carter and Bird were used. Any child who met at least three of five criteria was considered to have joint hypermobility. Children were considered to have fibromyalgia if they fulfilled the 1990 American College of Rheumatology criteria for the diagnosis of fibromyalgia, namely, widespread pain in combination with tenderness of 11 or more of the 18 specific tender point sites. The blind assessments of joint hypermobility (by AG) and fibromyalgia (by DB) were carried out independently. **RESULTS** --Of the 338 children 43 (13%) were found to have joint hypermobility and 21 (6%) fibromyalgia; 17 (81%) of the 21 with fibromyalgia had joint hypermobility and 17 (40%) of the 43 with joint hypermobility had fibromyalgia. Using chi 2 statistical analysis, joint hypermobility and fibromyalgia were found to be highly associated. **CONCLUSIONS** -- This study suggests that there is a strong association between joint hypermobility and fibromyalgia in schoolchildren. It is possible that joint hypermobility may play a part in the pathogenesis of pain in fibromyalgia. More studies are needed to establish the clinical significance of this observation.

*Ann Rheum Dis* (1993 Jul) 52(7):494-6

KASHIKAR-ZUCK S, LYNCH AM, SLATER S, GRAHAM TB, SWAIN NF, NOLL RB

**FAMILY FACTORS, EMOTIONAL FUNCTIONING, AND FUNCTIONAL IMPAIRMENT IN JUVENILE FIBROMYALGIA SYNDROME**

**OBJECTIVE:** Family factors and emotional functioning can play an important role in the ability of adolescents with juvenile primary fibromyalgia syndrome (JPFS) to cope with their condition and function in their everyday lives. The primary objectives of this study were to determine 1) whether adolescents with JPFS and their caregivers differed from healthy age-matched comparison peers and their caregivers in terms of emotional distress and functional impairment; 2) whether there were any differences in the family environment of adolescents with JPFS compared with healthy comparison peers; and 3) which individual-, caregiver-, and family-level variables were associated with functional impairment in adolescents with JPFS.

**METHODS:** Participants were 47 adolescents with JPFS recruited from a pediatric rheumatology clinic and 46 comparison peers without chronic illness matched for age, sex, and race. Participants and their caregivers (all mothers) completed a battery of standardized measures administered in their homes. **RESULTS:** Adolescents with JPFS had greater internalizing and externalizing symptoms than healthy comparison peers. Mothers of adolescents with JPFS reported twice as many pain conditions and significantly greater depressive symptoms than mothers of comparison peers. The JPFS group also had poorer overall family functioning and more conflicted family relationships. In adolescents with JPFS, maternal pain history was associated with significantly higher functional impairment.

**CONCLUSION:** Increased distress and chronic pain are evident in families of adolescents with JPFS, and family relationships are also impacted. Implications for child functional impairment and the need for inclusion of caregivers in treatment are discussed.

*Arthritis Rheum.* 2008 Oct 15;59(10):1392-8

KASHIKAR-ZUCK S, LYNCH AM, GRAHAM TB, SWAIN NF, MULLEN SM, NOLL RB

**SOCIAL FUNCTIONING AND PEER RELATIONSHIPS OF ADOLESCENTS WITH JUVENILE FIBROMYALGIA SYNDROME**

**OBJECTIVE:** To assess peer relationships of adolescents with juvenile primary fibromyalgia syndrome (JPFS) compared with matched classroom comparison peers (MCCPs) without a chronic illness. JPFS is characterized by chronic musculoskeletal pain, sleep disturbance, fatigue, and difficulty with daily functioning. Adolescents with JPFS often report problems with school and participating in peer activities, placing them at risk for social isolation from their peers and psychosocial adjustment problems. **METHODS:** Participants were 55 adolescents with JPFS (ages 12-18 years) from a pediatric outpatient rheumatology clinic and 55 MCCPs. Data on peer reputation and peer acceptance were collected from teachers, peers, and self report in a classroom setting with no focus on JPFS. **RESULTS:** Adolescents with JPFS were perceived (by peer and self reports) as being more isolated and withdrawn and less popular. Adolescents with JPFS were less well liked, were selected less often as a best friend, and had fewer reciprocated friendships. **CONCLUSION:** Our findings suggest that adolescents with JPFS are experiencing problems with peer relationships. Given the central role that peer relationships play in psychological development of children, and because peer rejection and isolation have been associated with subsequent adjustment problems, these findings are

concerning. Longitudinal studies of adolescents with JPFS are needed to ascertain whether these patients are at long-term risk and will provide a foundation for the need for early interventions. Results are discussed within the context of earlier findings for other adolescents with chronic illness and rheumatic conditions, such as juvenile idiopathic arthritis, who demonstrated no social problems.

