



Volume 3, Issue 2, March 2008

## *reSearch*

*A collection of research reviews on rehabilitation topics from NARIC and other information resources.*

# ***Fibromyalgia: Management & Treatment***

**F**ibromyalgia (FM) is defined by the American College of Rheumatology (ACR) as “a clinical syndrome defined by chronic widespread muscular pain, fatigue, and tenderness. Many people with fibromyalgia also experience additional symptoms such as fatigue, headaches, irritable bowel syndrome, irritable bladder, cognitive and memory problems (often called “fibro fog”), temporomandibular joint disorder, pelvic pain, restless leg syndrome, sensitivity to noise and temperature, and anxiety and depression. These symptoms can vary in intensity and, like the pain of fibromyalgia, wax and wane over time.” (Retrieved from [www.rheumatology.org/public/factsheets/fibromya\\_new.asp?aud=pat](http://www.rheumatology.org/public/factsheets/fibromya_new.asp?aud=pat)).

In the summer of 2007, the US Food and Drug Administration approved Pfizer’s Lyrica for the treatment of pain associated with fibromyalgia. Pfizer’s ad campaign introduced Americans to this widespread, chronic pain condition, which remains a controversial diagnosis even after more than 30 years of active research. While the ACR has established diagnosis criteria, many in the medical community disagree whether FM is a diagnosable, chronic condition which causes a diminished quality of life. Thus, people with fibromyalgia may encounter difficulty in finding treatment and support.

This research brief does not explore the validity of the diagnosis, but assumes the existence of FM and focuses on research in treatment, management, and improvement of the quality of life for persons with FM. These search results provide a “snap shot” of the past 10 years of management and treatment. Included in this edition of *reSearch* are research abstracts, along with resources for support organizations and research projects with a focus on the management and treatment of FM. Main search terms included: Fibromyalgia syndrome (FMS), fibromyalgia (FM), and pain management and treatment. A listing of over 100 additional descriptor terms between the NARIC, ERIC, NCRTM, Cochrane, and PubMed databases can be found at the end of this document.

**FM vs. FMS:** In this document, FM refers to fibromyalgia, FMS to fibromyalgia syndrome. Throughout our search, we encountered both fibromyalgia and fibromyalgia syndrome used to discuss this chronic condition. These terms appear to be used interchangeably to refer to the collection of symptoms described in the ACR definition. NARIC uses fibromyalgia in our publications. However, other writers may use fibromyalgia syndrome. We have chosen to leave these abstracts as they are written.

A search of our REHABDATA database resulted in 30 documents published between 1998 and 2006. The National Clearinghouse of Rehabilitation Training Materials (NCRTM) search produced two documents published from 2000 and 2005. The ERIC database search resulted in one document from 2000. The search of the Cochrane database resulted in two reviews and six protocols published between 1999-2007. Finally, a search of PubMed resulted in 89 documents published between 1998 and 2008. The complete citations are included in this research brief.

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## NIDRR Funded Projects Related to Chronic Pain Management & Treatment

In addition to document searches, we searched our NIDRR Program Database to locate grantees/projects related to FM and the management and treatment of pain conditions, disorders, and/or syndromes. The search resulted in four NIDRR funded projects. Project information and their publications are offered as additional resources for our patrons.

### Rehabilitation Research and Training Center in Neuromuscular Diseases (RRTC/NMD)

Project Number: H133B031118

[www.nmdinfo.net](http://www.nmdinfo.net)

### Missouri Arthritis Rehabilitation Research and Training Center (MARRTC)

Project Number: H133B031120

[www.marrtc.org](http://www.marrtc.org)

### Rehabilitation Research and Training Center on Health and Wellness in Long Term Disability

Project Number: H133B040034

[www.healthwellness.org](http://www.healthwellness.org)

### Secondary Conditions, Assistance, and Health-Related Access Among Independently Living Adults with Major Disabling Conditions

Project Number: H133G70205 (no longer active)

Phone: 617/624-5532

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*Documents from NARIC's REHABDATA search listed are listed below:*

## 2006

Barlow, David; Borg-Stein, Joanne; Breeze, Gail; Delaney, Bobbi; Gomba, Lorraine; Rothmund, Astrid; Thompson, Anita; & Wennemer, Heidi, K. (2006). **Functionally oriented rehabilitation program for patients with fibromyalgia: Preliminary results.** *American Journal of Physical Medicine and Rehabilitation, 85*(8), 659-666.

NARIC Accession Number: J50979

ABSTRACT: Function and disability were evaluated in 23 patients with FM before and after participation in a functionally oriented, multidisciplinary, 8-week treatment program. The program included education, group participation, task-oriented functional training, flexibility training, and strengthening exercises. Outcome measures included: range of motion, 6-minute walk test, a modified Fibromyalgia Impact Questionnaire, a modified SF-36 Physical Functioning Scale, and the Fibromyalgia Health Assessment Questionnaire. Participants reported significantly improved physical function, endurance, and flexibility after treatment. All subjects completed the program and there were no reported injuries.

Ekholm, Jan; Lofgren, Monika; & Ohman, Ann. (2006). **'A constant struggle': Successful strategies of women in work despite fibromyalgia.** *Disability and Rehabilitation, 28*(7), 447-455.

NARIC Accession Number: J50520

ABSTRACT: Qualitative methods with an emergent design were used to examine the strategies used by working women with FM to control pain, fatigue, and other symptoms. Study informants were women who had participated in rehabilitation six to eight years earlier and were still working. Diaries, focus groups, and individual interviews were used for data collection. From content analysis and grounded theory analysis, a model emerged with three categories: a constant struggle, the grieving process, and social support. The "constant struggle" category contains eight sub-categories: enjoying life, taking care of oneself, positive thinking, setting limits, using pain as a guide, creative solutions, learning/being knowledgeable, walking a tightrope. The category "grieving process" was a prerequisite for managing the struggle and the category "social support" contained what facilitated the struggle.

Emiliozzi, Clelia; Gordon, Chrisanne; & Zartarian, Marie. (2006). **Use of a mechanical massage technique in the treatment of fibromyalgia: A preliminary study.** *Archives of Physical Medicine and Rehabilitation*, 87(1), 145-147.

NARIC Accession Number: J50356

ABSTRACT: Ten women with FM received 15 sessions of mechanical massage administered once a week by a physical therapist. The mechanical massage technique consisted of a deep tissue mobilization provided by a medical device. Subjects were evaluated at the screening visit, after 7 sessions, and after completion of 15th session. Results showed improvement in physical function, pain intensity, and number of tender points after 15 sessions of mechanical massage. The findings suggest the possibility that the intervention might be associated with positive outcomes in women with FM.

Hampton, Janis, L.; Jannes, Caroline, R.F.; & Karper, William, B. (2006). **Fibromyalgia syndrome: The beneficial effects of exercise.** *Rehabilitation Nursing*, 31(5), 193-198.

NARIC Accession Number: J51170

ABSTRACT: Article describes the positive outcomes of six women with FMS who participated in an exercise program over five years. The group showed improvement with various FMS symptoms, fitness, and psychosocial factors early in the program; then showed further improvement as a result of adding new exercises to the protocol in the fourth and fifth years. Practical advice is provided for rehabilitation nurses regarding exercise and FMS.

## 2005

Adams, Nicola; & Sim, Julius. (2005). **Rehabilitation approaches in fibromyalgia.** *Disability and Rehabilitation*, 27(12), 711-723.

NARIC Accession Number: J49280

ABSTRACT: Article provides an overview of interventions used in the rehabilitation of patients with FM. These include: exercise, psychologically-based approaches, multimodal approaches, self-management approaches, and complementary and alternative therapies. Due to factors such as methodological constraints of existing studies, and the lack of evidence on individual modalities, the authors were unable to draw definite conclusions as to the most appropriate rehabilitation approach. However, an increasing number of studies support the

use of exercise in the management of FM. Psychologically-based interventions such as cognitive-behavioral therapy (CBT) have also proved useful when combined with exercise, rather than CBT alone.

Burckhardt, Carol, S. (2005). **Educating patients: Self-management approaches.** *Disability and Rehabilitation*, 27(12), 703-709.

NARIC Accession Number: J49279

ABSTRACT: This review evaluates research on approaches to patient education for patients with FMS. A number of studies contain specific education strategies while others are combined with exercise or movement therapies or cognitive-behavioral therapy. Programs that combine education with cognitive-behavioral techniques and exercise were most effective in enhancing self-efficacy and decreasing symptoms of FMS.

Gard, Gunvor. (2005). **Body awareness therapy for patients with fibromyalgia and chronic pain.** *Disability and Rehabilitation*, 27(12), 725-728.

NARIC Accession Number: J49281

ABSTRACT: Article describes the aim and development of basic body awareness therapy (BAT) as well as evaluations of treatment including basic BAT, Mensendieck therapy, and Feldenkrais therapy. Multidisciplinary studies have shown that basic BAT can increase health-related quality of life and cost-effectiveness. Existing studies indicate that basic BAT has positive effects.

Gerdle, B.; Henriksson, C.M.; & Liedberg, G.M. (2005). **Women with fibromyalgia: Work and rehabilitation.** *Disability and Rehabilitation*, 27(12), 685-695.

NARIC Accession Number: J49277

ABSTRACT: Article reviews studies on the work status of women with FM. The evidence shows that limitations caused by pain, fatigue, decreased muscle strength, and disrupted sleep influence daily activities, including work capacity. However, many women with FM continue working. When individual adjustments in the work situation are made and the women find a level that matches their ability, they continue to work and find satisfaction in their work role. The total life situation (other commitments, type of work tasks, the ability to influence the work situation, and the physical and psychosocial work environment) are important factors in determining whether a person with longstanding pain can work.

Kingsley, J. Derek; Mathis, Reed; McMillan, Victor; Panton, Lynn, B.; Sirithienthad, Prawee; & Toole, Tonya. (2005). **The effects of a 12-week strength-training program on strength and functionality in women with fibromyalgia.** *Archives of Physical Medicine and Rehabilitation*, 86(9), 1713-1721.

NARIC Accession Number: J49394

ABSTRACT: Twenty-nine women with FM were randomly assigned to a strength group or a control group. Subjects in the strength group underwent 12 weeks of training on 11 exercises, twice a week, performing 1 set of 8 to 12 repetitions at 40 to 60 percent of their maximal lifts and were progressed to 60 to 80 percent. The control group was asked to continue their normal activities until the end of the study. Subjects were measured for strength, functionality, tender point sensitivity, and FM impact. Results showed that strength and upper-body functionality significantly improved in the strength group. Tender point sensitivity and FM impact did not change.

## 2004

Busch, Angela, J.; Peloso, Paul, M.; Schachter, Candice, L.; & Sheppard, M., Suzanne. (2004). **Effects of short versus long bouts of aerobic exercise in sedentary women with fibromyalgia: A randomized controlled trial.** *Physical Therapy*, 83(4), 340-358.

NARIC Accession Number: J45492

ABSTRACT: Study examines the effects of a 16-week, home based, low-impact aerobic exercise program on physical functioning, signs and symptoms of FM, and adherence to exercise. Sedentary female participants were randomly assigned to one of three groups: (1) training using one long exercise session per day, (2) training using two short exercise sessions per day, and (3) no exercise. Results indicated no significant differences between the exercise groups at the end of the program. Reducing the duration and increasing the frequency of exercise provided no beneficial impact in terms of exercise adherence or improvement in symptoms or physical function. Dropout rates were high in both exercise groups.

Finnie, Steve; Luedtke, Connie; Nelson, Audrey; Pfeiffer, Angela; Postier, John; Sletten, Chris; Thompson, Jeffrey, M.; & Tucker, Sharon. (2004). **Effects of a 1.5-day multidisciplinary outpatient treatment program for fibromyalgia: A pilot study.** *American Journal of Physical Medicine and Rehabilitation*, 82(3), 186-191.

NARIC Accession Number: J45242

ABSTRACT: Study investigated the effects of a 1.5-day multidisciplinary outpatient treatment program on the illness, depression, and life fulfillment of patients with FM. Participants completed three assessments immediately before the treatment program and by mail one month after completing the program. Outcome measures included: (1) the Fibromyalgia Impact Questionnaire (FIQ) to measure the impact of illness, (2) the Center for Epidemiologic Studies Depression scale for depression, and (3) the Life Fulfillment Scale for life fulfillment. Respondents showed significant improvement overall on the FIQ. There was no significant improvement in symptoms of depression or the level of life fulfillment.

Hernandez, Teresa G.; Justo, Carmen, M.; Moraleda, Francisca, V.; Ortells, Loreto, C.; Oses Puche, Jose, J.; Pareja, Miguel, A.V.; Redondo, Javier, R.; Velayos, Yolanda, G.; & Zubero, Julio, R. (2004). **Long-term efficacy of therapy in patients with fibromyalgia: A physical exercise-based program and a cognitive-behavioral approach.** *Arthritis & Rheumatism*, 51(2), 168-176.

NARIC Accession Number: J47983

ABSTRACT: Study compared the long-term effectiveness of two interventions for FM. Participants were randomly assigned to the physical exercise and cardiovascular fitness (PE) program or the cognitive-behavioral therapy (CBT) program. All patients were evaluated at baseline, at the end of the 8-week treatment program, and at six months after one year after completing the program. Outcomes included measures of physical activity and aerobic capacity, and the results of the Fibromyalgia Impact Questionnaire, Short Form 36, Beck Anxiety and Depression inventory, Chronic Pain Self-Efficacy Scale, and Chronic Pain Coping Inventory. Results showed that both PE and CBT improved clinical manifestations in FM patients for short periods of time. There were no differences in anxiety, depression, and self-efficacy after treatment in either group. At the 1-year follow-up, most of the parameters had returned to baseline values in both groups; however, functional capacity remained significantly better in the PE group.

Schaefer, Karen, M. (2004). **Caring for the patient with fibromyalgia: The rehabilitation nurse's role.** *Rehabilitation Nursing*, 29(2), 49-55.

NARIC Accession Number: J47944

ABSTRACT: Article discusses the role of the rehabilitation nurse in the care of patients with FM. FM is a common and chronic disorder characterized by wide-

spread musculoskeletal pain for three months or more, fatigue, and pain with pressure on multiple tender points. Because there is no cure for FM, treatment focuses on the control or relief of symptoms. Many patients received physical or exercise therapy to improve flexibility and strength, and reduce pain. Rehabilitation nurses, as members of an interdisciplinary healthcare team, can help patients with FM achieve comfort and mobility by supporting a holistic approach to care that includes reassurance and explanation about the illness, physical therapy, medication therapy, and counseling.

## 2002

Iwarsson, Susanne; & Lindberg, Lorry. (2002). **Subjective quality of life, health, I-ADL ability and adaptation strategies in fibromyalgia.** *Clinical Rehabilitation, 16*(6), 675-683.

NARIC Accession Number: J44630

ABSTRACT: Study examined the subjective quality of life and health, self-perceived instrumental activities of daily living (I-ADL) ability, and adaptation strategies in patients with FM. The Fibromyalgia Impact Questionnaire (FIQ) was used to assess subjective quality of life and health. The first 10 questions on the FIQ focus on self-perceived ability in I-ADL. Coping strategies were assessed using the Living with Fibromyalgia - Adaptation to Disease and Handicap questionnaire. Results indicated that patients used many adaptation strategies, showing some significant relationships with perceived I-ADL ability and subjective quality of life and health.

## 2001

Brown, G.T.; Delisle, R.; Gagnon, N.; & Sauve, A. (2001). **Juvenile fibromyalgia syndrome: Proposed management using a cognitive-behavioral approach.** *Physical and Occupational Therapy in Pediatrics, 21*(1), 19-36.

NARIC Accession Number: J43356

ABSTRACT: Article provides a brief overview of juvenile FMS, its impact on the developmental stages and the occupational performance of children and adolescents, and management strategies using a cognitive-behavioral approach.

Essert, M. (2001). **Aquatic therapy and fibromyalgia.** *Advance for Occupational Therapy Practitioners, 17*(4), 6, 29.

NARIC Accession Number: J41436

ABSTRACT: Article with pointers for therapists on conducting an aquatic therapy program for clients with FMS. Benefits of aquatic therapy for FMS and contraindications are also discussed.

## 2000

Berman, B.M.; Creamer, P.; Hochberg, M.C.; & Singh, B.B. (2000). **Sustained improvement produced by nonpharmacologic intervention in fibromyalgia: Results of a pilot study.** *Arthritis Care and Research, 13*(4), 198-204.

NARIC Accession Number: J40147

ABSTRACT: Pilot study examining the practicality of delivering non-pharmacologic, behavior-based treatment for FM, of the sort previously found to be effective for low back pain, and examining outcomes four months post-treatment. Participants, 28 individuals with FM, received 8 weekly group sessions consisting of an educational-cognitive-behavioral component, formal relaxation meditation training, and training in Qi Gong. Twenty of the 28 participants completed at least 5 sessions. Significant improvement was seen in the Fibromyalgia Impact Questionnaire and other outcome measures such as tender points and pain threshold. Improvement was sustained four months after the intervention.

Brawley, L.R.; & Culos-Reed, S.N. (2000). **Fibromyalgia, physical activity, and daily functioning: The importance of efficacy and health-related quality of life.** *Arthritis Care and Research, 13*(6), 343-351.

NARIC Accession Number: J40945

ABSTRACT: Study examining whether individuals with FM who are more physically active differ in various psychosocial characteristics such as self-efficacy and health-related quality of life (HRQOL) from those who are less active, and also whether those who function better on a daily basis differ in these characteristics from their counterparts with lower daily functioning. Data were collected from 86 individuals with FM. It was found that physical activity efficacy, pain efficacy, and the physical component of HRQOL were strongly related to physical activity status.

Brolin-Magnusson, K.; Gerdle, B.; Henriksson, G.; Kendall, S.A.; & Soren, B. (2000). **A pilot study of body awareness programs in the treatment of fibromyalgia syndrome.** *Arthritis Care and Research, 13*(5), 304-311.

