

FIBROMYALGIA: A CURRENT PERSPECTIVE

GOALS AND OBJECTIVES

Course Description

"Fibromyalgia: A Current Perspective" is a home study continuing education course for therapists and assistants. The course presents updated information about fibromyalgia syndrome including sections on history, diagnostic criteria, demographics, etiology, associated conditions, and treatment.

Course Rationale

The information presented in this course is critical for rehabilitation professionals in all settings who work with individuals who are afflicted with Fibromyalgia Syndrome. A greater understanding of this condition will facilitate the development of effective treatment programs that address the specific challenges faced by these patients.

Course Goals

Upon completion of this course, the therapist or assistant will be able to

1. recognize fibromyalgia from a historical perspective.
2. list the diagnostic criteria established by the American College of Rheumatology.
3. identify who is at risk for fibromyalgia.
4. differentiate several of the past and current theories of etiology.
5. identify and understand the numerous associated co-conditions that are prevalent among fibromyalgia patients.
6. identify and differentiate the recommended treatments for fibromyalgia including medications, physical/occupational therapy, massage therapy, acupuncture, and behavioral therapies.

Course Instructor

Michael Niss PT

Method of Instruction

Self-paced home study course available via written correspondence or internet.

Target Audience

Occupational Therapists, occupational therapist assistants, physical therapists, and physical therapist assistants

Course Educational Level

This course is applicable for introductory learners.

Course Prerequisites

None

Continuing Education Credits

One (1) hour of continuing education credit (1 NBCOT PDUs/1 contact hours)
AOTA - .1 AOTA CEU, Category 1: Domain of OT – Client Factors, Context
Category 2: OT Process – Intervention

Criteria for issuance of Continuing Education Credits

A documented score of 70% or greater on the written post-test.

Determination of Continuing Education Credit Hours

Fibromyalgia: A Current Perspective will require at least 1 hour to complete. This estimate is based on the accepted standard for home based self-study courses of approximately 10-12 pages per hour. The complete text of this course is 15 pages (excluding References and Post Test)


**FIBROMYALGIA:
A CURRENT PERSPECTIVE**

OUTLINE

	page
Introduction	3
History	3
Medical Criteria	3-4
Demographics	4
Etiology	4-6
Associated Conditions	6-7
Sleep Disorders	6
Irritable Bowel Syndrome	6
Chronic Headaches	6
TMJ	6
Multiple Chemical Sensitivity	7
Other	7
Subjective Complaints	7
Fibromyalgia vs. Myofascial Pain	8
Treatment	8-16
Medication	8-11
Physical / Occupational Therapy	11
Massage Therapy	11
Acupuncture	13
Behavioral Therapies	11-13
Hormone Therapies	13
Support Groups	13
References	14-15
Research Abstracts	16-17
Post-Test	18-19

FIBROMYALGIA: A CURRENT PERSPECTIVE

INTRODUCTION

Fibromyalgia syndrome (FMS) is a nonprogressive complex chronic condition that is characterized by widespread musculoskeletal pain, tenderness in specific areas, generalized fatigue, and restless sleep. It is estimated that it affects up to six million people in the United States. 

HISTORY

For many years a lack of unifying etiology and universal terminology hindered the understanding and recognition of fibromyalgia. In the early 1800's physicians wrote about a condition they called "muscular rheumatism" that involved fatigue, stiffness, aches, pains and disturbed sleep. An Edinburgh physician documented tender points in 1824. A psychologist in the United States wrote in 1880 about a collection of symptoms consisting of fatigue, widespread pain, and psychological disturbances. He called it neurasthenia and attributed the problems to the stress of modern life. In 1904, a pathologist by the name of Ralph Stockman reported (erroneously) that he had discovered evidence of inflammatory changes occurring in the fibrous, intra-muscular septa on biopsies from afflicted patients. This led Sir William Gowers to introduce the term "Fibrositis" to describe the condition. Numerous subsequent studies of similar biopsies have failed to replicate the inflammatory findings of Stockman and the term "fibrositis" is no longer considered an accurate descriptor for the pathology.