*Arthritis Rheum* (2007 Apr 15) 57(3):474-80

KEOGH E, ECCLESTON C

### **SEX DIFFERENCES IN ADOLESCENT CHRONIC PAIN AND PAIN-RELATED COPING**

Sex differences exist in pain and the strategies used to cope with pain. Although it has been proposed that such differences become apparent around puberty, somewhat surprisingly very little research has specifically investigated sex as a moderator of pain within adolescents. The primary aim of the current study was to investigate sex differences in pain and coping within a group of 46 male and 115 female adolescent chronic pain sufferers. All were aged between 11 and 19 years and had been referred to the Pain Management Unit at the Royal National Hospital for Rheumatic Diseases, United Kingdom. Patients completed a battery of measures including pain experiences and a pain coping questionnaire. No sex differences were found in pain chronicity, although males and females did differ in self-reported pain experiences (females reported higher pain). Sex differences were also found in coping behaviours. Females used more social support, positive statements and internalizing/catastrophizing, whereas males reported engaging in more behavioural distraction. Of these strategies internalizing/catastrophizing was found to mediate the relationship between sex and pain. This suggests that not only do sex differences exist in the pain experiences and pain-coping strategies of adolescents with chronic pain, but that internalizing/ catastrophizing may be an important mechanism in understanding such differences. More research examining potential sex differences in children and adolescents is recommended.

*Pain* (2006 Aug) 123(3):275-84

LOGAN DE, CATANESE SP, COAKLEY RM, SCHARFF L

### **CHRONIC PAIN IN THE CLASSROOM: TEACHERS' ATTRIBUTIONS ABOUT THE CAUSES OF CHRONIC PAIN**

**BACKGROUND:** School absenteeism and other impairments in school function are significant problems among children with chronic pain syndromes; yet, little is known about how chronic pain is perceived in the school setting. The purpose of this study was to examine teachers' attributions about the causes of chronic pain in adolescent students. **METHODS:** Classroom teachers (n = 260) read vignettes describing a hypothetical student with limb pain. They were presented with a list of possible physical and psychological causes for the pain and asked to identify the causes to which they attributed the pain. Vignettes varied by the presence or absence of (1) documented medical evidence for the pain and (2) communication from the medical team. Teachers also responded to questions assessing their responses to the student in terms of support for academic accommodations and sympathy for the student. **RESULTS:** Teachers tended to endorse a dualistic (ie, either physical or psychological) model for pain

rather than a biopsychosocial model. Documented medical evidence supporting the pain was the most influential factor affecting teachers' attributions about chronic pain. Teachers who attributed the pain to physical causes-either in isolation or in combination with psychological causes-responded more positively toward the student. **CONCLUSIONS:** Many teachers lack a biopsychosocial framework through which to understand chronic pain syndromes in students. How chronic pain is described to school personnel may affect how teachers understand the pain and respond to it.

*J Sch Health* (2007 May) 77(5):248-56

LOGAN DE, SIMONS LE, STEIN MJ, CHASTAIN L

### **SCHOOL IMPAIRMENT IN ADOLESCENTS WITH CHRONIC PAIN**

The purpose of this study was to assess and describe school functioning among adolescents presenting for evaluation in a tertiary care pediatric chronic pain clinic. Adolescents (n = 220, aged 12-17) and their parents participated in the study, providing self-reported data on school attendance, school performance, and perceived academic competence. Participants' schools provided official attendance records, descriptions of accommodations implemented to address the student's pain problems in the school setting, and teacher ratings of academic competence. Results show that many adolescents with chronic pain miss a significant amount of school, experience a decline in grades, and perceive pain to interfere with their school success. Various indicators of school impairment are highly intercorrelated, suggesting that impairment or success in 1 domain is typically associated with similar patterns in other domains of school functioning. However, as a group, adolescents with pain are viewed by themselves and their teachers as academically competent. Strong correlations emerged between different reporters of school functioning indicators such as attendance, suggesting that reliance on parent or adolescent reporting may be sufficient when assessing these domains. Findings underscore the importance of broadly assessing school functioning in adolescents with chronic pain. **PERSPECTIVE:** This study extends our understanding of school functioning among adolescents with chronic pain. It highlights the need to assess both school attendance and performance in this population as well as how schools respond to pain problems. Devising summary indicators of school impairment can be useful in both clinical and research contexts.