NARIC Accession Number: J40560

ABSTRACT: Study comparing outcomes of two physical therapy (PT) programs for the treatment of FM: the Mensendieck system and body awareness therapy (BAT). Twenty females with FM were randomly assigned to 20 weeks of treatment with either the Mensendieck system or BAT. FM symptoms and ef-

fects were assessed before and immediately after treatment, and at 6 and 18 month follow-up. Results show that at 18 month follow-up the BAT group had improved global health, but lower global health results than the Mensendieck group, which also had improved results on the Fibromyalgia Impact Questionnaire, Arthritis Self-Efficacy Scale, other symptoms, and visual analog scale pain at worst site.

Chaitow, L. (2000). *Fibromyalgia syndrome: A practitioner's guide to treatment*.

NARIC Accession Number: R08113

ABSTRACT: Book on the diagnosis and clinical management of FMS. Pain management, physical medicine and rehabilitation, and metabolic approaches are discussed, the last based on understanding FMS as a manifestation of hypothyroidism or cellular resistance to thyroid hormone. Among the treatments discussed are acupuncture and electro-acupuncture, cognitive-behavioral therapy, exercise, chiropractic, homeopathy, hypnotherapy, massage therapy, nutritional supplementation, pro-biotic therapy (promotion of friendly bacteria), and bodywork techniques. Bodywork protocols are provided for neuromuscular technique, muscle energy technique, and positional release (strain-counter strain) techniques. Causes, associated conditions, and symptoms are discussed, and FMS is compared with chronic fatigue syndrome. Treatment of associated conditions is also discussed.

Cook, C.; & Estrada, A. (2000). **The value of outcomes measurement in determining a better treatment for fibromyalgia syndrome.** *Journal of Rehabilitation Outcomes Measurement*, 4(3), 17-22.

NARIC Accession Number: J40716

ABSTRACT: Study examining the efficacy of a multimodal model for treatment of FM. Using the SF-36 health questionnaire, data were collected at 0, 2, and 4 weeks from 30 individuals who received 2 weeks of treatment, and results were compared to national aggregate results for persons with FM. It was found that outcomes of the multimodal protocol compared favorably to the national aggregate.

Rogers, J.L.; & Maurizio, S.J. (2000). **A needs assessment as a basis for health promotion for individuals with fibromyalgia.** *Family and Community Health*, 22(4), 66-77.

NARIC Accession Number: J38243

ABSTRACT: Study using a needs assessment survey to determine the most effective self-care treatment strategies for FM. Data were collected from 145 indi-

viduals with FM concerning the severity of symptoms; self-care treatments and medications used and their perceived effectiveness; and perceived connections between sleep disturbances, pain, and fatigue. Implications are drawn about measures health professionals should take for promoting the health of persons with FM, including promoting effective self-care.

## 1999

Alloway, L.H. (1999). **Fibromyalgia Syndrome: Symptoms, functional limitations, and vocational impediments.** *Journal of Applied Rehabilitation Counseling*, 30(2), 38-41.

NARIC Accession Number: J36879

ABSTRACT: Article examines and describes common symptoms, functional limitation, and vocational impediments of people with FMS. This poorly understood physical syndrome affects a significant number of Americans of working age. FMS is related to a variety of psychosocial and vocational problems. Additional information is provided for rehabilitation counselors to work more effectively with people with FMS. Rehabilitation counseling issues discussed include vocational assessment and planning issues as well as appropriate rehabilitation techniques and services.

Buckelew, S.P.; Dorr, N.; Hagglund, K.J.; Hewett, J.E.; Johnson, J.C.; McIntosh, M.J.; Rossy, L.A.; & Thayer, J.F. (1999). **A meta-analysis of fibromyalgia treatment interventions.** *Annals of Behavioral Medicine*, 21(2), 180-191.

NARIC Accession Number: J39249

ABSTRACT: Meta-analysis of 49 treatment outcome studies for FMS in order to evaluate and compare the efficacy of pharmacological and non-pharmacological treatments. Treatments were compared across four outcome measures: physical status, self reported FMS symptoms, psychological status, and daily functioning. Findings indicate that: (1) antidepressants resulted in improvements in physical status and self-reported FMS symptoms; (2) all non-pharmacological symptoms were associated with significant improvements in all four categories of outcome measures, except that physically-based treatment (exercise) did not improve daily functioning; and (3) non-pharmacological treatment appears to be more efficacious in improving self-reported FMS symptoms than pharmacological treatment alone. The authors conclude the optimal intervention should include non-pharmacological treatments, specifically exercise and cognitive-behavioral therapy, in addition to medication as needed for pain and sleep management.

Lox, D.M. (1999). **Fibromyalgia.** *Physical Medicine and Rehabilitation State of the Art Reviews*, 13(3), 499-508.

NARIC Accession Number: J37903

ABSTRACT: Article providing an overview of FM. Topics include: history of medical classification of muscular pain syndromes; etiology; differential diagnosis; medical controversies over FM, including juvenile primary FM; and medical treatment.

## 1998

Adams, N.; & Sim, J. (1998). **An overview of fibromyalgia syndrome: Mechanisms, differential diagnosis and treatment approaches.** *Physiotherapy*, 84(7), 304-318.

NARIC Accession Number: J35552

ABSTRACT: Article reviewing the epidemiology, etiology, and differential diagnosis of FMS, and discussing approaches to the management of FMS relevant to the work of physiotherapists. Therapeutic approaches discussed include pharmacologic therapy; acupuncture and electrotherapy; exercise; electromyographic biofeedback; cognitive-behavioral techniques; and patient education and self-management programs.

Buckelew, S.P.; Conway, R.; Deuser, W.E.; Hewett, J.E.; Johnson, J.C.; Kay, D.R.; Male, L.V.; McIntosh, M.J.; Minor, M.; Nigh, M.; Parker, J.; Read, J.; & Witty, T.E. (1998). **Biofeedback/relaxation training and exercise interventions for fibromyalgia: A prospective trial.** *Arthritis Care and Research*, 11(3), 196-209.

NARIC Accession Number: J35179

ABSTRACT: Article about a study comparing the effectiveness of biofeedback/relaxation, exercise, and a combined program for the treatment of FM. The authors compared outcomes for 119 participants in 3 treatment groups and control group. They found that participants in all three treatment groups had improvements in self-efficacy for physical function relative to the control group. In addition, members of the control group had modest deteriorations in tender point index scores, unlike members of the three treatment groups. The exercise and combination groups had improvements on a physical activity measure. The combination group maintained benefits best over a two year period.

Huey, L.; O'Leary, P.; Shapow, M.; & Verdi, C.J. (1998). **Fibromyalgia: What works well for pain.**

*Advance for Occupational Therapy Practitioners*, 14(22), 33-34.

NARIC Accession Number: J35168

ABSTRACT: Article presenting a protocol for aquatic therapy for the de-conditioning associated with FM. The protocol focuses on total body fitness, as well as stretching and strengthening specific areas of the body. Also includes a sidebar on "fibrofog," a mental state of confusion that often accompanies FM, and things that can be done to fight it.

Keefe, F.J.; & Sandstrom, M.J. (1998). **Self-management of fibromyalgia: The role of formal coping skills training and physical exercise training programs.** *Arthritis Care and Research*, 11(6), 432-447.

NARIC Accession Number: J36141

ABSTRACT: Article reviewing studies of the efficacy of coping skills training programs and exercise training programs for persons with FM. The article aims to evaluate the studies, to identify variables that are related to the outcomes of the programs, and to delineate gaps in the literature and areas ripe for future study.

Okifuji, A.; Sinclair, D.; Starz, T.W.; & Turk, D.C. (1998). **Interdisciplinary treatment for fibromyalgia syndrome: Clinical and statistical significance.** *Arthritis Care and Research*, 11(3), 186-195.

NARIC Accession Number: J35178

ABSTRACT: Article about a study evaluating the treatment efficacy of an outpatient, interdisciplinary treatment program for FMS. Data are from pretreatment and post-treatment measures for 67 FMS patients who completed a 4-week outpatient program consisting of medical, physical, psychological, and occupational therapies. Six month follow-up data was obtained for 66 percent of the participants. Comparison of pretreatment and post-treatment measures revealed significant improvements in pain severity, life interference, sense of control, affective distress, depression, perceived physical impairment, fatigue, and anxiety. There was no improvement in interpersonal relations or general activities. There were clinically significant improvements in pain severity. At 6-month follow-up patients maintained treatment gains in pain, life interference, sense of control, affective distress, and depression, but there was some relapse in the subjective sense of fatigue. The authors conclude that overall the program was effective in reducing many FMS symptoms.



*Documents from the Cochrane Database of Systematic Reviews search at [www.thecochranelibrary.org](http://www.thecochranelibrary.org) are listed below:*

## 2007

Barber, K.A.R.; Busch, A.J.; Overend, T.J.; Peloso, M.J.; & Schachter, C.L. **Exercise for treating fibromyalgia syndrome.** *Cochrane Database of Systematic Reviews* 2007, Issue 4. Art. No.: CD003786. DOI: 10.1002/14651858.CD003786.pub2.

ID: CD003786 – Review

**ABSTRACT: BACKGROUND:** FM is a syndrome expressed by chronic widespread body pain which leads to reduced physical function and frequent use of health care services. Exercise training is commonly recommended as a treatment. This is an update of a review published in Issue 2, 2002. **OBJECTIVES:** The primary objective of this systematic review was to evaluate the effects of exercise training including cardio-respiratory (aerobic), muscle strengthening, and/or flexibility exercise on global well-being, selected signs and symptoms, and physical function in individuals with FMS. **SEARCH STRATEGY:** We searched MEDLINE, EMBASE, CINAHL, SportDiscus, PubMed, PEDro, and the Cochrane Central Register for Controlled Trials (CENTRAL, Issue 3, 2005) up to and including July 2005. We also reviewed reference lists from reviews and meta-analyses of treatment studies. **SELECTION CRITERIA:** Randomized trials focused on cardio-respiratory endurance, muscle strength and/or flexibility as treatment for FMS were selected. **DATA COLLECTION AND ANALYSIS:** Two of four reviewers independently extracted data for each study. All discrepancies were rechecked and consensus achieved by discussion. Methodological quality was assessed by two instruments: the van Tulder and the Jadad methodological quality criteria. We used the American College of Sport Medicine (ACSM) guidelines to evaluate whether interventions had provided a training stimulus that would effect changes in physical fitness. Due to significant clinical heterogeneity among the studies we were only able to meta-analyze six aerobic-only studies and two strength-only studies. **MAIN RESULTS:** There were a total of 2276 subjects across the 34 included studies; 1264 subjects were assigned to exercise interventions. The 34 studies comprised 47 interventions that included exercise. Effects of several disparate interventions on glo-

bal well-being, selected signs and symptoms, and physical function in individuals with FMS were summarized using standardized mean differences (SMD). There is moderate quality evidence that aerobic-only exercise training at recommended intensity levels has positive effects on global well-being (SMD 0.44, 95 percent), confidence interval (CI 0.13 to 0.75), and physical function (SMD 0.68, 95 percent CI 0.41 to 0.95), and possibly on pain (SMD 0.94, 95 percent CI -0.15 to 2.03) and tender points (SMD 0.26, 95 percent CI -0.28 to 0.79). Strength and flexibility remain under-evaluated. **AUTHORS' CONCLUSIONS:** There is 'gold' level evidence ([www.cochranemsk.org](http://www.cochranemsk.org)) that supervised aerobic exercise training has beneficial effects on physical capacity and FMS symptoms. Strength training may also have benefits on some FMS symptoms. Further studies on muscle strengthening and flexibility are needed. Research on the long-term benefit of exercise for FMS is needed. **PLAIN LANGUAGE SUMMARY:** This summary of a Cochrane review presents what we know from research about the effect of exercise for FM. The review shows that in people with FM: moderate intensity aerobic training for 12 weeks may improve overall well-being slightly and physical function; moderate intensity aerobic exercise probably leads to little or no difference in pain or tender points; strength training for 12 weeks may result in large reductions in pain, tender points and depression, and large improvement in overall well-being but may not lead to any difference in physical function. The exercise programs that were studied were safe for most. The intensity of aerobic exercise training should be increased slowly aiming for a moderate level. If exercisers experience increased symptoms, they should cut back until symptoms improve. If in doubt about adverse effects, they should check with a health care professional. It is not known whether exercise training for more than 12 weeks improves other symptoms such as fatigue, stiffness, or poor sleep. Many people with FMS do have difficulty staying on an exercise program. Strategies to help individuals exercise regularly were not measured in these studies. It is not known whether flexibility training, programs combining types of exercise, and programs combining exercise with non-exercise strategies improve the symptoms of FM. What is FM and what are the different types of exercise? FM is a syndrome of persistent widespread pain and tenderness. Individuals may also experience a wide range of other symptoms such as difficulty sleeping, fatigue, stiffness, and depression. Symptoms may put

people off exercising but studies show that the majority are able to exercise. Exercise training can include aerobics such as stepping and walking; strengthening exercises such as lifting weights or using resistance exercise machines; and stretching for flexibility. Although exercise is part of the overall management of FM, this review examined the effects of exercise when used separately or combined with other strategies such as education programs, biofeedback, and medications. Best estimate of what happens to people with FM who take part in aerobic exercise: In the studies, aerobic exercises were done for at least 20 minutes once a day (or twice for 10 minutes), 2 days a week. Strength training was done 2 to 3 times a week and with at least 8 to 12 repetitions per exercise. The exercise programs lasted between 2 & 1/2; to 24 weeks. When compared to no exercising, aerobic exercise training may reduce pain by 2 points on a scale of 0 to 10 improve overall well-being by 1 point on a scale of 0 to 10, improve ability to perform aerobic exercise, by using 2.9 ml/kgs more oxygen per minute when walking on a treadmill, increase the amount of pressure that can be applied to a tender point by .3 kgs before the onset of pain, have unknown effects on fatigue, depression, or stiffness. These results are based on moderate quality evidence. Best estimate of what happens to people with FM who take part in strength training: When compared to no exercise, strength training may reduce pain by 49 fewer points on scale of 0 to 100, improve overall well-being by 41 points on a scale of 0 to 100, lead to 2 fewer active tender points on a scale of 0-18. These results are based on low quality evidence. The numbers given are our best estimate. When possible, we have also presented a range because there is a 95 percent chance that the true effect of the treatment lies somewhere between that range.

Carmona, L.; Darko, G.; González, L.; Nishishinya, B.; Peloso, P.; Urrutia, G.; & Walitt, B. **NSAIDs, analgesics and opioids agents for fibromyalgia syndrome.** (Protocol) *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD006554. DOI: 10.1002/14651858.CD006554.

ID: CD006554 – Protocol

ABSTRACT: This is the protocol for a review and there is no abstract. The objectives are as follows: To assess the efficacy and safety of non-steroidal anti-inflammatory drugs, analgesics, and opioids agents (including opiates) in the treatment of FMS using the key domains

that derived from consensus among experts in the area (Mease 2005; OMERACT 7).

## 2006

Darko, G.; Gonzalez, L.; Mease, P.; Nishishinya, B.; Riera, R.; Rodriguez, A.; Urrutia, G.; & Walitt, B. **Anti-depressants and centrally active agents for fibromyalgia syndrome.** (Protocol) *Cochrane Database of Systematic Reviews* 2006, Issue 4. Art. No.: CD006192. DOI: 10.1002/14651858.CD006192.

ID: CD006192 - Protocol

ABSTRACT: This is the protocol for a review and there is no abstract. The objectives are as follows: The objective is to assess the efficacy and safety of anti-depressants and centrally active agents in the treatment of FMS.

Riera, R.; & Rodriguez-Martin, J.L. **Specific serotonin uptake inhibitors versus placebo or antidepressants for fibromyalgia.** (Protocol) *Cochrane Database of Systematic Reviews* 2006, Issue 2. Art. No.: CD003128. DOI: 10.1002/14651858.CD003128.pub2.

ID: CD003128 – Protocol

ABSTRACT: This is the protocol for a review and there is no abstract. The objectives are as follows: The objective is to assess the efficacy and safety of specific serotonin re-uptake inhibitors (SSRI) and antidepressants in the treatment of FMS.

## 1999

Bausell, B.; Berman, B.M.; Creamer, P.; Ezzo, J.M.; & Hadhazy, V. **Mind and body therapy for fibromyalgia.** (Protocol) *Cochrane Database of Systematic Reviews* 1999, Issue 4. Art. No.: CD001980. DOI: 10.1002/14651858.CD001980.

ID: CD001980 – Protocol

ABSTRACT: This is the protocol for a review and there is no abstract. The objectives are as follows: The objectives are to systematically review all randomized and quasi-randomized (not strictly randomized methods of allocation (by date of birth, hospital record number or alternation) controlled trials of mind/body therapy for adults with FM syndrome. Multi component as well as single component mind/body protocols will be assessed. To review the effectiveness of mind/body treatments compared to: standard care/medication, non-intervention, attention/control, exercise alone.

Hurri, H.; Jauhiainen, M.; Karjalainen, K.; Koes, B.; Malmivaara, A.; Roine, R.; & van Tulder, M. **Multidisciplinary rehabilitation for fibromyalgia and musculoskeletal pain in working age adults.**

*Cochrane Database of Systematic Reviews* 1999, Issue 3. Art. No.: CD001984. DOI: 10.1002/14651858.CD001984.