Hench was the first to document the term fibromyalgia in the early 1970's. In his writings he noted that muscle as well as ligamentous and tendonous connective tissues are usually subjectively involved. Later, in the 1980's, Yunus proposed a unified classification system, and the first diagnostic criteria. And it was in 1990 that the American College of Rheumatology first established firm criteria for the classification and diagnosis of the disease.

CRITERIA

The following is the 1990 criteria established by the American College of Rheumatology:

History of widespread pain.

Pain is considered widespread when all of the following are present: pain in the left side of the body, pain in the right side of the body, pain above the waist, and pain below the waist. In addition, axial skeletal pain (cervical spine or anterior chest or thoracic spine or low back) must be present. In this definition, shoulder

FIBROMYALGIA

and buttock pain is considered as pain for each involved side. **Widespread pain must have been present for at least 3 months.**

Pain in 11 of 18 tender point sites on digital palpation.

Occiput: Bilateral, at the suboccipital muscle insertions.
Low cervical: Bilateral at the anterior aspects of the intertransverse spaces at C5-C7

Trapezius: Bilateral, at the midpoint of the upper border.

Supraspinatus: Bilateral, at origins, above the scapula spine near the medial border.

Second Rib: Bilateral, at the second costochondral junctions, just lateral to the junctions on the superior surfaces.

Lateral epicondyle: Bilateral, 2 cm distal to the epicondyles.

Gluteal: Bilateral, in superior lateral quadrants of buttocks in anterior fold of muscle.

Greater trochanter: Bilateral, posterior to the trochanteric prominence.

Knee: Bilateral, at the medial fat pad proximal to the joint line.

Digital palpation should be performed with an approximate force of 4 kg. For a tender point to be considered “positive”, the subject must state that the palpation was painful. “Tender” is not to be considered as painful.

DEMOGRAPHICS

It is estimated that fibromyalgia affects up to six million people in the United States. Females outnumber males at an almost eight to two ratio. Most frequently symptoms are reported between the ages of forty and fifty. Caucasians appear to be the most affected race.

ETIOLOGY

Initially, fibromyalgia was believed to be an inflammatory condition. Early researchers pursued this theory, but were unable to substantiate any findings of inflammation. Boland in 1947 noted the strong association with depression and stress and proposed the theory of “psychogenic rheumatism”. Subsequent studies disproved this line of thinking and established that fibromyalgia is neither a psychosomatic nor somatoform disorder; and that when depression and

FIBROMYALGIA

anxiety are present, it is more likely the result of fibromyalgia than the cause of it. (Yunus1991,).

It has been suggested that the pain of FMS is related to microtrauma in deconditioned muscles and that exercise works by conditioning these muscles (Bennett 1989). However, reports of muscle biopsy abnormalities other than disuse atrophy have been difficult to replicate (Schroder 1993), and some tender points are not over muscles or tendons, such as the one over the medial fat pad of the knee (Smythe 1989). Muscle energy metabolism is normal in FMS (Simms 1994, Vestergaard-Poulsen 1995).

FMS may be due to non-restorative deep sleep (Moldofsky 1975, 1993). Patients with FMS often report insomnia or light sleep as well as an increase in FMS symptoms after disturbed sleep (Campbell 1983). Abnormal amounts of alpha activity on the electroencephalogram of FMS patients during deep sleep have been reported (Hauri 1973, Moldofsky 1975). FMS-like symptoms can be induced in normal volunteers by depriving them of deep sleep, except in subjects who exercise regularly (Moldofsky 1975). Controlled trials have confirmed the value of aerobic exercise in the treatment of FMS (McCain 1988). Exercise increases time spent in deep sleep (Hobson 1968), perhaps a mechanism for its therapeutic effect.

A number of changes in immune system function have been found in FMS, generally in the direction of increased activity, many of which can also be induced in normal volunteers through sleep deprivation (Moldofsky 1993). Many of the symptoms of FMS may be caused by elevations, induced by abnormal sleep, in certain cytokines such as interleukin-2, which has been found to be elevated in FMS patients, and which causes FMS-like symptoms when given intravenously (Wallace 1990, Moldofski 1995).

Serum levels of serotonin and its dietary precursor tryptophan are low in FMS (Russell 1996). Amitriptyline, one of the medications often used to treat FMS (see below), blocks serotonin reuptake and increases deep sleep. Serotonin is important in deep sleep and in central and peripheral pain mechanisms. Whether serotonin abnormalities are etiologically important in FMS or secondary is yet unknown.