*J Pain*. 2008 May;9(5):407-16. Epub 2008 Feb 6

NUTKIEWICZ M

### **DIAGNOSIS VERSUS DIALOGUE: ORAL TESTIMONY AND THE STUDY OF PEDIATRIC PAIN**

Through the perspectives of the children, this essay examines the communication between pediatric pain patients and their doctors. Based upon the oral history responses of thirty-two patients with chronic pain present for evaluation at the Pediatric Pain Clinic at UCLA, oral testimony was employed to uncover a wide range of topics related to a child's experience with pain such as family dynamics, how and when pain became a life-changing factor, coping strategies, and external sources that contribute to the child's understanding of pain. Most important, children were encouraged to explain what it was like to be in pain, not only to

describe symptoms but also to share their dreams and hopes, their fears and uncertainties -- as well as the place of pain in their world.

*Oral Hist Rev.* 2008;35(1):11-21

REID K, LANDER J, SCOTT S, DICK B

### **WHAT DO THE PARENTS OF CHILDREN WHO HAVE CHRONIC PAIN EXPECT FROM THEIR FIRST VISIT TO A PEDIATRIC CHRONIC PAIN CLINIC?**

**BACKGROUND:** Chronic pain in childhood is increasingly recognized as a significant clinical problem. Best-practice management of pediatric chronic pain in a multidisciplinary pain clinic involves a variety of treatment modalities. It is important that parents of children treated in these settings understand the different treatment options available for their children. By involving parents more effectively, care providers may more efficiently address unmet treatment needs and improve tailoring of treatment programs aimed at increasing function, reducing pain-related disability and improving quality of life. **OBJECTIVES:** To explore the expectations held by parents for their first visit to a pediatric multidisciplinary pain clinic.

**METHODS:** Fourteen parents completed a paper-based survey exploring their expectations immediately before their first visit to a multidisciplinary pediatric pain clinic in a tertiary care children's hospital. **RESULTS:** Responses from parents suggest a clear desire for information about the causes of their child's pain, treatment options available at the pain clinic, effective strategies to enhance children's ability to cope with pain, and the effects of pain on both body and mood. Most parents rated the various treatment options as important for their child. All parents indicated it was very important to have the pain team 'be there' for them.

**CONCLUSIONS:** These findings indicate that parents want more information about chronic pain and treatment options. Pediatric chronic pain clinics have the ability to assist children with chronic pain and their families considerably by providing information about chronic pain and the various treatment options available to them.

*Pain Res Manag.* 2010 May-Jun;15(3):158-62

RUSY LM, HARVEY SA, BESTE DJ

### **PEDIATRIC FIBROMYALGIA AND DIZZINESS: EVALUATION OF VESTIBULAR FUNCTION**

Twelve children with fibromyalgia and complaints of chronic dizziness were evaluated with both clinical office maneuvers of vestibular function and laboratory tests composed of electronystagmography and sinusoidal harmonic acceleration rotary chair testing. All test results were normal for spontaneous nystagmus with or without visual fixation, oculocephalic reflex, dynamic visual acuity, head-shaking nystagmus, Quix test, and Dix-Hallpike maneuver. Electronystagmography test results were essentially normal for saccades, gaze, Dix-Hallpike, pendular tracking, and caloric evaluation. Rotary chair testing was normal in all 12 patients. These findings suggest that central (brainstem) and peripheral vestibular (inner ear) mechanisms do not account for the complaints of dizziness in the pediatric patient with fibromyalgia. The common musculoskeletal abnormalities of fibromyalgia may affect their proprioceptive orientation, therefore giving them a sense of imbalance.

*J Dev Behav Pediatr* (1999 Aug) 20(4):211-5



SIMONS LE, LOGAN DE, CHASTAIN L, STEIN M

### **THE RELATION OF SOCIAL FUNCTIONING TO SCHOOL IMPAIRMENT AMONG ADOLESCENTS WITH CHRONIC PAIN**

**OBJECTIVES:** To further our understanding of social functioning in children with chronic pain, and particularly how social functioning relates to school impairment in this population.

**METHODS:** This study involved 126 adolescents (12 to 17 y) evaluated at a multidisciplinary pain clinic. Adolescents completed measures assessing social functioning, pain, physical limitations, somatic symptoms, and school impairment. **RESULTS:** Lower social functioning scores were significantly associated with pain, physical limitations, somatic symptoms, and school impairment. Social functioning mediated the relations between adolescents' pain experience (ie, pain, physical symptoms, physical limitations) and school impairment.