ID: CD001984 – Review

**ABSTRACT: BACKGROUND:** Non-malignant musculoskeletal pain is an increasing problem in western countries. FMS is an increasingly recognized chronic musculoskeletal disorder. **OBJECTIVES:** The objective of this systematic review was to determine the effectiveness of multidisciplinary rehabilitation for FM and widespread musculoskeletal pain among working age adults. **SEARCH STRATEGY:** An electronic search was conducted and included MEDLINE from 1966, PsycLIT from 1967, and EMBASE from 1980 to April 1998. The Cochrane Musculoskeletal Group Trials Register was searched as well as the Cochrane Controlled Trials Register (CCTR). The references of identified articles and reviews were checked, studies published in the Finnish medical database Medic from 1978 to 1998 screened and the Science Citation Index searched. Content experts were also contacted for additional or unpublished studies. **SELECTION CRITERIA:** From all references found in our original search, we selected all randomized controlled trials (RCTs) and clinical controlled trials (CCTs). Trials had to assess the effectiveness of multidisciplinary rehabilitation for patients suffering from FM and widespread musculoskeletal pain among working age adults. The rehabilitation program was required to be multidisciplinary; that is, it had to consist of a physician's consultation, plus a psychological, social, or vocational intervention, or a combination of both. **DATA COLLECTION AND ANALYSIS:** Four reviewers independently selected the RCTs and CCTs that met the specified inclusion criteria. Two experts in the field of rehabilitation evaluated the relevance and applicability of the findings of the selected studies to actual clinical use. Two other reviewers extracted the data and assessed the main results and the methodological quality of the studies using standardized forms. Finally, a qualitative analysis was performed to evaluate the level of scientific evidence for the effectiveness of multidisciplinary rehabilitation. **MAIN RESULTS:** After screening 1808 abstracts, and the references of 65 reviews, we found only 7 relevant studies (1050 patients) that met our inclusion criteria. None of these were considered, methodologically, a high quality ran-

domized controlled trial. Four of the included RCTs on FM were graded low quality and suggest no quantifiable benefits. The three included RCTs on widespread musculoskeletal pain showed that based on limited evidence, overall, no evidence of efficacy was observed. However, behavioral treatment and stress management appear to be important components. Education combined with physical training showed some positive effects in long term follow-up. **AUTHORS' CONCLUSIONS:** We conclude that there appears to be little scientific evidence for the effectiveness of multidisciplinary rehabilitation for these musculoskeletal disorders. However, multidisciplinary rehabilitation is a commonly used intervention for chronic musculoskeletal disorders, which cause much personal suffering and substantial economic loss to the society. There is a need for high quality trials in this field. **PLAIN LANGUAGE SUMMARY:** Non-malignant musculoskeletal pain is an increasing problem in western countries. FMS is an increasingly recognized chronic musculoskeletal disorder. The main purpose of this systematic review was to determine the effectiveness of multidisciplinary rehabilitation for FM and wide spread musculoskeletal pain among working age adults. Patients included in the controlled trials in this review ranged in age from 18-65 years. Seven studies, with 1050 patients were included. The effectiveness of multidisciplinary rehabilitation was graded limited, showing no quantifiable benefit for both FM and widespread musculoskeletal pain.



*Document from the Education Resource Information Center (ERIC) search at [www.eric.ed.gov](http://www.eric.ed.gov) are listed below:*

## 2000

Bernard, Amy, L.; Edsall, Patricia, A.; & Prince, Alice. (2000). **Fibromyalgia Syndrome symptoms and effects: A cross-sectional study.** *Health Educator: Journal of ETA Sigma Gamma*, 32(1), 3-13.

ERIC #: EJ644161

**ABSTRACT:** Article surveys FMS support group members about characteristics of the disease and how it affects their lives. Respondents had symptoms for many years before being diagnosed. Symptoms varied tremendously on a daily and yearly basis, so disease management was in a constant state of flux. Most symptoms significantly impacted quality of life.



*Documents from the National Clearinghouse of Rehabilitation Training Materials (NCRTM) search*

at <http://ncrtm.org> are listed below:

## 2005

Devonshire, Rosalie; & Kelly, Julie. (2005). *Taking charge of fibromyalgia everything you need to know to manage fibromyalgia*, 5th ed. Wayzata, MN: Fibromyalgia Educational Systems, Inc. 2005.

NCRTM #: 927.3 K46

No abstract available.

## 2000

Fries, James, F.; Lorig, Kate; Maureen R. Gecht, eds. (2000). *The arthritis helpbook: A tested self-management program for coping with arthritis and fibromyalgia*. 5th ed., Cambridge, MA.: Perseus, Reading, Mass.: Addison Wesley, 1995.

NCRTM #: 933 L63

ABSTRACT: Includes bibliographical references and index. Arthritis: what is it? — Rheumatoid arthritis : inflamed joints — Osteoarthritis : worn cartilage — Osteoporosis : brittle bones — Fibromyalgia: chronic pain and fatigue — Other nagging pains — Becoming an arthritis self-manager — Outsmarting arthritis — Self-helpers : 100+ hints and aids — Exercise for fitness and better living — Flexibility exercises — Strengthening exercises — Aerobic activities — Healthy eating — Pain management — Getting a good night's sleep — Depression, fatigue, and other symptoms — Feelings and communication — Working with your doctor : a joint venture — The drug scene : medicines to reduce pain and inflammation — Disease-modifying anti-rheumatic drugs (DMARDs) — Painkillers and other approaches to reduce pain — What about surgery?



*Documents from the National Library of Medicine PubMed search at [www.pubmed.com](http://www.pubmed.com) are listed below:*

## 2008

Arnold, L.M.; Florian, H.; Martin, S.A.; Mease, P.J.; Russell, I.J.; Sharma, U.; & Young, J.P., Jr. (2008). **A randomized, double-blind, placebo-controlled, phase III trial of pregabalin in the treatment of patients with fibromyalgia.** *The Journal of Rheumatology*, Feb 15 [Epub ahead of print].

PMID #: 18278830

ABSTRACT: OBJECTIVE: To evaluate the efficacy and safety of pregabalin for symptomatic relief of pain associated with FM and for management of FM. METHODS: This multi-center, double-blind, placebo-controlled trial randomly assigned 748 patients with FM to receive placebo or pregabalin 300, 450, or 600 mg/day (dosed twice daily) for 13 weeks. The primary outcome variable for study objective one, symptomatic relief of pain associated with FM, was comparison of endpoint mean pain scores between each pregabalin group and placebo. The outcome variable for study objective two, management of FM, included endpoint mean pain scores, Patient Global Impression of Change (PGIC), and Fibromyalgia Impact Questionnaire (FIQ)-Total Score. Secondary outcomes included assessments of sleep, fatigue, and mood disturbance. RESULTS: Patients in all pregabalin groups showed statistically significant improvement in endpoint mean pain score and in PGIC response compared with placebo. Improvements in FIQ-Total Score for the pregabalin groups were numerically but not significantly greater than those for the placebo group. Compared with placebo, all pregabalin treatment groups showed statistically significant improvement in assessments of sleep and in patients' impressions of their global improvement. Dizziness and somnolence were the most frequently reported adverse events. CONCLUSION: Pregabalin at 300, 450, and 600 mg/day was efficacious and safe for treatment of pain associated with FM. Pregabalin mono-therapy provides clinically meaningful benefit to patients with FM.

Ethans, K.; Galimova, L.; Perry, D.; & Skrabek, R.Q. (2008). **Nabilone for the treatment of pain in fibromyalgia.** *The Journal of Pain*, 9(2), 164-73.

PMID #: 17974490

**ABSTRACT:** A randomized, double-blind, placebo-controlled trial was conducted to determine the benefit of nabilone in pain management and quality of life improvement in 40 patients with FM. After a baseline assessment, subjects were titrated up on nabilone, from 0.5 mg PO at bedtime to 1 mg BID over four weeks or received a corresponding placebo. At the 2- and 4-week visits, the primary outcome measure, visual analog scale (VAS) for pain, and the secondary outcome measures, number of tender points, the average tender point pain threshold, and the Fibromyalgia Impact Questionnaire (FIQ), were evaluated. After a 4-week washout period, subjects returned for reassessment of the outcome measures. There were no significant differences in population demographics between groups at baseline. There were significant decreases in the VAS (-2.04,  $P < .02$ ), FIQ (-12.07,  $P < .02$ ), and anxiety (-1.67,  $P < .02$ ) in the nabilone treated group at four weeks. There were no significant improvements in the placebo group. The treatment group experienced more side effects per person at 2 and 4 weeks (1.58,  $P < .02$  and 1.54,  $P < .05$ ), respectively. Nabilone appears to be a beneficial, well-tolerated treatment option for FM patients, with significant benefits in pain relief and functional improvement. **PERSPECTIVE:** To our knowledge, this is the first randomized, controlled trial to assess the benefit of nabilone, a synthetic cannabinoid, on pain reduction and quality of life improvement in patients with FM. As nabilone improved symptoms and was well-tolerated, it may be a useful adjunct for pain management in FM.

Evcik, D.; Kavuncu, V.; Pusak, H.; & Yigit, I. (2008). **Effectiveness of aquatic therapy in the treatment of fibromyalgia syndrome: A randomized controlled open study.** *Rheumatology International*, Feb 16 [Epub ahead of print].

PMID #: 18278501

**ABSTRACT:** The aim of this study was to investigate the efficacy of aquatic exercises in FMS. A total of 63 patients were included and allocated to two groups. Group I (n = 33) received an aquatic exercise program and Group II (n = 30) received a home-based exercise program for 60 min, 3x a week, over 5 weeks. Patients were evaluated for pain visual analogue scale (VAS), number of tender points (NTP), Beck Depression Inventory (BDI), and functional capacity (Fibromyalgia Impact Questionnaire, FIQ). All assessment parameters were measured at baseline, and at weeks 4, 12, and 24. There were statistically significant differences in FIQ

and NTP in both groups at the end and during follow up ( $P < 0.05$ ). Group I showed a statistically significant decrease in BDI scores after 4 and 12 weeks ( $P < 0.05$ ) that remained after 24 weeks ( $P < 0.001$ ). In Group II, a significant decrease in BDI scores was observed at the end and during follow-up ( $P < 0.001$ ). Also, a significant improvement was found in VAS at weeks 4 and 12 in both groups ( $P < 0.001$ ). The average of reduction in pain scores was 40 percent in Group I and 21 percent in Group II. However, this was still significant at week 24 only in the aquatic therapy group. A comparison of the two groups showed no statistically significant difference for FIQ, NTP, and BDI scores except VAS ( $P < 0.001$ ). Our results showed that both aquatic therapy and home-based exercise programs have beneficial effects on FIQ, BDI, and NTP. In pain management, only aquatic therapy seems to have long-term effects.

## 2007

Alcocer-Martínez, L.M.; Alvarez-Berzunza, J.; Alvarez-Nemegyei, J.; Negreros-Castillo, A.; & Nuño-Gutiérrez, B.L. (2007). **[Ericksonian hypnosis in women with fibromyalgia syndrome].** *Revista Médica del Instituto Mexicano del Seguro Social*, 45(4), 395-401.

[Article in Spanish]

PMID #: 17949578

**ABSTRACT:** **BACKGROUND:** FMS is a chronic, painful, generalized musculoskeletal disorder in which some efficacy for the conventional hypnosis modality has been claimed. Objective: to assess the efficacy of the Ericksonian modality hypnosis in FMS management. **MATERIAL AND METHODS:** Forty-three FMS female patients (44 +/- 4.7 years old) were included. They were randomized to receive for six months: Ericksonian hypnosis (EH; 20 subjects) or a sham-hypnosis (SH; 23 subjects). Every month, patient and physician global disease assessment, tender point count, and the Fibromyalgia Impact Questionnaire (FIQ) were measured. **RESULTS:** During the follow-up, we did not find inter-group differences for the rate of change related to the baseline values for the patient and physician global disease assessment and the FIQ scores. At the third month (4.0 +/- 4.6 vs. 0.6 +/- 3.1;  $p = 0.02$ ), and at the fourth month (5.0 +/- 4.6 vs. 0.8 +/- 4.0;  $p = 0.03$ ) of follow up, the participants who received EH had a significant reduction of the tender point count

after adjustment for patient's age. **CONCLUSIONS:** Despite no effect was noted on the functional status and the patient and physician global assessment, EH produced a reduction in the number of tender points in FMS. Thus, EH may be an adjuvant treatment for the management of FMS patients.

Ang, D.; Bigatti, S.; Kesavalu, R.; Lane, K.A.; & Lydon, J.R. (2007). **Exercise-based motivational interviewing for female patients with fibromyalgia: A case series.** *Clinical Rheumatology*, 26(11), 1843-9.

PMID #: 17310268

**ABSTRACT:** The objective of the study is to determine the effects of motivational interviewing (MI), a novel technique of behavioral counseling to promote exercise, on pain and physical function in patients with FMS. Patients who met the American College of Rheumatology criteria for FMS and had a visual analog pain score of  $>$  or  $=6$  were enrolled in a single group intervention pilot study. Participants received two supervised exercise sessions and an exercise prescription. Thereafter, six exercise-based MI phone calls were made over a 10-week period. Assessments were done at baseline, week 12 (immediate post-intervention) and week 30 (follow-up). The primary endpoints were changes from baseline in the Fibromyalgia Impact Questionnaire (FIQ) pain and physical impairment at week 30. Secondary measures were brief pain inventory (BPI)-pain severity and BPI-pain interference, the number of exercise minutes (NEM) per week, and the arthritis impact measurement scale (AIMS)-depression. The 19 enrolled female participants had a mean age of  $52.2 \pm 9.1$  years, mean disease duration of  $7.5 \pm 5.0$  years, and a mean FIQ-pain score of  $7.7 \pm 1.4$ . By week 30, there was significant improvement in both FIQ-pain ( $-2.6 \pm 2.6$ ,  $p < 0.001$ ) and FIQ-physical impairment ( $-1.3 \pm 2.1$ ,  $p = 0.01$ ). Likewise, BPI-pain severity and pain interference were reduced by  $-2.4 \pm 2.1$  ( $p < 0.001$ ) and  $-2.4 \pm 2.0$  ( $p < 0.001$ ), respectively. While the median NEM per week increased from 0 to 32 min ( $p = 0.001$ ) at week 30, AIMS-depression score was unchanged. In this pilot study, we conclude that telephone-delivered MI to promote exercise was associated with an improvement in patient's level of pain and physical impairment.

Arendt-Nielsen, S.; Bliddal, H.; Blotman, F.; Branco, J.C.; Buskila, D.; Carville, S.F.; Choy, E.H.; Da Silva,

J.A.; Danneskiold-Samsøe, B.; Dincer, F.; Henriksson, C.; Henriksson, K.; Kosek, E.; Longley, K.; McCarthy, G.M.; Perrot, S.; Puszczewicz, M.J.; Sarzi-Puttini, P.; Silman, A.; Späth, M. (2007). **EULAR evidence based recommendations for the management of fibromyalgia syndrome.** *Annals of the Rheumatic Diseases*, Oct 3 [Epub ahead of print].

PMID #: 17644548

**ABSTRACT: OBJECTIVE:** To develop evidence based recommendations for the management of FMS. **METHODS:** A multidisciplinary task force was formed representing 11 European Countries. The design of the study including search strategy, participants, interventions, outcome measures, data collection, and analytical method was defined at the outset. A systematic review was undertaken with the keywords 'fibromyalgia', 'treatment or management' and 'trial'. Studies were excluded if they did not utilize the American College of Rheumatology classification criteria, were not clinical trials, or included patients with chronic fatigue syndrome or myalgic encephalomyelitis. Primary outcome measures were change in pain assessed by visual analogue scale and Fibromyalgia Impact Questionnaire. The quality of the studies was categorized based on randomization, blinding, and allocation concealment. Only the highest quality studies were used to base recommendations on. When there was insufficient evidence from the literature, a Delphi process was used to provide basis for recommendation. **RESULTS:** One hundred and forty six studies were eligible for the review. Thirty nine pharmacologic intervention studies and 59 non-pharmacologic were included in the final recommendation summary tables once those of a lower quality or with insufficient data were separated. The categories of treatment identified were antidepressants, analgesics, and 'other pharmacological' and exercise, cognitive behavioral therapy, education, dietary interventions, and 'other non-pharmacological'. In many studies sample size was small and the quality of the study was insufficient for strong recommendations to be made. **CONCLUSION:** Nine recommendations for the management of FMS were developed using a systematic review and expert consensus.

Babu, A.S.; Danda, D.; Mathew, E.; & Prakash, H. (2007). **Management of patients with fibromyalgia using biofeedback: A randomized control trial.** *Indian Journal of Medical Sciences*, 61(8), 455-61. PMID #: 17679735

**ABSTRACT:** **OBJECTIVE:** FMS is a chronic rheumatologic condition which could be characterized by generalized pain and fatigue. Cognitive and behavioral therapy has been found to be a suitable technique in the management of FMS. This study intends to evaluate the efficacy of electromyography (EMG) biofeedback to reduce pain in patients with FMS. **MATERIALS AND METHODS:** A randomized controlled trial involving two groups of FMS patients, one receiving EMG biofeedback and the other a sham biofeedback, was carried out. The assessment tools included in the study were Fibromyalgia Impact Questionnaire (FIQ), visual analogue scale (VAS), six-minute walk test (SMWT) and number of tender points; and tenderness of each tender point was done for both the groups. **STATISTICS:** A Student's 't' test was used to study the test for significance. **RESULTS:** After using biofeedback, the mean VAS scores and the mean number of tender points were found to be 3 out of 10 and 6 out of 18 respectively. Subjective analysis from both groups showed improvement in physical and psychological realms. Statistical significance. **CONCLUSION:** Biofeedback as a treatment modality reduces pain in patients with FMS, along with improvements in FIQ, SMWT and the number of tender points.

Calandre, E.P.; Hidalgo, J.; & Rico-Villademoros, F. (2007). **Use of ziprasidone in patients with fibromyalgia: A case series.** *Rheumatology International*, 27(5), 473-6.

PMID #: 17039363

**ABSTRACT:** Atypical anti-psychotics may be useful in chronic pain treatment. The objective of the present study was to assess the effect of ziprasidone in FM management. Ziprasidone was administered to 32 FM patients at a dose of 20 mg/day, subsequently adjusted according to clinical response and tolerability. Fibromyalgia Impact Questionnaire (FIQ), Pittsburgh Sleep Quality Index (PSQI), a Clinical Global Impression improvement scale (CGIi), and a scale evaluating the severity of FM symptoms were administered at 4 week intervals for 12 weeks. Drug adverse reactions were recorded. Ten patients withdrew from the study. The CGIi showed 32 percent of responders. FIQ and PSQI scores showed a non-statistically significant decrease. The conditions of stiffness, anxiety, and sadness improved significantly. Most frequent side effects included sleep disturbances, headache, tremor, and rigidity. Although ziprasidone does not seem an especially

useful adjunct drug in FM, it could be tried on patients who are markedly anxious and/or depressed.