The concentration of substance P, a peripheral pain neurotransmitter, is several times higher in the cerebrospinal fluid of FMS patients than in pain-free controls, implying a peripheral origin for FMS pain (Russell 1994). A number of other neuroendocrine abnormalities have been identified in FMS patients (Crofford 1994, Moldofsky 1995, Russell 1996) which form the basis for other theories of the etiology of FMS.

Although no specific inheritance pattern has been identified, an increased incidence in relatives of affected patients has been noted (Pellegrino 1989). Development of the syndrome may require a predisposing factor, possibly inherited, as well as a precipitating factor such as trauma, infection, stress, or sleep disruption. The immunologic abnormalities have suggested to some an infectious etiology, but if FMS were infectious we would expect to see an increased incidence in spouses of an affected patient and this is not the case.

FIBROMYALGIA

There are many environmental exposures that are generally accepted triggers of fibromyalgia, all of which fall into the general category of "stressors." Examples of stressors include physical trauma (especially to the axial skeleton), infections (e.g., parvovirus, Hepatitis C), emotional distress (acute or chronic), endocrine disorders (e.g., hypothyroidism), and immune stimulation, as may occur in a variety of autoimmune disorders. Although studies of groups of individuals suggest that there are many "stressors" that can trigger the development of this illness, because of the plethora of potential exposures an individual may be exposed to, it is sometimes difficult to assess the putative role of a single environmental stressor in a single individual.

ASSOCIATED CONDITIONS

Sleep Disorders

Most fibromyalgia patients have an associated sleep disorder called the alpha-EEG anomaly. Researchers found that fibromyalgia syndrome patients could fall asleep without much trouble, but their deep level (or stage 4) sleep was constantly interrupted by bursts of awake-like brain activity. It should be noted that most patients diagnosed with chronic fatigue syndrome have the same alpha-EEG sleep pattern and some fibromyalgia-diagnosed patients have been found to have other sleep disorders, such as sleep myoclonus or PLMS (nighttime jerking of the arms and legs), restless leg syndrome and bruxism (teeth grinding). The sleep pattern for clinically depressed patients is distinctly different from that found in FMS or CFS.

Irritable Bowel Syndrome

Studies have found that IBS typically overlaps with fibromyalgia syndrome in the same patient. FMS occurs in up to 60% of patients with irritable bowel syndrome (IBS). Up to 70% of patients with a diagnosis of FMS have symptoms of IBS.

Chronic Headaches

FMS patients frequently experience migraines and tension-type headaches, with roughly 50% succumbing to one or both problems on a chronic basis.

Temporomandibular Joint Dysfunction

It is common for fibromyalgia patients to have pain and dysfunction of the temporomandibular joint or TMJ. The resultant symptoms are headaches, jaw and facial pain, limited and painful mouth opening, popping and clicking in opening and closing the jaw, grating sounds in the jaw joint, pain provoked by prolonged chewing or chewing hard to chew substances, yawning, sneezing, etcetera. There is also referred pain to the temporal areas and behind the eyes and most fibromyalgia patients complain of frequent migraine, tension, and/or vascular headaches. Along with TMJ disturbances and sleep disturbances, most fibromyalgia patients are heavily involved in involuntary nighttime grinding and daytime clenching and grinding of teeth, resulting in a cycle of TM joint pain and muscle pain.

Multiple Chemical Sensitivity Syndrome

Sensitivities to odors, noise, bright lights, medications and various foods are common in roughly 50% of FMS patients.

Other

Painful menstrual periods (dysmenorrhea), chest pain, morning stiffness, cognitive or memory impairment, numbness and tingling sensations, muscle twitching, irritable bladder, the feeling of swollen extremities, skin sensitivities, dry eyes and mouth, frequent changes in eye prescription, dizziness, and impaired coordination can occur.