**DISCUSSIONS:** These findings highlight the importance of assessing and addressing social functioning in youth with chronic pain. Future research targeting school impairment should include evaluating the potential role that peer difficulties may play.

*Clin J Pain.* 2010 Jan;26(1):16-22

TAYAG-KIER CE, KEENAN GF, SCALZI LV, SCHULTZ B, ELLIOTT J, ZHAO RH, ARENS R

### **SLEEP AND PERIODIC LIMB MOVEMENT IN SLEEP IN JUVENILE FIBROMYALGIA**

**OBJECTIVES:** Fibromyalgia has been recently recognized in children and adolescents as juvenile fibromyalgia (JF). In adult fibromyalgia, subjective complaints of nonrestorative sleep and fatigue are supported by altered polysomnographic findings including a primary sleep disorder known as periodic limb movements in sleep (PLMS) in some subjects. Although poor sleep is a diagnostic criterion for JF, few reports in the literature have evaluated specific sleep disturbances. Our objectives were to evaluate in a controlled study the polysomnographic findings of children and adolescents with JF for alterations in sleep architecture as well as possible PLMS not previously noted in this age group. **METHODS:** Sixteen consecutive children and adolescents (15.0 +/- 2.6 years of age) diagnosed with JF underwent overnight polysomnography. Polysomnography was also performed on 14 controls (14.0 +/- 2.2 years of age) with no history of an underlying medical condition that could impact on sleep architecture. Respiratory variables, sleep stages, and limb movements were measured during sleep in all subjects. **RESULTS:** JF subjects differed significantly from controls in sleep architecture. JF subjects presented with prolonged sleep latency, shortened total sleep time, decreased sleep efficiency, and increased wakefulness during sleep. In addition, JF subjects exhibited excessive movement activity during sleep. Six of the JF subjects (38%) were noted to have an abnormally elevated PLMS index (>5/hour), indicating PLMS in these subjects.

**CONCLUSION:** Our study demonstrated abnormalities in sleep architecture in children with JF. We also noted PLMS in a significant number of subjects. This has not been reported previously in children with this disorder. We recommend that children who are evaluated for JF undergo polysomnography including PLMS assessment. juvenile fibromyalgia; periodic limb movement in sleep; restless legs syndrome.

*Pediatrics* (2000 Nov) 106(5):E70

TSAO JC, MELDRUM M, KIM SC, JACOB MC, ZELTZER LK

### **TREATMENT PREFERENCES FOR CAM IN CHILDREN WITH CHRONIC PAIN**

CAM [Complementary and alternative] therapies have become increasingly popular in pediatric populations. Yet, little is known about children's preferences for CAM. This study examined treatment preferences in chronic pediatric pain patients offered a choice of CAM therapies for their pain. Participants were 129 children (94 girls) (mean age = 14.5 years +/- 2.4; range = 8-18 years) presenting at a multidisciplinary, tertiary clinic specializing in pediatric chronic pain. Bivariate and multivariate analyses were used to examine the relationships between CAM treatment preferences and patient's sociodemographic and clinical characteristics, as well as their self-reported level of functioning. Over 60% of patients elected to try at least one CAM approach for pain. The most popular CAM therapies were biofeedback, yoga and hypnosis; the least popular were art therapy and energy healing, with craniosacral, acupuncture and massage being intermediate. Patients with a diagnosis of fibromyalgia (80%) were the most likely to try CAM versus those with other pain diagnoses. In multivariate analyses, pain duration emerged as a significant predictor of CAM preferences. For mind-based approaches (i.e. hypnosis, biofeedback and art therapy), pain duration and limitations in family activities were both significant predictors. When given a choice of CAM therapies, this sample of children with chronic pain, irrespective of pain diagnosis, preferred non-invasive approaches that enhanced relaxation and increased somatic control. Longer duration of pain and greater impairment in functioning, particularly during family activities increased the likelihood that such patients agreed to engage in CAM treatments, especially those that were categorized as mind-based modalities.