Clauw, D.J. (2007). **Fibromyalgia: Update on mechanisms and management.** *Journal of Clinical Rheumatology*, 13(2), 102-9.

PMID #: 17414543

No abstract available.

Crofford, L.J.; & Scarbrough, E. (2007). **Why is the management of fibromyalgia syndrome so difficult for rheumatologists?** *Nature Clinical Practice: Rheumatology*, 3(9), 480-1.

PMID #: 17646867

No abstract available.

Cross, M.L.; Evans, B.; Gautam, S.; Goldenberg, D.L.; Iversen, M.D.; Katz, J.N.; Romeling, M.; Rooks, D.S.; & Stratigakis, D. (2007). **Group exercise, education, and combination self-management in women with fibromyalgia: A randomized trial.** *Archives of Internal Medicine*, 167(20), 2192-200.

PMID #: 17998491

**ABSTRACT:** **BACKGROUND:** Self-management has increasingly been recommended as part of standard care for FM, a common, poorly understood condition with limited treatment options. Data that assess popular self-management recommendations are scarce. We evaluated and compared the effectiveness of four common self-management treatments on function, symptoms, and self-efficacy in women with FM. **METHODS:** A total of 207 women with confirmed FM were recruited from September 16, 2002, through November 30, 2004, and randomly assigned to 16 weeks of (1) aerobic and flexibility exercise (AE); (2) strength training, aerobic, and flexibility exercise (ST); (3) the FM Self-Help Course (FSHC); or (4) a combination of ST and FSHC (ST-FSHC). The primary outcome was change in physical function from baseline to completion of the intervention. Secondary outcomes included social and emotional function, symptoms, and self-efficacy. **RESULTS:** Improvements in the mean Fibromyalgia Impact Questionnaire score in the four groups were -12.7 for the ST-FSHC group, -8.2 for the AE group, -6.6 for the ST group, and -0.3 for the FSHC group. The ST-FSHC group demonstrated greater improvement than the FSHC group (mean difference, -12.4; 95 percent confidence interval [CI], -23.1 to -1.7). The ST-FSHC (mean difference, 13.6; 95 percent

CI, 2.3 to 24.9) and AE (mean difference, 13.1; 95 percent CI, 1.6 to 25.6) groups had similar improvements in physical function scores on the 36-Item Short-Form Health Survey. Bodily pain scores on the 36-Item Short-Form Health Survey improved in the ST-FSHC (14.8), AE (13.2), and ST (5.7) groups. Social function, mental health, fatigue, depression, and self-efficacy also improved. The beneficial effect on physical function of exercise alone and in combination with education persisted at 6 months. **CONCLUSIONS:** Progressive walking, simple strength training movements, and stretching activities improve functional status, key symptoms, and self-efficacy in women with FM actively being treated with medication. The benefits of exercise are enhanced when combined with targeted self-management education. Our findings suggest that appropriate exercise and patient education be included in the treatment of FM.

Fürst, G. (2007). **[Fibromyalgia—a challenge for interdisciplinary management]**. *Wiener Medizinische Wochenschrift*, 157(1-2), 27-33.

[Article in German]

PMID #: 17471829

**ABSTRACT:** FM is a common chronic pain syndrome affecting particularly middle aged women. The symptomatology is characterized by diffuse widespread myofascial pain and tenderness on palpation at multiple “tender points”. Additional symptoms are various vegetative and functional disorders, non-restorative sleep, depression, and anxiety. Etiology and pathogenesis of FM still remain unclear. Current pathogenetic theories conceptualize a combination of biological and psychic, social, and mental factors. Diagnosis is based on the characteristic clinical presentation, the presence of multiple tender points, and the exclusion of certain disorders with similar symptoms. Laboratory examinations and imaging only provide non-conclusive results. Medication and physical therapies only accomplish some temporary symptomatic relief (30-50 percent). Psychosomatic rehabilitation should not focus on reduction of pain, but rather on physical reconditioning and development of an active coping style. In this context, psychological interventions, education, and psychotherapy are essential.

Goldenberg, D.L. (2007). **Pharmacological treatment of fibromyalgia and other chronic musculoskeletal pain.** *Best Practice & Research: Clinical Rheumatology*, 21(3), 499-511.

PMID #: 17602996

**ABSTRACT:** The pharmacologic management of FM is based on the emerging evidence that pain in this disorder is primarily related to central pain sensitization. There is strong evidence that tricyclic antidepressants are effective and moderate evidence for the effectiveness of serotonin reuptake inhibitors and dual serotonin-norepinephrine reuptake inhibitors. Recent work suggests that the anti-seizure medications pregabalin and gabapentin are also effective. The only analgesic demonstrated to be helpful is tramadol.

Peterson, E.L. (2007). **Fibromyalgia—management of a misunderstood disorder.** *Journal of the American Academy of Nurse Practitioners*, 19(7), 341-8.

PMID #: 17680899

**ABSTRACT:** **PURPOSE:** The purpose of this article is to review (1) what is currently known about the pathophysiology of FM, (2) how to identify patients who are susceptible to this disorder, and (3) the recommended pharmacological and non-pharmacological treatment options. **DATA SOURCES:** Data sources include reviews and original research from scholarly journals and Internet sites. **CONCLUSIONS:**

There are approximately six million individuals in the United States diagnosed with FM, making it the third most prevalent rheumatologic disorder in this country. Failure to identify a specific causal mechanism for FM has resulted in a shift in the focus of research from etiology to treatment (Baumstark & Buckelew, 2002). Based on the literature, the most successful interventions for reduction of chronic symptoms in the FM patient is a combination of education, psychological assistance, and exercise, along with medications. It is essential that nurse practitioners (NPs) understand the issues and concerns of patients afflicted with this complex disorder. Although the organic etiology of FM syndrome remains unclear, the goals of treatment are to control pain and improve adjustment, well-being, and daily functioning of these patients to the maximum extent possible. **IMPLICATIONS FOR PRACTICE:** NPs are in a unique position to help identify patients who may be suffering from FM or those diagnosed with FM reporting inadequate relief of symptoms. The incomplete understanding of the biological underpinnings, as well as the multiple symptoms that characterize FM syndrome, make it a challenging disorder to diagnose and treat. It takes time and patience to care for FM patients, and there are no “quick fixes.” Diagnosis is

made by a combination of patient history, physical examination, laboratory evaluations, and exclusion of other causes of symptoms confused with FM. Understanding the symptomatology and recommended treatments will allow NPs to give appropriate care that may include making referrals for multidisciplinary treatment of these complex patients.

Rooks, D.S. (2007). **Fibromyalgia treatment update.** *Current Opinion in Rheumatology*, 19(2), 111-7.

PMID #: 17278924

ABSTRACT: PURPOSE OF REVIEW: FM is a common chronic pain disorder characterized by complex symptomatology and few consistently effective treatments. The purpose of this review is to highlight the recent literature from April 2005 through September 2006 involving treatment options. RECENT FINDINGS: Prior evidence suggests that medication and self-management approaches to care can improve symptoms, function, and well-being in this patient population. Recent studies examining the efficacy of two serotonin and norepinephrine-reuptake inhibitors—duloxetine and milnacipran—and the anticonvulsant pregabalin are encouraging. Studies evaluating different forms of exercise continue to support the belief that increased physical activity is an essential component of any treatment plan for the patient with FM. Three studies added to the understanding of treatment adherence. Finally, three studies evaluating the efficacy of acupuncture in the treatment of FM showed conflicting results, but added to the knowledge needed for clinicians to have substantive conversations with patients. SUMMARY: Recent studies support the recommendation of a multimodal approach to treatment involving individualized, evidence-based pharmacotherapy and self-management. Treatment goals should include the improvement of symptoms, primarily pain and sleep, and the promotion of positive health behaviors with the aim of improving physical function and emotional well-being.

## 2006

Alves, A.M.; Assis, M.R.; Feldman, D.; Natour, J.; Neto, T.L.; Pessanha, A.P.; Silva, L.E.; & Valim, V. (2006). **A randomized controlled trial of deep water running: Clinical effectiveness of aquatic exercise to treat fibromyalgia.** *Arthritis and Rheumatism*, 55(1), 57-65.

PMID #: 16463414

ABSTRACT: OBJECTIVE: To compare the clinical effectiveness of aerobic exercise in the water with walking/jogging for women with FM. METHODS: Sixty sedentary women with FM, ages 18-60 years, were randomly assigned to either deep water running (DWR) or land-based exercises (LBE). Patients were trained for 15 weeks at their anaerobic threshold. Visual analog scale of pain, Fibromyalgia Impact Questionnaire (FIQ), Beck Depression Inventory, Short Form 36 Health Survey (SF-36), and a patient's global assessment of response to therapy (PGART) were measured at baseline, week 8, and week 15. Statistical analysis included all patients. RESULTS: Four patients dropped out from each group. Both groups improved significantly at week 15 compared with baseline, with an average 36 percent reduction in pain intensity. For PGART, 40 percent of the DWR group and 30 percent of the LBE group answered "much better" at post-treatment. FIQ total score and FIQ depression improvements in the DWR group were faster (week 8) than the LBE group and kept improving (week 15;  $P < 0.05$ ). Only the DWR group showed improvements in SF-36 role emotional ( $P = 0.006$ ). No significant between-group differences were observed for peak oxygen uptake and other outcomes. CONCLUSION: DWR is a safe exercise that has been shown to be as effective as LBE regarding pain. However, it has been shown to bring more advantages related to emotional aspects. Aerobic gain was similar for both groups, regardless of symptom improvement. Therefore, DWR could be studied as an exercise option for patients with FM who have problems adapting to LBE or lower limbs limitations.

Aneiros, F.J.; Cancellor, J.; Durán, M.; García, J.; & Simón, M.A. (2006). **Differential efficacy of a cognitive-behavioral intervention versus pharmacological treatment in the management of fibromyalgia syndrome.** *Psychology, Health & Medicine*, 11(4), 498-506.

PMID #: 17129925

ABSTRACT: Given that studies about the differential efficacy of existing treatments in FMS are scarce, the aim of this study was to compare the differential efficacy of a cognitive-behavioral and a pharmacological therapy on FM. Using a randomized controlled clinical trial, 28 FM patients were assigned to one of following experimental conditions: (1) pharmacological treatment (i.e., cyclobenzaprine), (2) cognitive-behavioral inter-

vention (i.e., stress inoculation training), (3) combined pharmacological and cognitive-behavioral treatment, and (4) no treatment. The results show the superiority of cognitive-behavioral intervention to reduce the severity of FM both at the end of the treatment and at follow up. We conclude that cognitive-behavioral interventions must be considered a primary treatment of FMS.

Arnold, L.M. (2006). **Biology and therapy of fibromyalgia: New therapies in fibromyalgia.** *Arthritis Research & Therapy*, 8(4), 212.

PMID #: 16762044

ABSTRACT: FM is a chronic, musculoskeletal pain condition that predominately affects women. Although FM is common and associated with substantial morbidity and disability, there are no US Food and Drug Administration-approved treatments. However, progress has been made in identifying pharmacological and non-pharmacological treatments for FM. Recent pharmacological treatment studies have focused on selective serotonin and norepinephrine reuptake inhibitors, which enhance serotonin and norepinephrine neurotransmission in the descending pain pathways and lack many of the adverse side effects associated with tricyclic medications. Promising results have also been reported for medications that bind to the alpha2delta subunit of voltage-gated calcium channels, resulting in decreased calcium influx at nerve terminals and subsequent reduction in the release of several neurotransmitters thought to play a role in pain processing. There is also evidence to support exercise, cognitive behavioral therapy, education, and social support in the management of FM. It is likely that many patients would benefit from combinations of pharmacological and non-pharmacological treatments, but more study is needed.

Bennett, R.; & Nelson, D. (2006). **Cognitive behavioral therapy for fibromyalgia.** *Nature Clinical Practice: Rheumatology*, 2(8), 416-24.

PMID #: 16932733

ABSTRACT: Cognitive behavioral therapy (CBT) techniques offer short-term, goal-oriented psychotherapy. In this respect, it differs from classical psychoanalysis in emphasizing changes in thought patterns and behaviors rather than providing 'deep insight'. Importantly, the beneficial effects of CBT can be achieved in 10-20 sessions, compared with the many years required for classical psychoanalysis. Although CBT is often done

on a one-to-one basis, it also lends itself to a group therapeutic setting. CBT was initially used in the treatment of mood disorders, but its use has subsequently been expanded to include various other medical conditions, including chronic pain states. Over the past 18 years, several chronic pain treatment programs have used CBT techniques in the management of FM. In this review, the results from 13 programs using CBT, alone or in combination with other treatment modalities are analyzed. In most studies, CBT provided worthwhile improvements in pain-related behavior, self-efficacy, coping strategies, and overall physical function. Sustained improvements in pain were most evident when individualized CBT was used to treat patients with juvenile FM. The current data indicate that CBT, as a single treatment modality, does not offer any distinct advantage over well-planned group programs of education or exercise, or both. Its role in the management of FM patients needs further research.

Bergeson, J.; & Eickhoff, A. (2006). **Mayo Clinic office visit. Fibromyalgia management: An interview with Jody Bergeson, R.N., and Andrea Eickhoff, R.N.** *Mayo Clinic Women's Healthsource*, 10(8), 7-8.

PMID #: 16829847

No abstract available.

Bieber, C.; Blumenstiel, K.; Eich, W.; Hartmann, M.; Müller, K.G.; Richter, A.; Schneider, A.; & Wilke, S. (2006). **Long-term effects of a shared decision-making intervention on physician-patient interaction and outcome in fibromyalgia: A qualitative and quantitative one year follow-up of a randomized controlled trial.** *Patient Education and Counseling*, 63(3), 357-66.

PMID #: 16872795

ABSTRACT: OBJECTIVE: FMS patients and their doctors frequently complain of interaction difficulties. We investigated the effects of a shared decision-making (SDM) intervention on physician-patient interaction and health outcome. METHODS: Sixty-seven FMS patients of an outpatient university setting that had been included in a randomized controlled trial were followed up. They were either treated in an SDM group or in an information group. Both groups saw a computer based information tool on FMS, but only the SDM group was treated by doctors which underwent a special SDM communication training. A comparison group of 44 FMS

patients receiving treatment as usual was recruited in rheumatological practices. We assessed patients and their doctors using a combined qualitative and quantitative approach. Patients and doctors were followed-up after three months (T2) and after one year (T3). RESULTS: The significantly best quality of physician-patient interaction was reported by patients and doctors of the SDM group, followed by the information group. Coping had more often improved in the SDM group than in the information group. However directly health related outcome variables had not improved in any of the groups at T3. CONCLUSION: An SDM intervention can lead to an improved physician-patient relationship from the patients' and from the doctors' perspective. PRACTICE IMPLICATIONS: It should be considered to include SDM in standard care for FMS patients.

Blehm, R. (2006). **Physical therapy and other non-pharmacologic approaches to fibromyalgia management.** *Current Pain and Headache Reports*, 10(5), 333-8.

PMID #: 16945248

ABSTRACT: FM is a vague and changing syndrome that comprises many symptoms. Due to the confounding nature of FMS, there has been much debate about which interventions and therapies should be considered as viable treatment options. Opinions continue to shift in publication and research circles, with little documentation to show good, long-term outcomes. Several studies have shown promise, with initial improvement in symptoms, but in many cases, these improvements were not lasting or the patients were then unable to continue/replicate the program on their own. In this article, some of the more recently published findings regarding the efficacy of exercise are explored, specifically physical therapy and other non-pharmacologic interventions, for managing FMS.

Borg-Stein, J. (2006). **Treatment of fibromyalgia, myofascial pain, and related disorders.** *Physical Medicine and Rehabilitation Clinics of North America*, 17(2), 491-510, viii.

PMID #: 16616279

ABSTRACT: Chronic muscle pain is a common complaint among patients who seek care for musculoskeletal disorders. A spectrum of clinical presentations exists, ranging from focal or regional complaints that usually represent myofascial pain syndromes to more wide

spread pain that may meet criteria for a diagnosis of FM. This article addresses the epidemiology, pathophysiology, and clinical management of myofascial pain syndrome and FM. These conditions are challenging to treat and require psychiatrists to be aware of the wide range of pharmacologic, rehabilitative, and psychosocial interventions that can be helpful.

Burckhardt, C.S. (2006). **Multidisciplinary approaches for management of fibromyalgia.** *Current Pharmaceutical Design*, 12(1), 59-66.

PMID #: 16454725

ABSTRACT: Multidisciplinary approaches to FMS treatment are advocated for treating the complex symptoms and problems confronting many patients. Exercise and cognitive-behavioral strategies together with patient education commonly comprise the multidisciplinary approach to treatment in clinical trials. A review of the research literature suggests that they are effective for decreasing pain and FMS impact and increasing self-efficacy and physical functioning. Limitations of the current evidence base include a lack of studies that include medication treatment as part of the multidisciplinary approach as well as lack of attention to the diversity of patient psychosocial issues that may interfere with treatment effectiveness. The review recommends that further randomized clinical trials be carried out with subgroups of patients using standardized outcome measurements, adequate treatment length and sufficient length of follow-up to be able to observe and document changes in patient symptoms and behaviors over time.

Chen, K.W.; Hassett, A.L.; Hou, F.; Lichtbroun, A.S.; & Staller, J. (2006). **A pilot study of external qigong therapy for patients with fibromyalgia.** *Journal of Alternative and Complementary Medicine*, 12(9), 851-6.