Associated signs and symptoms (*Wolfe 1990*).

widespread pain	97.6% of patients
tenderness in > 11/18 tender points	90.1
fatigue	81.4
morning stiffness	77.0
sleep disturbance	74.6
paresthesias	62.8
headache	52.8
anxiety	47.8
dysmenorrhea history	40.6
sicca symptoms	35.8
prior depression	31.5
irritable bowel syndrome	29.6
urinary urgency	26.3
Raynaud's phenomenon	16.7

SUBJECTIVE COMPLAINTS

Pain is the most dominant chief complaint. Two thirds of patients at times report severe pain. The descriptions used to characterize the pain are inclusive of radiating, shooting, pressing, pricking, and nagging. The areas most affected are the back, neck, shoulders, arms, knees, hands, hips, thighs, legs, and feet. At times the TMJ region and the anterior chest can be affected. The symptoms of pain appear to be increased with anxiety, cold temperature, humid conditions, and/or stress. Symptoms are most dominant early in the morning and late a night. Patients frequently feel tired all the time with an associated sense of weakness throughout multiple muscular parts. Sleep patterns are poor with morning fatigue, frequent awakenings during the night, and difficulty falling asleep. Though patients often report swelling in their limbs and numbness in their fingers and/or feet, there are no objective findings on physical examination.

FIBROMYALGIA VS. MYOFASCIAL PAIN SYNDROME

Myofascial pain syndrome may be confused with fibromyalgia. To complicate the situation, **myofascial pain syndrome may occur in patients with fibromyalgia.** Similar to fibromyalgia, myofascial pain syndrome is a condition that is diagnosed clinically. With a careful history and physical examination, a physician is able to determine whether a patient has fibromyalgia, myofascial pain syndrome, or both. While the pain of fibromyalgia is widespread with changing areas of emphasis, myofascial pain arises from trigger points in individual muscles. The definitive differentiation between myofascial pain syndrome and fibromyalgia is made by physical examination. Myofascial pain syndrome is defined by the presence of trigger points. Trigger points are located within taut bands of muscle, whereas tender points are not. Palpation of trigger points often reproduces the pain radiation pattern experienced by the patient and can elicit a twitch in the muscle. **The pain elicited on palpation of a tender point is localized to the area under palpation and does not elicit a jump or twitch. Lastly, trigger points often have a nodular texture described as similar to a pencil eraser, whereas tender points have no palpatory characteristics distinguishing them from surrounding tissue.**

TREATMENT

Medication

Tricyclic Antidepressants

Many of the tricyclic anti-depressants have side effects that may be intolerable for some people. These include constipation, drowsiness, dry mouth and eyes, headache, heart rate abnormalities, increased sensitivity to sunlight, morning "hangover," and weight gain. These side effects may improve after patients have been using the medication for a few weeks. If not, the doctor should be consulted regarding another medication.

Elavil (Amitriptyline) dose is typically 2.5 to 50 mg per night. Elavil is known for pain relieving effects and ability to help sleep. This medication should be taken early in the evening, or half-dose in the evening and the other half at bedtime to avoid morning hangover.

Flexeril (Cyclobenzaprine) dose is usually 10 to 30 mg per night. A tricyclic drug similar to Elavil with muscle relaxant qualities. May be taken along with Elavil to provide muscle relaxant relief. This medication usually reaches its maximum effect after one to two weeks of continuous use.

Sinequan (Doxepin) a typical dose is 2.5 to 75 mg. Also a tricyclic that functions in the body as an antihistamine. Available in tablet form as well as liquid.

FIBROMYALGIA

Pamelor (Nortriptyline) the usual dose is 10 to 50 mg per night. Similar effects as Elavil but may be less sedating.

Desyrel (Trazodone) the usual dose is 25 mg to 50 mg per night. Desyrel is as effective as the other anti-depressants, however, is chemically different and may be less likely to cause side effects. Desyrel is a mild stimulant and may make a sleep problem worse if combined with a tricyclic anti-depressant at night.

Benzodiazopines (anti-depressant/anti-anxiety)

Xanax (Alprazolam) a typical dose is 0.25 to 1.5 mg at night. Xanax has been found to be more effective if *taken* with 2400 mg (per day) of ibuprofen. However, Xanax may cause depression in some people, and has been known to be addictive. Xanax may be effective for some fibromyalgia patients if taken in low doses.

Klonopin (Clonazepam) 0.5 to 1 mg at night is helpful in sleep myoclonus (arm and/or leg spasms). Klonopin may help patients who grind their teeth. It stays active in the body longer, and has the same possibility of being addictive as Xanax, and may cause depression in some people.