*Evid Based Complement Alternat Med* (2007 Sep) 4(3):367-74

VON STÜLPNAGEL C, REILICH P, STRAUBE A, SCHÄFER J, BLASCHEK A, LEE SH, MÜLLER-FELBER W, HENSCHEL V, MANSMANN U, HEINEN F

### **MYOFASCIAL TRIGGER POINTS IN CHILDREN WITH TENSION-TYPE HEADACHE: A NEW DIAGNOSTIC AND THERAPEUTIC OPTION**

The goal of this pilot study was to evaluate the effect of a trigger point-specific physiotherapy on headache frequency, intensity, and duration in children with episodic or chronic tension-type headache. Patients were recruited from the special headache outpatient clinic. A total of 9 girls (mean age 13.1 years; range, 5-15 years) with the diagnosis of tension-type headache participated in the pilot study from May to September 2006 and received trigger point-specific physiotherapy twice a week by a trained physiotherapist. After an average number of 6.5 therapeutic sessions, the headache frequency had been reduced by 67.7%, intensity by 74.3%, and duration by 77.3%. No side effects were noted during the treatment. These preliminary findings suggest a role for active trigger points in children with tension-type headache. Trigger point-specific physiotherapy seems to be an effective therapy in these children. Further prospective and controlled studies in a larger cohort are warranted.

*J Child Neurol.* 2009 Apr;24(4):406-9

WATERHOUSE M, TSAO JC, ZELTZER LK

### **COMMENTARY ON THE USE OF ACUPUNCTURE IN CHRONIC PEDIATRIC PAIN**

The use of acupuncture for pain in pediatrics is a long-standing practice in Eastern cultures. Despite growing interest in the West, there has been relatively little systematic research on acupuncture for chronic pediatric pain. In particular, there is a paucity of randomized clinical trials testing the efficacy of acupuncture for chronic pain problems in pediatric populations. This commentary briefly reviews the history of acupuncture for pain and includes a summary of extant findings regarding potential mechanisms of its analgesic effects. Key areas for future research to advance the application of acupuncture to chronic pediatric pain problems are outlined.

*J Dev Behav Pediatr.* 2009 Feb;30(1):69-71

WILSON AC, SAMUELSON B, PALERMO TM

### **OBESITY IN CHILDREN AND ADOLESCENTS WITH CHRONIC PAIN: ASSOCIATIONS WITH PAIN AND ACTIVITY LIMITATIONS.**

**OBJECTIVES:** Obesity is associated with functional disability in adults with chronic pain, but less is known about obesity among youth with chronic pain. The purpose of this study was to (1) identify the prevalence of overweight and obesity in children and adolescents receiving treatment for chronic pain, and (2) examine associations between Body Mass Index (BMI), pain intensity, and activity limitations in this population. **METHODS:** Data were obtained from records of 118 patients, ages 8 to 18, seen in a multidisciplinary pediatric pain clinic. Information about age, sex, pain problem, duration and severity, medical diagnoses, medications, height, and weight were collected from medical records and intake questionnaires. The CDC's pediatric BMI calculator was used to obtain percentile and category (underweight, healthy weight, overweight, obese). Children and parents completed the Child Activity Limitations Interview-21 (CALI-21), a self-report measure of activity limitations. **RESULTS:** A significantly higher rate of overweight and obesity was observed among youth with chronic pain compared with a normative sample. BMI percentile was predictive of concurrent limitations in vigorous activities, according to parent report. **DISCUSSION:** BMI percentile and weight status may contribute to activity limitations among children and adolescents with chronic pain. Weight status is an important factor to consider in the context of treatment of chronic pain and disability in children and adolescents.

*Clin J Pain.* 2010 Oct;26(8):705-11

YUNUS MB, KHAN MA, RAWLINGS KK, GREEN JR, OLSON JM, SHAH S

### **GENETIC LINKAGE ANALYSIS OF MULTICASE FAMILIES WITH FIBROMYALGIA SYNDROME**

**OBJECTIVE:** Based on the reports of familial aggregation of fibromyalgia (FM) syndrome, we investigated its possible genetic linkage to HLA by studying multicase families. **METHODS:** Forty Caucasian multicase families with a diagnosis of FM (American College of Rheumatology criteria) in 2 or more first degree relatives were investigated. Eighty-five affected and 21 unaffected members of 41 sibships were studied. Depression symptomology

was assessed by Zung Self-rating Depression Scale (SDS). HLA typing was performed for A, B, and DRB 1 alleles, and haplotypes were determined with no knowledge of the subject's diagnosis. We investigated genetic linkage to the HLA region by evaluating sibships in multicase families. RESULTS: Sibship analysis showed significant genetic linkage of FM to the HLA region ( $p = 0.028$ ). Subgroup analysis was also performed for 17 families where the proband was also noted to have depression (with an SDS index value  $> \text{ or } = 60$ ). We found that the presence of depression did not influence the observed results ( $p = 0.22$ ). CONCLUSION: Our study of 40 multicase families confirms existence of a possible gene for FM that is linked with the HLA region. Our results should be regarded as preliminary and their independent confirmation by other studies is warranted.

*J Rheumatol* (1999 Feb) 26(2):408-12