PMID #: 17109575

ABSTRACT: OBJECTIVES: Although qigong is an important part of Traditional Chinese medicine (TCM) based on a philosophy similar to acupuncture, few studies of qigong exist in the Western medicine literature. To evaluate qigong therapy as a modality in treating chronic pain conditions such as FMS, we report a pilot trial of 10 women with severe FMS who experienced significant improvement after external qigong therapy (EQT). DESIGN: Ten patients with FMS completed five to seven sessions of EQT over three

weeks with pre- and post-treatment assessment and a 3-month follow-up. Each treatment lasted approximately 40 minutes. **OUTCOME MEASURES:** Tender point count (TPC) and Fibromyalgia Impact Questionnaire (FIQ) were the primary measures. McGill Pain Questionnaire (MPQ), Beck Depression Inventory (BDI), anxiety, and self-efficacy were the secondary outcomes. **RESULTS:** Subjects demonstrated improvement in functioning, pain, and other symptoms. The mean TPC was reduced from 136.6 to 59.5 after EQT treatment; mean MPQ decreased from 27.0 to 7.2; mean FIQ from 70.1 to 37.3; and mean BDI from 24.3 to 8.3 (all  $p < 0.01$ ). Many subjects reported reductions in other FMS symptoms, and two reported they were completely symptom-free. Results from the 3-month follow-up indicated some slight rebound from the post-treatment measures, but still much better than those observed at baseline. **CONCLUSIONS:** Treatment with EQT resulting in complete recovery for some FMS patients suggests that TCM may be very effective for treating pain and the multiplicity of symptoms associated with FMS. Larger controlled trials of this promising intervention are urgently needed.

Clauw, D.J.; & Dadabhoy, D. (2006). **Therapy insight: Fibromyalgia—a different type of pain needing a different type of treatment.** *Nature Clinical Practice: Rheumatology*, 2(7), 364-72.

PMID #: 16932722

**ABSTRACT:** In the past decade, we have made tremendous progress in our understanding of FM, which is now recognized as one of many 'central' pain syndromes that are common in the general population. Specific genes that might confer an increased risk of developing FMS are beginning to be identified and the environment (in this case exposure to stressors) might also have a significant effect on triggering the expression of symptoms. After developing the syndrome, the hallmark aberration noted in individuals with FM is augmented central pain processing. Insights from research suggest that FM and related syndromes require a multimodal management program that is different from the standard used to treat peripheral pain (i.e. acute or inflammatory pain). Instead of the non-steroidal anti-inflammatory drugs and opioids commonly used in the treatment of peripheral pain, the recommended drugs for central pain conditions are neuro-active compounds that down-regulate sensory processing. The most efficacious compounds that are currently available include the tricyclic

drugs and mixed reuptake inhibitors that simultaneously increase serotonin and norepinephrine concentrations in the central nervous system. Other compounds that increase levels of single monoamines (serotonin, norepinephrine, or dopamine), and anticonvulsants also show efficacy in this condition. In addition to these pharmacologic therapies, which are useful in improving symptoms, non-pharmacologic therapies such as exercise and cognitive behavioral therapy are useful treatments for restoring function to an individual with FM.

Crielaard, J.M.; Croisier, J.L.; Demoulin, C.; Faymonville, M.; & Maquet, D. (2006). **[Value of aerobic rehabilitation in the management of fibromyalgia].** *Revue Médicale de Liège*, 61(2), 109-16.

[Article in French]

PMID #: 16566119

**ABSTRACT:** This study assesses the influence of a muscular aerobic revalidation program on the management of the FMS. After three months, benefits consisting of increased muscle performances associated with a reduction of pain and an improvement of quality of life were documented. This study confirms the value of aerobic muscle exercise in FM patients.

Flor, H.; Thieme, K.; & Turk, D.C. (2006). **Psychological pain treatment in fibromyalgia syndrome: Efficacy of operant behavioral and cognitive behavioral treatments.** *Arthritis Research & Therapy*, 8(4), R121.

PMID #: 16859516

**ABSTRACT:** The present study focused on the evaluation of the effects of operant behavioral (OBT) and cognitive behavioral (CBT) treatments for FMS. One hundred and twenty-five patients who fulfilled the American College of Rheumatology criteria for FMS were randomly assigned to OBT ( $n = 43$ ), CBT ( $n = 42$ ), or an attention-placebo (AP) treatment ( $n = 40$ ) that consisted of discussions of FMS-related problems. Assessments of physical functioning, pain, affective distress, and cognitive and behavioral variables were performed pre-treatment and post-treatment as well as 6 and 12 months post-treatment. Patients receiving the OBT or CBT reported a significant reduction in pain intensity post-treatment (all  $F_s > 3.89$ , all  $P_s < 0.01$ ). In addition, the CBT group reported statistically significant improvements in cognitive (all  $F_s > 7.95$ , all  $P < 0.01$ ) and affective variables (all  $F_s > 2.99$ , all  $P_s < 0.02$ ), and

the OBT group demonstrated statistically significant improvements in physical functioning and behavioral variables (all Fs > 5.99, all Ps < 0.001) compared with AP. The AP group reported no significant improvement but actually deterioration in the outcome variables. The post-treatment effects for the OBT and CBT groups were maintained at both the 6- and 12-month follow-ups. These results suggest that both OBT and CBT are effective in treating patients with FMS with some differences in the outcome measures specifically targeted by the individual treatments compared with an unstructured discussion group. The AP group showed that unstructured discussion of FMS-related problems may be detrimental.

Gur, A. (2006). **Physical therapy modalities in management of fibromyalgia.** *Current Pharmaceutical Design*, 12(1), 29-35.

PMID #: 16454722

ABSTRACT: The etiology of FMS is uncertain and the prognosis for symptomatic recovery is generally poor. A wide variety of interventions are used in the management of FM. There is, however, no clear consensus on the treatment of choice and FM remains relatively refractory to treatment. Therefore, prevention, causal therapy, and rehabilitation are not possible. FM patients frequently use alternative therapies, indicating dissatisfaction or ineffectiveness of traditional medical therapy. Alternative therapies are generally perceived to be more "natural" and as a result, to have fewer adverse effects. Despite the positive results found, the number of publications related to the application of physical therapy modalities such as acupuncture, transcutaneous electrical stimulation, laser, biofeedback, electrotherapy, and magnetic field is still scant, especially concerning FM treatment. The demonstration of a long-term effective intervention for managing the symptoms associated with FM is needed. Multidisciplinary approaches to management include physical and medical therapeutic strategies. Treatment modalities should be individualized for patients based on target symptoms and impairment in functioning. Patience and positive attitude on part of the physician and active involvement of patients and their families in treatment are likely to enhance improvement. It can be concluded that there is a need for larger, more systematic, and methodologically sound randomized controlled clinical trials to evaluate the effectiveness of physical therapy modalities of managing FM. We will review some of

the existing studies of physical therapy relevant in the treatment of FM and give some practical advice for their use.

Johnson, C.; St. Cyr, J.; & Teitelbaum, J.E. (2006). **The use of D-ribose in chronic fatigue syndrome and fibromyalgia: A pilot study.** *Journal of Alternative and Complementary Medicine*, 12(9), 857-62. PMID #: 17109576

ABSTRACT: OBJECTIVES: FMS and chronic fatigue syndrome (CFS) are debilitating syndromes that are often associated with impaired cellular energy metabolism. As D-ribose has been shown to increase cellular energy synthesis in heart and skeletal muscle, this open-label uncontrolled pilot study was done to evaluate if D-ribose could improve symptoms in FM and/or chronic fatigue syndrome patients. DESIGN: 41 patients with a diagnosis of FMS and/or CFS were given D-ribose, a naturally occurring pentose carbohydrate, at a dose of 5 g t.i.d. for a total of 280 g. All patients completed questionnaires containing discrete visual analog scales and a global assessment pre- and post-D-ribose administration. RESULTS: D-ribose, which was well-tolerated, resulted in a significant improvement in all five visual analog scale (VAS) categories: energy; sleep; mental clarity; pain intensity; and well-being, as well as an improvement in patients' global assessment. Approximately 66 percent of patients experienced significant improvement while on D-ribose, with an average increase in energy on the VAS of 45 percent and an average improvement in overall well-being of 30 percent ( $p < 0.0001$ ). CONCLUSIONS: D-ribose significantly reduced clinical symptoms in patients suffering from FM and chronic fatigue syndrome.

Longley, K. (2006). **Fibromyalgia: Aetiology, diagnosis, symptoms and management.** *British Journal of Nursing*, 15(13), 729-33.

PMID: 16926725

ABSTRACT: FM is believed to affect about two percent of the UK population, predominantly women, and is characterized by the symptoms of widespread musculoskeletal pain, persistent fatigue, non-refreshing sleep and generalized stiffness. It is also accompanied by a variety of associated symptoms which can appear baffling to both patient and doctor alike. Research into this often dismissed syndrome has increased exponentially over the last two decades and the evidence is growing to support an underlying pathology involving pain ampli-

fication, sleep abnormalities, hormonal imbalance, and autonomic nervous system dysfunction. This review looks at diagnosis, research, and current treatment options and offers an insight into the patients' experience with the medical and nursing professions.

Nelson, P.J.; & Tucker, S. (2006). **Developing an intervention to alter catastrophizing in persons with fibromyalgia.** *Orthopedic Nursing, 25*(3), 205-14.

PMID #: 16735853

**ABSTRACT:** **PURPOSE:** The purpose of this pilot study was to develop and evaluate a brief psycho-educational intervention to decrease pain catastrophizing, a focus on pain and its negative consequences in patients with FM. **DESIGN:** A case-study design was used to design the targeted intervention. The intervention was piloted with two small groups of patients and family members. **SAMPLE:** Thirty-nine patients with FM completed the surveys; patients/family members (N = 9) and ten interdisciplinary staff members participated in separate focus groups or e-mail surveys to provide data to develop the intervention. Two additional groups of patients and family members (N = 7) participated in the pilot intervention sessions. **FINDINGS:** Catastrophic thinking and associated declines in function were confirmed by survey results and focus group themes. A 2-hour session using self-efficacy theory was developed from these findings and other data sources. The patients/family members in pilot groups reported an increased knowledge of pain catastrophizing and satisfaction with the intervention. **IMPLICATIONS FOR NURSING PRACTICE:** A brief, psycho-educational offering that targets the reduction of catastrophizing is a feasible addition to the usual treatment protocol in a FM treatment program and warrants further study.

## 2005

Baker, K.; & Barkhuizen, A. (2005). **Pharmacologic treatment of fibromyalgia.** *Current Pain and Headache Reports, 9*(5), 301-6.

PMID #: 16157056

**ABSTRACT:** FM is a syndrome of widespread pain, non-restorative sleep, disturbed mood, and fatigue. Optimal treatment involves a multidisciplinary approach with a team of health care providers using pharmacologic and non-pharmacologic treatment. Because of the heterogeneity of the illness, management should be indi-

vidualized for the patient. Pharmacologic treatment should address issues of pain control, sleep disturbance, fatigue, and any underlying coexisting mood disorder. Non-pharmacologic treatment should include patient education, a regular exercise and stretching program, and cognitive behavioral therapy. All of these are essential to improving functional capacity and quality of life. This review provides general guidelines in initiating a successful pharmacologic treatment program for patients with FM.

Biswas, P.; Clauw, D.J.; Cupps, T.R.; Gracely, R.H.; Groner, K.H.; Harris, R.E.; Petzke, F.; Tian, T.X.; Tian, X.; & Williams, D.A. (2005). **Treatment of fibromyalgia with formula acupuncture: Investigation of needle placement, needle stimulation, and treatment frequency.** *Journal of Alternative and Complementary Medicine, 11*(4), 663-71.

PMID #: 16131290

**ABSTRACT:** **OBJECTIVES:** The objective of this study was to investigate whether typical acupuncture methods such as needle placement, needle stimulation, and treatment frequency were important factors in FMS improvement. **DESIGN/SETTINGS/SUBJECTS:** A single-site, single-blind, randomized trial of 114 participants diagnosed with FM for at least one year was performed. **INTERVENTION:** Participants were randomized to one of four treatment groups: (1) T/S needles placed in traditional sites with manual needle stimulation (n = 29); (2) T/O traditional needle location without stimulation (n = 30); (3) N/S needles inserted in nontraditional locations that were not thought to be acupuncture sites, with stimulation (n = 28); and (4) N/O nontraditional needle location without stimulation (n = 27). All groups received treatment once weekly, followed by twice weekly, and finally three times weekly, for a total of 18 treatments. Each increase in frequency was separated by a 2-week washout period. **OUTCOME MEASURES:** Pain was assessed by a numerical rating scale, fatigue by the Multi-dimensional Fatigue Inventory, and physical function by the Short Form-36. **RESULTS:** Overall pain improvement was noted with 25-35 percent of subjects having a clinically significant decrease in pain; however this was not dependent upon "correct" needle stimulation (t = 1.03; p = 0.307) or location (t = 0.76; p = 0.450). An overall dose effect of treatment was observed, with three sessions weekly providing more analgesia than sessions once weekly (t = 2.10; p = 0.039). Among treatment responders, improve-

ments in pain, fatigue, and physical function were highly codependent (all  $p < \text{or} = 0.002$ ). **CONCLUSIONS:** Although needle insertion led to analgesia and improvement in other somatic symptoms, correct needle location and stimulation were not crucial.

Bowen, L.; Morris, A.J.; & Morris, C.R. (2005). **Integrative therapy for fibromyalgia: Possible strategies for an individualized treatment program.** *Southern Medical Journal*, 98(2), 177-84.

PMID #: 15759948

**ABSTRACT:** One of the most complex patient treatment situations encountered by the clinician is the patient who presents with the cluster of signs and symptoms that lead to the diagnosis of FMS. While physicians focus primarily on pharmacologic treatment, a number of non-pharmacologic modalities have been shown to benefit patients as well. No one therapy is uniformly effective in every patient; treatment programs consisting of a combination of pharmacologic and non-pharmacologic therapies must be individualized to the patient, and the clinician may have to try several different modalities before reaching an optimal improvement in the patient's symptoms.

Cantatore, F.P.; Corrado, A.; D'Onofrio, F.; Melillo, N.; Quarta, L.; & Trotta, A. (2005). **[Fibromyalgic syndrome: New perspectives in rehabilitation and management. A review].** *Minerva Medica*, 96(6), 417-23.

[Article in Italian]

PMID #: 16518304

**ABSTRACT:** FM is a chronic syndrome, characterized by widespread body pain and pain at specific tender points, whose etiology and pathogenesis is still unknown. Patient can also exhibit a range of other symptoms including irritable bowel syndrome, chest pain, anxiety, fatigue, sleep disturbance, and headache. The prevalence of FM ranges from 1-3 percent in the general population, and the condition is more common among female than males. Contrary to the situation a few years ago, the most widely accepted hypothesis now involves central nervous system mechanisms, whose local functions could influence also peripheral microvascular activity at tender points. There are many findings supporting the hypothesis of different endogenic and exogenic factors that lead to chronic local hypoxia in muscle tissue. Currently, therapy is polipragmatic and is aimed at reducing the pain. A range of medical treatment had been used to treat FM. Pharmacological

therapy aims to enhance the pain threshold and to support sleep. Non-pharmaceutical treatment modalities, such as exercise, massage, hydrotherapy can be helpful. Future studies should investigate the possible benefits of new strategies that may combine the effects of hot pool water, stretching exercises, and massage and relaxation benefits of balneotherapy.

Drach, S.; Luedtke, C.A.; Neubauer, B.L.; Newell, L.; Postier, J.A.; & Thompson, J.M. (2005). **A description of a brief multidisciplinary treatment program for fibromyalgia.** *Pain Management Nursing*, 6(2), 76-80.

PMID #: 15970921

**ABSTRACT:** The majority of FM treatment programs are weeks or months in duration. This tertiary care center draws people worldwide for diagnostic purposes; however, most patients are unable to stay for extended treatment. It was deemed important to offer a brief multidisciplinary FM treatment program that provided fundamental education and established a foundation for self-management strategies. This article describes the components of a brief multidisciplinary program for FM. Initial results indicate improvement in patient outcomes and in patient and physician satisfaction. Patients who complete any FM program need to maintain a relationship with their primary care providers for ongoing care. Some patients may need a more comprehensive program because of their level of functional impairment.

Faber, K.; & Zheng, L. (2005). **Review of the Chinese medical approach to the management of fibromyalgia.** *Current Pain and Headache Reports*, 9(5), 307-12.

PMID #: 16157057

**ABSTRACT:** Traditional Chinese medicine (TCM) has a long history of efficacy in treating chronic illness. TCM views FM and related conditions as disorders in the movement of energy (Qi) and body fluids (including blood) in the body and gets excellent treatment results using acupuncture, herbal medicine, massage, diet, and exercise to restore the proper flow of Qi and fluids. This article briefly introduces the TCM model of human physiology and TCM diagnostics and describes the TCM patho-physiology and treatment models for FM.

Lemstra, M.; & Olszynski, W.P. (2005). **The effectiveness of multidisciplinary rehabilitation in the treatment of fibromyalgia: A randomized controlled trial.** *Clinical Journal of Pain*, 21(2), 166-74.

PMID #: 15722810

**ABSTRACT: OBJECTIVES:** To assess the effectiveness of multidisciplinary rehabilitation in the treatment of FM in comparison to standard medical care. **METHODS:** Seventy-nine men and women were randomly assigned to one of two groups. The intervention group consisted of a rheumatologist and physical therapist intake and discharge, 18 group supervised exercise therapy sessions, two group pain and stress management lectures, one group education lecture, one group dietary lecture, and two massage therapy sessions. The control group consisted of standard medical care with the patients' family physician. Outcome measures included self-perceived health status, pain-related disability, average pain intensity, depressed mood, days in pain, hours in pain, prescription and nonprescription medication usage, and work status. Outcomes were measured at the end of the 6-week intervention and at 15-month follow-up. **RESULTS:** Thirty-five out of 43 patients from the intervention group and 36 out of 36 patients from the control group completed the study. There were no statistically significant differences between the two groups prior to intervention. Intention-to-treat analysis revealed that the intervention group, in comparison to the control group, experienced statistically significant changes at intervention completion in self-perceived health status, average pain intensity, pain related disability, depressed mood, days in pain, and hours in pain, but no significant differences in nonprescription drug use, prescription drug use, or work status. At 15 months, all health outcomes retained their significance except health status. Non-prescription and prescription drug use demonstrated significant reductions at 15 months. Binary logistic regression indicated that long-term changes in Pain Disability Index were influenced by long-term exercise adherence and income status. **CONCLUSIONS:** Positive health-related outcomes in this mostly unresponsive condition can be obtained with a low-cost, group multidisciplinary intervention in a community-based, non-clinical setting.

Macfarlane, G.J. (2005). **Chronic widespread pain and fibromyalgia: Should reports of increased mortality influence management?** *Current Rheumatology Reports*, 7(5), 339-41.

PMID #: 16174480

**ABSTRACT:** There have been few studies examining whether persons with chronic widespread pain or FM are at increased risk for dying prematurely. Among the studies conducted there is little consistency in results. If there is an increased mortality risk, it is of the order

of a 30 percent excess and it may be related to the lifestyle of patients with these symptoms, including lack of exercise. Skilled judgment is required in determining whether reports of new symptoms are likely to indicate underlying new pathology. Studies are currently underway which will determine whether initial observations of an increased mortality risk can be replicated.

## 2004

Allaz, A.F.; Baumgartner, E.; Cedraschi, C.; Cohen, P.; Desmeules, J.; Finckh, A.; Rapiti, E.; & Vischer, T.L. (2004). **Fibromyalgia: A randomized, controlled trial of a treatment program based on self management.** *Annals of the Rheumatic Diseases*, 63(3), 290-6.

PMID #: 14962965

**ABSTRACT: OBJECTIVE:** To evaluate the efficacy of a treatment program for patients with FM based on self management, using pool exercises and education. **METHODS:** Randomized controlled trial with a 6 month follow-up to evaluate an outpatient multidisciplinary program; 164 patients with FM were allocated to an immediate 6-week program (n = 84) or to a waiting list control group (n = 80). The main outcomes were changes in quality of life, functional consequences, patient satisfaction, and pain, using a combination of patient questionnaires and clinical examinations. The questionnaires included the Fibromyalgia Impact Questionnaire (FIQ), Psychological General Well-Being (PGWB) index, regional pain score diagrams, and patient satisfaction measures. **RESULTS:** 61 participants in the treatment group and 68 controls completed the program and 6 month follow-up examinations. Six months after program completion, significant improvements in quality of life and functional consequences of FM were seen in the treatment group as compared with the controls and as measured by scores on both the FIQ (total score p = 0.025; fatigue p = 0.003; depression p = 0.031) and PGWB (total score p = 0.032; anxiety p = 0.011; vitality p = 0.013). All four major areas of patient satisfaction showed greater improvement in the treatment than the control groups; between-group differences were statistically significant for "control of symptoms", "psychosocial factors", and "physical therapy." No change in pain was seen. **CONCLUSION:** A 6-week self-management based program of pool exercises and education can improve the quality of life of patients with FM and their satisfaction with treatment. These improvements are sustained for at least six months after program completion.

Clauw, D.J.; & Rao, S.G. (2004). **The management of fibromyalgia.** *Drugs of Today*, 40(6), 539-54.  
PMID #: 15349132

ABSTRACT: FM is one of a number of overlapping “functional somatic syndromes”, including irritable bowel syndrome, tension headache, chronic idiopathic lower back pain, chronic fatigue syndrome, and others. These conditions affect females more frequently than males and probably share common underlying neurobiological mechanisms, as well as frequent psychological, cognitive, and behavioral co-morbidities. Since the pain in these conditions is most likely “central” in origin, classes of drugs such as non-steroidal anti-inflammatory drugs (NSAIDs) and opioids, which are quite effective for “peripheral” pain, are relatively ineffective for the pain seen in these syndromes. Instead, tricyclic and other classes of antidepressants, anti-seizure drugs, and a number of other neuro-active compounds seem to be more effective. In addition, non-pharmacological therapies such as aerobic exercise and cognitive behavioral therapy are quite effective and frequently underutilized in clinical practice.

deHueck, A.; & Gowans, S.E. (2004). **Effectiveness of exercise in management of fibromyalgia.** *Current Opinion in Rheumatology*, 16(2), 138-42.  
PMID #: 14770100

ABSTRACT: PURPOSE OF REVIEW: Exercise was established as an integral part of the non-pharmacological treatment of FM approximately 20 years ago. Since then many studies have investigated the effects of exercise—either alone or in combination with other interventions. This review will discuss the benefits of exercise alone and provide practical suggestions on how patients can exercise without causing a long-term exacerbation of their pain. RECENT FINDINGS: Short-term exercise programs for individuals with FM have consistently improved physical function, especially physical fitness, and reduced tender-point pain. Exercise has also produced improvements in self-efficacy. These effects can persist for periods of up to two years but may require participants to continue to exercise. Most exercise studies have examined the effects of moderately intense aerobic exercise. Only in the past two years have muscle-strengthening programs, in isolation, been evaluated. To be well tolerated, exercise programs must start at a level just below the capacity of the participants and then progress slowly. Even with these precautions, exercise may still produce tolerable, short-term

increases in pain and fatigue that should abate within the first few weeks of exercising. SUMMARY: Future studies should investigate the possible benefits of low-intensity exercise and test strategies that may enhance long-term compliance with exercise. Individuals with FM also need to be able to access community exercise programs that are appropriate for them. This may require community instructors to receive instruction on exercise prescription and progression for individuals with FM.

Denison, B. (2004). **Touch the pain away: New research on therapeutic touch and persons with fibromyalgia syndrome.** *Holistic Nursing Practice*, 18(3), 142-51.

PMID #: 15222602

ABSTRACT: This pilot study tested the effectiveness of six therapeutic touch treatments on the experience of pain and quality of life for persons with FMS. Its findings support that subjects who received therapeutic touch had a statistically significant decrease in pain for each pre-therapeutic to post-therapeutic touch treatment, as well as significant improvement in quality of life from pre-first to pre-sixth treatment. Therapeutic touch may be an effective treatment for relieving pain and improving quality of life in this specific population of persons with FMS.

## 2003

Adams, N.; & Sim, J. (2003). **Therapeutic approaches to fibromyalgia syndrome in the United Kingdom: A survey of occupational therapists and physical therapists.** *European Journal of Pain*, 7(2), 173-80.

PMID #: 12600799

ABSTRACT: BACKGROUND AND PURPOSE: This study sought information from occupational therapists (OTs) and physical therapists (PTs) working in rheumatology in the UK on their usual methods of treatment and management of patients with FMS. METHODS: Data were gathered by self-completion questionnaire on: work setting; referrals of FMS patients; usual treatment objectives; assessment and treatment approaches; perceived responsiveness of patients; and other perceptions of the management of FMS. Most data were in the form of frequency counts, with some ordinal scales and open responses. RESULTS: Responses were obtained from 142 therapists (71 percent

response rate), of whom 47 OTs and 39 PTs managed patients with FMS. The foremost therapeutic objective was increased functional ability for OTs, and increased exercise tolerance and general fitness for PTs. Pain reduction or management was rated as the second objective for both groups. An endurance-based exercise program and energy conservation techniques were the most frequently utilized interventions. Patients with FMS were thought to be 'moderately responsive' to physical management. Predictors of outcome were considered to be largely psychosocial, rather than physical, in nature. **CONCLUSION:** These data provide a preliminary profile of current practice in the management of FMS among UK therapists and indicate certain differences in approach between OTs and PTs.

Ak, I.; Aksu, G.; Sayar, K.; Tosun, M. (2003). **Venlafaxine treatment of fibromyalgia.** *The Annals of Pharmacotherapy*, 37(11), 1561-5. PMID #: 14565792

**ABSTRACT:** **BACKGROUND:** Although the pathophysiology of FM is unknown, central monoaminergic transmission may play a role. Antidepressants have proved to be successful in alleviating symptoms of FM. Medications that act on multiple neurotransmitters may be more effective in symptom management. **OBJECTIVE:** To assess the efficacy of venlafaxine, a potent inhibitor of both norepinephrine and serotonin reuptake, in the treatment of patients with FM. **METHODS:** Fifteen patients with FM were assessed prior to and after treatment with fixed-dose venlafaxine 75 mg/d. Before initiation of pharmacotherapy, patients were interviewed with the Structured Clinical Interview for Axis I disorders in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition. The study lasted for 12 weeks, and patients were evaluated in weeks 6 and 12. The primary outcome measures were the Fibromyalgia Impact Questionnaire (FIQ) total score and pain score. The anxiety and depression levels of the patients were measured with the Beck Depression, the Beck Anxiety, the Hamilton Anxiety, and the Hamilton Depression scales. **RESULTS:** There was a significant improvement in the mean intensity of pain ( $F = 14.3$ ;  $p = 0.0001$ ) and in the disability caused by FM ( $F = 42.7$ ;  $p = 0.0001$ ) from baseline to week 12 of treatment. The depression and anxiety scores also decreased significantly from baseline to week 12. The improvement in the FIQ scores did not correlate with the decrease of scores in both patient-

and physician-rated depression and anxiety inventories. Change in pain scores also was not correlated with the change in depression and anxiety scores. **CONCLUSIONS:** Venlafaxine was quite promising in alleviating the pain and disability associated with FM. This effect seems to be independent of its anxiolytic and antidepressant properties. Blockade of both norepinephrine and serotonin reuptake might be more effective than blockade of either neurotransmitter alone in the treatment of FM.

Ambrose, K.; Clauw, D.J.; & Lyden, A.K. (2003). **Applying exercise to the management of fibromyalgia.** *Current Pain and Headache Reports*, 7(5), 348-54. PMID #: 12946287

**ABSTRACT:** FM, chronic fatigue syndrome, and related illnesses fall under the spectrum of chronic multisymptom illnesses (CMI). This constellation of syndromes often is defined by chronic pain, unremitting fatigue, cognitive difficulties, and various other symptoms. In treating these illnesses, pharmacotherapy generally is the mode of choice, with exercise being overlooked often. However, research has shown that exercise is quite beneficial in reducing pain and fatigue in this population and should be included as part of a multimodal therapy regimen. This article reviews the exercise and CMI literature and provides a model for applying these evidence-based guidelines to a clinical population.

Arslanian, C.L.; Bae, S.; Singh, K.; & Taggart, H.M. (2003). **Effects of T'ai Chi exercise on fibromyalgia symptoms and health-related quality of life.** *Orthopedic Nursing*, 22(5), 353-60. PMID #: 14595996

**ABSTRACT:** **BACKGROUND:** FM, one of the most common musculoskeletal disorders, is associated with high levels of impaired health and inadequate or limited symptom relief. The cause of this complex syndrome is unknown, and there is no known cure. Numerous research results indicate that a combination of physical exercise and mind-body therapy is effective in symptom management. T'ai Chi, an ancient Chinese exercise, combines physical exercise with mind-body therapy. **PURPOSE:** To investigate the effects of T'ai Chi exercise on FM symptoms and health-related quality of life. **DESIGN:** Pilot study, one group pre-to-post post-test design. **METHODS:** Participants with FM ( $n = 39$ ) formed a single group for 6 weeks of 1-hour, twice

weekly T'ai Chi exercise classes. FM symptoms and health-related quality of life were measured before and after exercise. **FINDINGS:** Twenty-one participants completed at least 10 of the 12 exercise sessions. Although the dropout rate was higher than expected, measurements on both the Fibromyalgia Impact Questionnaire (FIQ) (Buckhardt, Clark, & Bennett, 1991) and the Short Form-36 (SE-36) (Ware & Sherbourne, 1992) revealed statistically significant improvement in symptom management and health-related quality of life. **IMPLICATIONS FOR NURSING RESEARCH:** Knowledge of interventions to enhance health for the patient, with musculoskeletal problems is a National Association of Orthopaedic Nurses priority. T'ai Chi is potentially beneficial to patients with FM. Further research is needed to support evidence-based practice.

Bilal, L.; Masand, P.S.; & Patkar, A.A. (2003). **Management of fibromyalgia.** *Current Psychiatry Reports*, 5(3), 218-24.

PMID #: 12773276

**ABSTRACT:** FM is characterized by widespread pain, persistent fatigue, non-restorative sleep, and generalized morning stiffness. The diagnosis is based on patients' reports of pain and fatigue, clinical findings of multiple tender points, and exclusion of a range of connective tissue and other medical disorders. Treatment of FM is multidisciplinary with an emphasis on active patient participation, medications, cognitive behavioral therapy, and physical modalities. No single medication has been found to effectively control all the symptoms, and a rational combination of different medications is often necessary. Currently available medication classes include the selective serotonin uptake inhibitors, the serotonin and norepinephrine reuptake inhibitors, tricyclic antidepressants, analgesics, hypnotic agents, and anticonvulsants. Treatment modalities should be individualized for patients based on target symptoms and impairment in functioning. As is the case with several chronic disorders, the treatment is often prolonged and improvement may occur slowly. Patience and positive attitude on part of the physician and active involvement of patients and their families in treatment are likely to enhance improvement.

Ehrlich-Jones, L.; Lash, A.A.; & McCoy, D. (2003). **Fibromyalgia: Evolving concepts and management in primary care settings.** *Medsurg Nursing*, 12(3), 145-59, 190; quiz 160.

PMID #: 12861752

**ABSTRACT:** During the last 10 years, FM research shifted focus from psychological and behavioral issues to sleep, nociception, and neuroendocrinology. Although there are still no definitive markers of the disease; a barrage of studies in physiological, psychological, and behavioral sciences, have now dispelled the belief that FM is solely psychosomatic. Studies in the late 1990s as well as in the early part of the current decade reaffirm earlier research that sleep abnormalities and alterations in nociception may partly be responsible for FM. While sleep research shows that FM patients typically are deficient in stage IV (restorative) sleep, most current studies in nociception now affirm that patients with FM exhibit low serum serotonin in combination with increased substance P levels in the cerebrospinal fluid. Although there is still no cure, treatment aimed at promoting sleep, interrupting nociception, and actively involving patient and family in FM management can bring lifetime control for the disease.

Sprott, H. (2003). **What can rehabilitation interventions achieve in patients with primary fibromyalgia?** *Current Opinion in Rheumatology*, 15(2), 145-50.

PMID #: 12598803

**ABSTRACT:** Symptoms of primary FM persist for years, independent of applied therapy. That is the sad reality we have to deal with. But is that really true? The following review is a scan of literature from September 1, 2001 to August 31, 2002, concerning rehabilitation interventions for patients with FM, to find progress in this field and to ascertain state-of-the-art treatment strategies for the disease. The main problem when treating patients with FM successfully is the heterogeneity of the patients' group. Several investigators determined subgroups within FM patients diagnosed by the 1990 American College of Rheumatology classification criteria of FM. Therefore, uniform recommendations for treatment cannot be given. Current treatment recommendations for FM include reassurance and explanation of the nature of the illness, evaluation and eradication of mechanical stressors as far as possible, symptomatic analgesic drug treatment, moderate individually adapted physical exercises, and adjuvant psychotherapeutic support in an interdisciplinary setting. Individually adapted measures are highly emphasized to differentially treat FM subgroups, as far as identified. This review will focus on these points on the one hand, and

provide an overview about the current symptomatically-oriented therapy on the other hand. This all occurs against the background of an unknown etiology of the disease so far. Experimental approaches will be noted as well. The demonstration of a long-term effective intervention for managing the symptoms associated with FM is needed.

Stillion-Allen, K.A.; & Wasseem, R.A. (2003). **Evidence-based management of the fibromyalgia patient: In search of optimal functioning.** *Advance for Nurse Practitioners*, 11(11), 34-8, 41-3.

PMID #: 14639881

*No abstract available.*

Williams, D.A. (2003). **Psychological and behavioral therapies in fibromyalgia and related syndromes.** *Best Practice & Research: Clinical rheumatology*, 17(4), 649-65.

PMID #: 12849717

ABSTRACT: Psychological and behavioral therapies are being applied to patients with FM with increasing frequency. The rationale for including psychological therapies is not for the treatment of co-morbid mood disorders, but rather to manage the many non-psychiatric psychological and social factors that comprise pain perception and its maintenance. This chapter reviews the involvement of mental health professionals under both the biomedical and bio-psychosocial models of illness and describes cognitive behavioral therapy (CBT), a commonly used form of psychological therapy in the management of chronic pain conditions. The empirical literature supports the use of CBT with FM in producing modest outcomes across multiple domains, including pain, fatigue, physical functioning, and mood. Greatest benefits appear to occur when CBT is used adjunctively with exercise. While the benefits are not curative or universally obtained by all patients, the benefits are sufficiently large to encourage future refinement of CBT for this population of patients.

## 2002

Barkhuizen, A. (2002). **Rational and targeted pharmacologic treatment of fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 261-90.

PMID #: 12122917

ABSTRACT: Despite disappointing results when subjected to randomized clinical trials, pharmacologic agents

remain an important component of FM management. Addressing the main symptoms of pain, disturbed sleep, mood disturbances, fatigue, and associated conditions is essential to improve patient functioning and enhanced quality of life. However, much work remains to design clinical trials which address the complexity of FM, while satisfying evidence-based medicine paradigms.

Bennett, R.M. (2002). **The rational management of fibromyalgia patients.** *Rheumatic Diseases Clinics of North America*, 28(2), 181-99, v.

PMID #: 12122913

ABSTRACT: The exponential increase in pain research over the last 10 years has established FM as a common chronic pain syndrome with similar neurophysiologic aberrations to other chronic pain states. As such, the pathogenesis is considered to involve an interaction of augmented sensory processing (central sensitization) and peripheral pain generators. The notion, that FM symptomatology results from an amplification of incoming sensory impulses, has revolutionized the contemporary understanding of this enigmatic problem and provided a more rational approach to treatment. To date, the management of FM has been mainly palliative, with the aims of reducing pain, improving sleep, maintaining function, treating psychologic distress, and diminishing the impact of associated syndromes. The rapidly evolving neurophysiologic, psycho-physiologic and molecular biologic basis for chronic pain states has already opened up new avenues for management which should be applicable to this difficult group of patients. Indeed, it is now possible to think about a "rational" approach to managing FM patients that was unthinkable just a few years ago.

Bennett, R.M. (2002). **A survey of symptoms and treatment of fibromyalgia.** *Current Rheumatology Reports*, 4(4), 285.

PMID #: 12166413

*No abstract available.*

Bijlsma, J.W.; Geenen, R.; & Jacobs, J.W. (2002). **Evaluation and management of endocrine dysfunction in fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 389-404.

PMID #: 12122926

ABSTRACT: Fibromyalgia-like symptoms such as muscle pain and tenderness, exhaustion, reduced exercise capacity, and cold intolerance, resemble symptoms

associated with endocrine dysfunction like hypothyroidism, and adrenal or growth hormone insufficiency. To investigate the potential of management of endocrine abnormalities for relief of symptoms of patients with FM, we reviewed experimental and clinical studies of endocrine functioning and endocrine treatment. Serum GH, androgen, and 24-hour urinary cortisol levels of patients with FM tend to be in the lower part of the normal range, while serum levels of thyroid hormone, female sex hormones, prolactin, and melatonin are normal. With exception of GH, these conclusions are based on studies in small samples. With respect to dynamic responsiveness of the hypothalamic-pituitary-adrenal axis, the dexamethasone suppression test and stimulation with ACTH show normal results, while patients show marked ACTH hyper-secretion in response to severe acute stressors, perhaps indicative of chronic CRH hypo-secretion. This finding and slightly altered responsiveness of growth hormone, thyroid hormone, and prolactin in pharmacologic stimulation tests suggest a central rather than peripheral origin of endocrine deviations. Because hormone level deviations were not severe, occurred in subgroups of patients only, and few controlled clinical trials were performed, there is—unless future research shows otherwise—little support for hormone supplementation as a general therapy in the common patient with FM. In patients with clinically overt hormone deficiency, hormonal supplementation is an option. In patients with hormone levels that are in the lower part of the normal range, interventions aimed at pain, fatigue, sleep or mood disturbance, and physical de-conditioning may indirectly improve endocrine functioning.

Borg-Stein, J. (2002). **Management of peripheral pain generators in fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 305-17. PMID #: 12122919

ABSTRACT: FM is a widespread chronic pain disorder that is characterized in part by central sensitization and increased pain response to peripheral nociceptive and non-nociceptive stimuli. Part of the comprehensive pain management of patients with FM should include a thoughtful evaluation and search for peripheral pain generators that either are associated with FM or are coincidentally present. The identification and treatment of these pain generators lessens the total pain burden, facilitates rehabilitation, and decreases the stimuli for ongoing central sensitization.

Broman, L.; Ekholm, J.; & Gustafsson, M. (2002). **Effects of a multi-professional rehabilitation program for patients with fibromyalgia syndrome.** *Journal of Rehabilitation Medicine*, 34(3), 119-27. PMID #: 12395939

ABSTRACT: The present study sought to evaluate the efficacy of a 12-week multidisciplinary rehabilitation program mainly emphasizing physiotherapy, for patients with either FMS or chronic, widespread pain. Forty-three non-randomized female patients with FMS or chronic, widespread pain were assigned to the program or served as waiting-list controls. The outcome was assessed with the Body Awareness Scale-Health, the Multidimensional Pain Inventory, the Quality of Life Scale, the Visual Analogue Scale and a pain drawing. Both groups were reassessed after three and six months, the treatment group also after one year. The treatment group improved in quality of movement and in vegetative disturbances according to the Body Awareness Scale-Health after the program. At the 3-month and 1-year follow-ups the improvements were partly sustained. The control group showed deterioration after three and six months in three of the main scales of the Body Awareness Scale-Health. This clinical trial of a rehabilitation program proved beneficial for improving quality of movement and reducing the experience of vegetative disturbances.

Burckhardt, C.S. (2002). **Non-pharmacologic management strategies in fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 291-304. PMID #: 2122918

ABSTRACT: Clinicians using the results of the extant research base can take an optimistic view of the role of non-pharmacologic treatment strategies for FM. There were no negative outcomes in any of the reviewed studies, although in a few studies the experimental treatment did not prove to be more effective than the attention control. Rather than viewing this negatively, one could look more closely at the attention control groups and attempt to better understand what they contained that worked as an active treatment. A number of trials include a follow-up component and all but one of them found maintenance of at least one outcome change. Maintenance of changes is more likely to occur when the patient continues to participate in the experimental activity long-term. Patients especially need strategies that help them continue in exercise regimens. Unlike cognitive skills strategies that once learned are likely to

become part of a person's coping repertoire, both exercise and behavioral strategies, like progressive muscle relaxation, need to be performed on a consistent basis in order to have their effect. The goals of increased self-efficacy, symptom reduction, increased functional status and quality of life along with decreased inappropriate use of health care resources are realistic when patients persevere in their use of strategy combinations and receive support from their providers.

Cary, M.A.; Chaplin, W.; Clauw, D.J.; Glazer, L.J.; Groner, K.H.; Rodriguez, A.M.; & Williams, D.A. (2002). **Improving physical functional status in patients with fibromyalgia: A brief cognitive behavioral intervention.** *Journal of rheumatology*, 29(6), 1280-6.

PMID #: 12064847

**ABSTRACT:** **OBJECTIVE:** Sustained improvement in physical functional status was the primary goal of a brief, six session cognitive behavioral therapy (CBT) protocol for FM. **METHODS:** One hundred forty-five patients with FM were randomly assigned to either (1) standard medical care that included pharmacological management of symptoms and suggestions for aerobic fitness, or (2) the same standard medical treatment plus six sessions of CBT aimed at improving physical functioning. Outcome measures included the Medical Outcome Study Short Form-36 Physical Component Score and McGill ratings of pain. Outcomes were treated dichotomously using a pre-established criterion for clinically significant success based upon the reliability of change index from baseline to one year post-treatment. **RESULTS:** Twenty-five percent of the patients receiving CBT were able to achieve clinically meaningful levels of long-term improvement in physical functioning, whereas only 12 percent of the patients receiving standard care achieved the same level of improvement. There were no lasting differences on pain ratings between groups. **CONCLUSION:** Lasting improvements in physical functioning have been among the most difficult outcomes to obtain in studies of FM. These data suggest that the inclusion of CBT to a standard medical regimen for FM can favorably influence physical functioning in a subset of patients.

Clauw, D.J.; & Guymer, E.K. (2002). **Treatment of fatigue in fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 367-78.

PMID #: 12122924

**ABSTRACT:** Clearly, fatigue is a large and challenging problem for those suffering from FM. It adds greatly to the morbidity and disability associated with the disease. In the management of this specific symptom in FM, attention should first be focused on identifying comorbidities that may be present and contribute to fatigue. As with other symptoms of FM, education is a critical component of management. This can be done by the practitioner, with available free resources, or with specialized cognitive behavioral programs. This education process can be augmented with a variety of other non-pharmacologic therapies, especially very gradually increasing, low-impact, aerobic exercise programs. Numerous pharmacologic therapies may also be helpful as an adjunct to treatment. Classes of compounds that raise central levels of norepinephrine or dopamine appear to be the most specific for management of fatigue. There are also many medications used to combat fatigue in other disorders that have not yet been adequately explored as to the possible benefits in alleviating the fatigue of FM. Advances in the management of fatigue in FM are likely to come from a variety of directions. Easier access to well designed non-pharmacologic therapies is essential, because these treatments are underutilized in clinical practice at present. Improvements in pharmacologic therapies will come from new insights into mechanisms, especially those that might only be present in subsets of patients and would respond to more targeted therapies.

Guymer, E.K.; & Littlejohn, G.O. (2002). **Fibromyalgia: Diagnosis and management.** *Australasian Chiropractic & Osteopathy*, 10(2), 99. PMID #: 17987182

*No abstract available.*

Kubes, K.L.; & Miller, L.J. (2002). **Serotonergic agents in the treatment of fibromyalgia syndrome.** *Annals of Pharmacotherapy*, 36(4), 707-12. PMID #: 11918524

**ABSTRACT:** **OBJECTIVE:** To evaluate literature that discusses the treatment of FMS with agents that involves the neurotransmitter serotonin. **DATA SOURCES:** Biomedical literature accessed through MEDLINE (1966-August 2001) and International Pharmaceutical Abstracts. **DATA SYNTHESIS:** The cause and patho-physiology of FMS remain elusive, although abnormalities in the serotonin pathway have been implicated. Several serotonergic agents have been studied

for use in FMS. Trials and case reports focusing on the use of newer agents: The selective serotonin reuptake inhibitors, venlafaxine and tramadol, were reviewed. **CONCLUSIONS:** Current research suggests that the serotonergic agents may reduce at least some of the symptoms of FMS. However, medications that act on multiple neurotransmitters may prove to be more effective in symptom management. Additional long-term studies are required in order to validate these results.

Littlejohn, G.O.; & Walker, J. (2002). **A realistic approach to managing patients with fibromyalgia.** *Current Rheumatology Reports*, 4(4), 286-92.  
PMID #: 12126575

**ABSTRACT:** FMS is common and variable in impact, with some patients having a milder and shorter duration of symptoms and others suffering significant and prolonged pain. Disability also varies. It is thought that the syndrome arises from a disordered neurophysiology that, through links to central control inputs, involves emotions, thoughts, and cognitions. Social and psychological sequelae contribute to and result from this process. The bio-psychosocial model of disease epitomizes FM. Although management may be difficult at times, and much needs to be done, the growing appreciation of strategies that use this described model and the knowledge of the potential reversibility of the syndrome are resulting in improved outcomes.

Martínez-Lavín, M. (2002). **Management of dysautonomia in fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 379-87.  
PMID #: 12122925

**ABSTRACT:** The realization of dysautonomia in FM has opened the possibility for new and different therapeutic interventions. Much more research is needed to better define the role of autonomic nervous system in the pathogenesis of FM. If this research supports current hypotheses, therapeutic trials with disciplines and substances intended to correct autonomic dysfunction will be indicated.

Masi, A.T.; Pilcher, J.J.; & White, K.P. (2002). **Person-centered approach to care, teaching, and research in fibromyalgia syndrome: Justification from bio-psychosocial perspectives in populations.** *Seminars in Arthritis and Rheumatism*, 32(2), 71-93.  
PMID #: 12430098

**ABSTRACT: OBJECTIVES:** To describe complex interactions of multiple factors believed to contribute to FMS at a person-centered level to enhance approaches to care, teaching, and research. The main factors addressed were central nervous system sensory sensitization, autonomic nervous system (ANS) activation, neuro-humoral perturbations, and psychosocial and environmental stressors. A person-centered approach is defined as attention to major bio-psychosocial issues of affected individuals. **METHODS:** Literature on classification, mechanistic pathways, course and outcomes, and management of FMS was reviewed to assess applications of person-centered approaches to care, teaching, and research. Various bio-psychosocial influences were considered in relation to the heterogeneous subjective manifestations of this illness, including central hyper-algesia, ANS and other neuro-humoral perturbations, functional hyper-excitability, non-restorative sleep, and psychologic distress. **RESULTS:** A person-centered approach to FMS can expand on and strengthen traditional biomedical concepts. Adding such a focus can help to untangle current controversies in the course, outcomes, and treatment of FMS. A person-centered approach can also help in the sub-grouping of affected patients for greater specificity in care programs and in improved clinical investigations. In the biomedical model, diverse symptoms of FMS are often addressed separately and apart from their interconnectedness and linkages to the patient's individualized bio-psychosocial factors. However, the causes of FMS symptomatology are not likely to be caused by uniform biologic abnormalities across populations. Rather, the syndrome likely results from personal re-activities to varied multi-factorial bio-psychosocial influences. Common denominators among individuals may include varying degrees of ANS activation (or personal susceptibility to ANS activation), non-restorative sleep, negative affectivity, and other central pain sensitization mechanisms, among the pathways reviewed. **CONCLUSIONS:** Innovative analytical methodologies will need to be developed to more effectively investigate complex interacting bio-psychosocial dynamics at a person-centered level, including qualitative research, and multi-factorial and multilevel techniques. Adding person-centered approaches to bio-psychosocial concepts of FMS promises to show new physio-pathogenetic insights and more effective treatment than current biomedical models alone. Person-centered approaches enhance patient-physician relationships and help prioritize patients' goals in mutually derived treatment plans.

Moldofsky, H. (2002). **Management of sleep disorders in fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 353-65.

PMID #: 12122923

ABSTRACT: In summary, the treatment of patients with FM requires a proper assessment of the reason for the un-refreshing sleep, which is an important component of the FM syndrome. Sleep laboratory investigations provide a suitable rationale for management where a specific primary sleep disorder is determined. Nonspecific treatments include various behavioral approaches to improve sleep hygiene, fitness, and regular proper nutrition that serve to regularize disturbances in circadian sleep-wake rhythms. As yet, no medication is known to improve the EEG sleep arousal disorders that include phasic (alpha-delta), tonic alpha non-REM sleep disorders, or the periodic K alpha cycling alternating pattern disorder. Traditional hypnotic agents, while helpful in initiating and maintaining sleep and reducing daytime tiredness, do not provide restorative sleep or reduce pain. Tricyclic drugs, such as amitriptyline and cyclobenzaprine, may provide long term benefit for improving sleep but may not have a continuing benefit beyond one month for reducing pain. The use of a biologic agent that facilitates sleep-related neuro-endocrine functions, for example growth hormone, is reported to improve symptoms but the need for injection and high cost restrict its use. No systematic studies have been reported on the use of remedial measures for the management of PLMS/restless legs syndrome and sleep apnea that occur in some patients with FM.

Russell, I.J. (2002). **The promise of substance P inhibitors in fibromyalgia.** *Rheumatic Diseases Clinics of North America*, 28(2), 329-42.

PMID #: 12122921

ABSTRACT: The discovery of Substance P and its potent biological activities have led to the discovery of other tachykinins and to receptors for them, including the NK1 receptor. Blockade of the NK1 receptor has a number of potentially beneficial effects in medical care including the management of drug-induced emesis and the treatment of depression. The analgesic potential of NK1 receptor antagonists that, in theory, seemed so promising has not met early expectations. However, there is still reason to predict valuable clinical uses for more potent NK1 receptor antagonists in a variety of medical conditions, including FMS.

Silver, D.S.; & Wallace, D.J. (2002). **The management of fibromyalgia-associated syndromes.** *Rheumatic Diseases Clinics of North America*, 28(2), 405-17.

PMID #: 12122927

ABSTRACT: Most of the six million Americans with FM have at least one associated syndrome which mandates specialized attention in addition to traditional therapeutic approaches. These include localized procedures, regional blocks, anti-inflammatory or antimicrobial regimens, attention to non soft tissue sources of psychosocial distress, and classes of medicines not usually prescribed for FM. The successful treatment of FM-associated syndromes improves the symptoms, quality of life, and prognosis of FM.

## 2001

Bennett, R.; Burekhardt, C.S.; Clark, S.R.; & Jones, K.D. (2001). **Exercise for patients with fibromyalgia: Risks versus benefits.** *Current Rheumatology Reports*, 3(2), 135-46.

PMID #: 11286670

ABSTRACT: Although exercise in the form of stretching, strength maintenance, and aerobic conditioning is generally considered beneficial to patients with FM, there is no reliable evidence to explain why exercise should help alleviate the primary symptom of FM, namely pain. Study results are varied and do not provide a uniform consensus that exercise is beneficial or what type, intensity, or duration of exercise is best. Patients who suffer from exercise-induced pain often do not follow through with recommendations. Evidence-based prescriptions are usually inadequate because most are based on methods designed for persons without FM and, therefore, lack individualization. A mismatch between exercise intensity and level of conditioning may trigger a classic neuro-endocrine stress reaction. This review considers the adverse and beneficial effects of exercise. It also provides a patient guide to exercise that takes into account the risks and benefits of exercise for persons with FM.

Geenen, R.; & Jacobs, J.W. (2001). **Fibromyalgia: Diagnosis, pathogenesis, and treatment.** *Current Opinion in Anaesthesiology*, 14(5), 533-9.

PMID #: 17019142

ABSTRACT: FM is characterized by chronic, widespread pain and the presence of tender points, often

accompanied by several non-specific symptoms, such as fatigue, depressive mood, and sleep disturbances. The apparent overlap between FM and other syndromes, such as chronic fatigue and irritable bowel, is not sufficient cause to consider all these syndromes as manifestations of a single syndrome. FM is a multifaceted problem. Central afferent pain amplification and perhaps also impaired descending pain inhibition are supposed to underlie widespread pain. Neuro-endocrine perturbations, sleep disturbances, health beliefs, mood disorder, and physical de-conditioning play a role in the modulation and perseverance of pain and other symptoms. It is extremely difficult to mitigate chronic generalized pain and to deal with other symptoms in

FM. A uniform intervention strategy is missing. Essential in the tailored management of FM are an enhancement of functional capacities and quality of life, and the symptomatic treatment of individual symptoms such as pain, distress, and sleep disturbances. Rather than analyzing mono-therapy per se, the objective in future evaluations should be to try to find the combined pharmacological or non-pharmacological treatment of choice for specific subgroups of patients.

Krahn, L.E.; Pond, G.R.; Sletten, C.D.; Worrel, L.M. (2001). **Treating fibromyalgia with a brief interdisciplinary program: Initial outcomes and predictors of response.** *Mayo Clinic Proceedings: Mayo Clinic*, 76(4), 384-90.

PMID #: 11322354

ABSTRACT: OBJECTIVES: To evaluate the efficacy of a brief, intense treatment program for FM and to determine which patient characteristics are associated with a better treatment response. PATIENTS AND METHODS: Two self-report measures, the Fibromyalgia Impact Questionnaire (FIQ) and the Multidimensional Pain Inventory (MPI), were administered before patients completed treatment and one month after participating in the program. The main outcome measure was the difference in FIQ score and MPI scale before and after program participation. RESULTS: Of 139 patients who met the American College of Rheumatology criteria for FM, 100 chose to participate in the 1 1/2-day Fibromyalgia Treatment Program at the Mayo Clinic, Rochester, Minn. Of these 100 patients, 74 completed the follow-up surveys. Patients were less affected by FM after participation in the treatment program. This was demonstrated by a post-treatment im-

provement in the total FIQ score ( $P<.001$ ), the MPI pain severity score ( $P<.001$ ), and the MPI interference score ( $P=.01$ ). The one patient characteristic found to be significantly associated ( $P<.001$ ) with a better response to treatment was a high pretreatment level of impairment from FM, as measured by the pretreatment FIQ score. CONCLUSIONS: A brief interdisciplinary program for treating FM reduced some associated symptoms. Patients more severely affected by FM may benefit most from this approach. Clinicians may apply these findings to develop beneficial and convenient treatment programs for patients with FM.

Littlejohn, G. (2001). **Fibromyalgia: What is it and how do we treat it?** *Australian Family Physician*, 30(4), 327-33.

PMID #: 11355218

ABSTRACT: BACKGROUND: FM is a chronic musculoskeletal disorder that is characterized by widespread pain, tenderness at multiple anatomical sites, and other clinical manifestations such as fatigue and sleep disturbance. It occurs predominantly in women and affects approximately 2-4 percent of people in industrialized societies. OBJECTIVE: To discuss the syndrome of FM and effective management strategies. DISCUSSION: FM is a disorder of pain amplification due to increased sensitivity of the pain system. Management of simple FM involves education regarding the nature of the problem, an exercise program, and advice on stress management. However, management needs to be flexible and holistic and may involve relaxation programs, physical therapies, cognitive behavioral therapy, and analgesic medication.

## 2000

Akama, H. (2000). **Management of fibromyalgia.** *Annals of Internal Medicine*, 132(12), 1005.

PMID #: 10858157

No abstract available.

Ardicoglu, O.; Catal, S.A.; Kamanli, A.; & Ozgocmen, S. (2000). **Effect of omega-3 fatty acids in the management of fibromyalgia syndrome.** *International Journal of Clinical Pharmacology and Therapeutics*, 38(7), 362-3.

PMID #: 10919346

No abstract available.

Cohn, L.J. (2000). **Management of fibromyalgia.** *Annals of Internal Medicine*, 132(12), 1005.

PMID #: 10858158

*No abstract available.*

Drosos, A.A.; Georgiou, P.E.; Katsimbri, P.P.; & Papadopoulos, I.A. (2000). **Treatment of fibromyalgia with tropisetron, a 5HT3 serotonin antagonist: A pilot study.** *Clinical Rheumatology*, 19(1), 6-8.

PMID #: 10752491

ABSTRACT: In this pilot study we investigated 10 women suffering from primary FM. All patients received 5 mg of tropisetron in the evening, for a period of four weeks. Clinical disease variables included the measurement of a pain score, fatigue, sleep disturbances, and measurement of the number of tender points. Five of our patients (50 percent) showed a statistical clinical improvement of all the above parameters starting after the first week of treatment. Two patients did not respond to the therapy and three discontinued the study because of side-effects. We conclude that administration of tropisetron in FM patients could be useful in the management of this difficult and incurable syndrome.

Holloway, R.L.; & Millea, P.J. (2000). **Treating fibromyalgia.** *American Family Physician*, 62(7), 1575-82, 1587.

PMID #: 11037075

ABSTRACT: FM is an extremely common chronic condition that can be challenging to manage. Although the etiology remains unclear, characteristic alterations in the pattern of sleep and changes in neuro-endocrine transmitters such as serotonin, substance P, growth hormone, and cortisol suggest that dysregulation of the autonomic and neuro-endocrine system appears to be the basis of the syndrome. The diagnosis is clinical and is characterized by widespread pain, tender points and, commonly, co-morbid conditions such as chronic fatigue, insomnia, and depression. Treatment is largely empiric, although experience and small clinical studies have proved the efficacy of low-dose antidepressant therapy and exercise. Other less well-studied measures, such as acupuncture, also appear to be helpful. Management relies heavily on the physician's supportive counseling skills and willingness to try novel strategies in refractory cases.

Huppert, A. (2000). **Management of fibromyalgia.** *Annals of Internal Medicine*, 132(12), 1004; author reply 1005.

PMID #: 10858154

*No abstract available.*

Muilenburg, N. (2000). **Management of fibromyalgia.** *Annals of Internal Medicine*, 132(12), 1004-5; author reply 1005.

PMID #: 10858156

*No abstract available.*

Sartin, J.S. (2000). **Fibromyalgia and pain management.** *Mayo Clinic Proceedings: Mayo Clinic*, 75(3), 316-7.

PMID #: 10725965

*No abstract available.*

Wolfe, F. (2000). **Management of fibromyalgia.** *Annals of Internal Medicine*, 132(12), 1004; author reply 1005.

PMID #: 10858155

*No abstract available.*

## 1999

Adams, N.; & Sim, J. (1999). **Physical and other non-pharmacological interventions for fibromyalgia.** *Baillière's Best Practice & Research: Clinical Rheumatology*, 13(3), 507-23.

PMID #: 10562382

ABSTRACT: There is little empirical evidence for the effectiveness of physical and other non-pharmacological approaches to the management of FM. Although a number of studies have been conducted into such approaches, many of these are uncontrolled, and relatively few randomized controlled trials of appropriate size and methodological rigour have been carried out. This chapter provides an overview of the evidence available under the following headings: exercise, EMG biofeedback training, electrotherapy and acupuncture, patient education and self-management programs, multimodal treatment approaches, and other interventions. It is hard to reach firm conclusions from the literature, owing to the variety of interventions that have been evaluated and the varying methodological quality of the studies concerned. Nonetheless, in terms of specific interventions, exercise therapy has received a moderate degree of support from the literature, and has been subjected to

more randomized studies than any other intervention. In contrast, there is little or no evidence available for most types of electrotherapy. In terms of overall management strategies, a multimodal program of management, including physical, psychological and educational components and delivered in a multidisciplinary setting, has gained some support from descriptive and experimental studies, and accords with current understanding of the aetiology and clinical features of FM. There is a clear need for further systematic evaluation of the effectiveness of non-pharmacological treatment approaches in FM.

Leventhal, L.J. (1999). **Management of fibromyalgia.** *Annals of Internal Medicine*, 131(11), 850-8.  
PMID #: 10610631  
*No abstract available.*

Parziale, J.R. (1999). **The clinical management of fibromyalgia.** *Medicine and Health*, 82(9), 325-8.  
PMID #: 10517077

ABSTRACT: FM is characterized by chronic diffuse muscular aches, fatigue and poor sleep; it affects nearly three million individuals in the United States alone, predominantly younger women. The diagnosis of FM requires adherence to the American College of Rheumatology criteria and the exclusion of secondary causes and systemic diseases. Treatment with sleep cycle regulators, NSAIDs, and light aerobic exercise is usually helpful. Patients must be reminded that FM is often a chronic condition, but can be successfully treated.

## 1998

Demitrack, M.A. (1998). **Chronic fatigue syndrome and fibromyalgia: Dilemmas in diagnosis and clinical management.** *Psychiatric Clinics of North America*, 21(3), 671-92, viii.  
PMID #: 9774804

ABSTRACT: There has been a resurgence of interest in recent years in both chronic fatigue syndrome and FM. These perplexing and common clinical conditions are a source of significant patient morbidity and frame one of the more enduring dilemmas of contemporary Western medical thought, namely the ambiguous interface between mind and body. In this article, the current definitions are reviewed, and a framework for an emerging psychobiological model of these syndromes is presented. These issues are synthesized into a pragmatic approach to clinical management.

Goolkasian, P.; Mason, L.W.; & McCain, G.A. (1998). **Evaluation of multimodal treatment program for fibromyalgia.** *Journal of Behavioral Medicine*, 21(2), 163-78.

PMID #: 9591168

ABSTRACT: A quasi-experimental design was used to assess a multimodal pain treatment program for female patients with FM to ascertain immediate and long-term effects. Laboratory and self-report pain measures together with psychological measures were obtained from patients who were tested up to six months after treatment. Comparison data were also obtained from FM patients who failed to qualify for the treatment program because of insurance coverage. Immediate and long-term treatment effects were evident with the psychological measures and the subjective pain measures but not with the laboratory pain measures. Participants who attended the month-long multimodal program achieved significant and positive changes on most of the outcome measures. However, relapse prevention must be addressed.

Harper, A.; & Liu, D. (1998). **The effectiveness of chiropractic management of fibromyalgia patients: A pilot study.** *Journal of Manipulative and Physiological Therapeutics*, 21(6), 429.

PMID #: 9726075

*No abstract available.*

Schneider, M. (1998). **The effectiveness of chiropractic management of fibromyalgia patients.** *Journal of Manipulative and Physiological Therapeutics*, 21(4), 307.

PMID #: 9608391

*No abstract available.*



## Quick Looks

**“Accommodation and Compliance Series: Employees with Fibromyalgia Syndrome”.**  
**The Job Accommodation Network. Authors Kendra M. Duckworth, M.S., and Beth Loy, Ph.D.**

PDF Version: [www.jan.wvu.edu/media/Fibro.pdf](http://www.jan.wvu.edu/media/Fibro.pdf)  
[www.jan.wvu.edu/media/Fibro.html](http://www.jan.wvu.edu/media/Fibro.html)

**Fibrohugs: Support for fibromyalgia, chronic pain & all related conditions**  
[www.fibrohugs.com](http://www.fibrohugs.com)

**FibroTalk Fibromyalgia Support Community—FIBROTALK.com**  
[www.fibrotalk.com](http://www.fibrotalk.com)

**Fibromyalgia and chronic pain information at iVillage Total Health**  
[yourtotalhealth.ivillage.com/fibromyalgia.html](http://yourtotalhealth.ivillage.com/fibromyalgia.html)

**The Fibromyalgia Community—FMScommunity.org**  
[www.fmscommunity.org](http://www.fmscommunity.org)

**Fibromyalgia Health Center through WebMD**  
[www.webmd.com/fibromyalgia](http://www.webmd.com/fibromyalgia)

**Fibromyalgia Information Foundation (NIF)**  
[www.myalgia.com](http://www.myalgia.com)

**Fibromyalgia information from the National Pain Foundation (NPF)**  
[www.nationalpainfoundation.org/MyPain/contentdirectory\\_Fibromyalgia.asp](http://www.nationalpainfoundation.org/MyPain/contentdirectory_Fibromyalgia.asp)

**Fibromyalgia Network (FN)**  
[www.fmnetnews.com](http://www.fmnetnews.com)

**Fibromyalgia Syndrome Support—FibroFriends.com**  
[www.geocities.com/eviee55](http://www.geocities.com/eviee55)

**Google Groups—Fibromyalgia**  
[groups.google.com/groups/dir?lnk=nhpsfg&q=Fibromyalgia&qt\\_s=Search+for+a+group](http://groups.google.com/groups/dir?lnk=nhpsfg&q=Fibromyalgia&qt_s=Search+for+a+group)

**National Fibromyalgia Association (NFA)**  
[www.fmaware.org](http://www.fmaware.org)

**National Fibromyalgia Research Association (NFRA)**  
[www.nfra.net](http://www.nfra.net)

**ProHealth—FibromyalgiaSupport.com**  
[www.fibromyalgiasupport.com](http://www.fibromyalgiasupport.com)

**“What Is Fibromyalgia? Fast Facts: An Easy-to-Read Series of Publications for the Public”.** The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)  
[www.niams.nih.gov/Health\\_Info/Fibromyalgia/fibromyalgia\\_ff.asp](http://www.niams.nih.gov/Health_Info/Fibromyalgia/fibromyalgia_ff.asp)

**Yahoo Groups—Fibromyalgia**  
[groups.yahoo.com/search?query=Fibromyalgia](http://groups.yahoo.com/search?query=Fibromyalgia)



## Clinical Trials

### *Fibromyalgia*

Scholarly articles are only one aspect of research. Clinical trials in which medications, medical treatments, and other interventions are tested on human subjects is a vital part of understanding, treating, and possibly curing a particular disease, syndrome, or disability.

We searched ClinicalTrials.gov for current studies related to FM. The search resulted in 57 current studies recruiting patients. The following is a sampling of studies related to pain management. A complete listing of FM studies is available at [www.clinicaltrials.gov/ct2/results?term=Fibromyalgia](http://www.clinicaltrials.gov/ct2/results?term=Fibromyalgia).

#### **Effectiveness of Acupuncture in Relieving Pain Due to Fibromyalgia**

Sponsor: National Center for Complementary and Alternative Medicine (NCCAM)

ClinicalTrials.gov ID: NCT00142597

ABSTRACT: FM is one of the most common rheumatic diseases, second only to osteoarthritis. It causes chronic muscle pain and fatigue. Acupuncture functions by targeting specific nerve pathways to different organs or parts of the body. Research has shown that acupuncture is effective in decreasing or eliminating people's sensitivity to pain in targeted regions. However, some believe that the reduction in pain is due to a placebo response rather than acupuncture itself. This study will use two brain-imaging techniques to determine the brain response to acupuncture versus a simulation of acupuncture, thereby assessing whether acupuncture is actually effective in relieving pain.

#### **Pain Management Techniques for Fibromyalgia**

Sponsor: National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

ClinicalTrials.gov ID: NCT00086060

ABSTRACT: FM is a chronic pain condition that has no cure, and drugs are only partially successful in managing its symptoms. Many people with FM utilize non-drug management methods, such as exercise, for symptom relief. Non-drug methods can be quite effective, but some patients find it difficult to use these methods consistently. This study will determine which non-drug methods re-

lieve FM symptoms by examining patients' brains after exercise or relaxation techniques. Preliminary data indicate that beliefs about one's personal ability to control pain result in use of differential neural mechanisms to process pain. This study will use fMRI, a tool for visualizing pain-processing patterns, to gain insights into how exercise and relaxation techniques modify pain processing in patients with FM.












































































































#### **Lifestyle Physical Activity to Reduce Pain and Fatigue in Adults with Fibromyalgia**

Sponsor: National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

ClinicalTrials.gov ID: NCT00383084

ABSTRACT: FM is characterized by muscle pain, fatigue, and "tender points," specific places on the body that hurt when pressure is applied. Individuals with FM may also experience trouble sleeping, morning stiffness, headaches, and mood disorders. The exact cause of FM is unknown, and currently, there is no cure. While exercise improves the symptoms of FM, pain and fatigue often prevent individuals from beginning an exercise regimen in the first place. Because of the known benefits of exercise on FM, it is important to find new ways for individuals with FM to increase their physical activity. Lifestyle physical activity, which involves any type of moderate-intensity activity such as walking, housecleaning, shopping, and gardening, may be more doable than structured exercise for individuals with FM. Also, lifestyle physical activity accumulated in short bouts over time can be as effective as single exercise sessions in producing health benefits. The purpose of this study is to determine the effect of daily 30-minute lifestyle physical activity performed throughout the day on pain and fatigue in sedentary adults with FM.









### *Search Terms for Fibromyalgia: Management & Treatment*

- |   |   |
|---|---|
|  Activities of Daily Living (ADLs)               |  Myofascial Pain Syndromes                   |
|  Acupuncture                                     |  Needs Assessment                            |
|  Adrenergic Uptake Inhibitors                    |  Nervous System Diseases                     |
|  Alternative Medicine/Therapies                  |  Neuralgia                                   |
|  Analgesics                                      |  Neuromuscular Agents                        |
|  Anti-Consultants                                |  Nociceptors                                 |
|  Anti-Depressive Agents                          |  Occupational Therapy                        |
|  Anti-Inflammatory Agents                        |  Outcome/Assessment                          |
|  Anti-Psychotic Agents                           |  Pain/Management/Measurement/Prevention      |
|  Anxiety Disorders                               |  Palliative Care                             |
|  Attitudes/Health/Health Personnel               |  Patient/Care/Management/Planning/Team       |
|  Autonomic Nervous System Diseases               |  Peripheral Nervous System Diseases          |
|  Behavior/Modification/Therapy                   |  Pharmacology                                |
|  Biofeedback                                     |  Physical Fitness/Therapy                    |
|  Calcium Channel Blockers                        |  Physician-Patient Relations                 |
|  Chiropractic/Manipulation/Methods               |  Pituitary-Adrenal System                    |
|  Chronic Disease/Illness                         |  Practice Guidelines                         |
|  Chronic Fatigue Syndrome                        |  Prevalence                                  |
|  Clinical Management/Trials                      |  Program Development/Evaluation/Methods      |
|  Cognition                                       |  Prospective Studies                         |
|  Cognitive Therapy                               |  Psychology/Psychotherapy                    |
|  Colonic Diseases                                |  Psychosocial Aspects/Factors                |
|  Combined Modality Therapy                      |  Quality of Life                            |
|  Community Health Services                     |  Randomized Controlled Trials              |
|  Complementary Therapies                       |  Range of Motion                           |
|  Complex Regional Pain Syndromes               |  Receptors, Neurokinin-1                   |
|  Counseling/Techniques                         |  Receptors, Serotonin, 5-HT3               |
|  Data Collection                               |  Recovery of Function                      |
|  Depression                                    |  Rehabilitation                            |
|  Diet Therapy/Supplements                      |  Relaxation Techniques                     |
|  Disease Management                            |  Research Design/Reviews/Standards/Trends  |
|  Drug Therapy, Combination                     |  Rheumatology                              |
|  Education, Patient/Physician/Public           |  Risk Factors                              |
|  Electric Stimulation Therapy                  |  Self Care/Efficacy                        |
|  Endocrine System Diseases                     |  Serotonin/Metabolism/Uptake Inhibitors    |
|  Epidemiology                                  |  Severity of Illness Index (SOI)           |
|  Etiology                                      |  Sleep/Disorders/Therapy                   |
|  Evaluation Techniques                         |  Social Support                            |
|  Evidence-Based Medicine                       |  Somatoform Disorders                      |
|  Exercise/Tolerance                            |  Statistics                                |
|  Fatigue                                       |  Substance P                               |
|  Fibromyalgia (FM)/Fibromyalgia Syndrome (FMS) |  Survival Rate                             |
|  Functional Evaluation/Limitations/Status      |  Syndrome                                  |
|  Health Promotion/Status                       |  Therapeutic Touch/Training                |
|  Holistic Health                               |  Therapy/Modalities                        |
|  Hypnosis                                      |  Tissues                                   |
|  Hypothalamo-Hypophyseal System                |  Tramadol                                  |
|  Immune Tolerance                              |  Transcutaneous Electric Nerve Stimulation |
|  Massage                                       |  Treatment/Outcome                         |
|  Medicine, Chinese Traditional                 |  Ultrasonics                               |
|  Metabolism Disorders                          |  Vocational Rehabilitation                 |
|  Mood Disorders                                |  Women's Health                            |
|  Muscle, Pain                                  |  Work/Adjustment/Performance               |
|  Musculoskeletal Diseases                      |  Workers with Disabilities                 |

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