Serotonin-Boosting Medications

The following are some of the side effects of serotonin boosting medications: anxiety/nervousness, headache, insomnia, mood swings, sexual difficulties, nausea and stomach distress.

Prozac (Fluoxetine) is available in liquid as well as tablet form. Typical dose is 1 to 20 mg in the morning. Prozac may cause insomnia, but it can be taken in combination with one of the sedating tricyclics such as Elavil or Sinequan.

Paxil (Paroxetine hydrochloride) the usual dose is 5 to 20 mg in the morning. This medication is the most potent of this type. A sedating medication may be needed at night in conjunction with Paxil. It can cause nervousness, insomnia, nausea, sexual difficulties and sweating, although many patients report having fewer side effects with Paxil as compared to Prozac.

Zoloft (Sertraline) 50 to 200 mg is the usual dosage. Anecdotally proven helpful for some patients. Sedating medication may also be needed to combat insomnia.

FIBROMYALGIA

Serzone (Nefazodone) is the newest of these agents. As well as increasing serotonin, it also increases norepinephrine. Serzone's efficacy and side effects are similar to Effexor.

Effexor (venlafaxine hydrochloride) the usual dose is 27.5 mg two times per day. This dosage can be adjusted, depending on the effects. Effexor is not related to the tricyclics or the Prozac-like drugs; however, it does boost serotonin and has tricyclic properties. The typical side effects are nervousness, anxiety, insomnia and increased blood pressure.

Muscle Relaxants

Patients should be cautioned that muscle relaxants can cause drowsiness.

Norflex (Orphenadrene Citrate) is one to try if the patient does not respond to Elavil or Flexeril. The recommended dose is 50 to 100 mg twice a day. Norflex is a central acting analgesic muscle relaxant that has been found to decrease pain in some FMS patients. Norflex is most often taken at night; some patients are able to tolerate this medication in the morning as well.

Flexeril (Cyclobenzaprine) is a muscle relaxant and can be beneficial to help loosen the tightness of FMS muscles. Flexeril may be taken in combination with Elavil to provide maximum relief.

Nonsteroidal Anti-Inflammatory Agents (NSAIDS)

Used alone, anti-inflammatories have not proven effective in reducing FMS pain. However, Elavil and Xanax's effectiveness is increased when used in combination with ibuprofen (2400 mg per day). If the patient has arthritis, osteoarthritis or tendinitis these medications would be helpful in alleviating the pain. These medications can cause stomach upset and some patients have developed bleeding ulcers.

Sleep Medications

These may be used occasionally during flares or when the patient is having severe sleeping problems. They can be habit forming, however, **Ambien is thought to be less habit forming, is well tolerated, with few side effects,** and there are no known drug interactions. This sleep medication should not be used more than two or three times a week.

Vitamins, Coenzymes, Minerals

Preparations that have been claimed to have benefit for CFS patients include adenosine monophosphate, coenzyme Q-10, germanium, glutathione, iron, magnesium sulfate, melatonin, NADH, selenium, I-

FIBROMYALGIA

tryptophan, vitamins B12, C, and A, and zinc. The therapeutic value of all these preparations has not been validated.

Physical/Occupational Therapy

Physical rehabilitation consisting of postural education, stretching, and low-level aerobics is beneficial in treating fibromyalgia. Taking part in an exercise program usually increases endurance and decreases pain. Low-level aerobic exercise has been shown to be especially beneficial. For patients reluctant to exercise because they are already feeling pain and fatigue, low-level aerobic activities such as walking, biking, swimming, or gentle water aerobics are generally the best way to start an exercise regimen. Exercise on a regular basis such as every other day with slow, gradual increments in activity enable patients to reach a better level of fitness.

Massage Therapy

Massage therapy has been found to be useful in managing fibromyalgia. A study of people with fibromyalgia done by the Touch Research Institute at the University of Miami School of Medicine found that those who got 30 minutes of massage two times a week for 5 weeks had less anxiety and depression and lower levels of stress hormones. Over time they reported less pain and stiffness, less fatigue, and less trouble sleeping.

Acupuncture

According to research presented on November 12, 2001 at the annual meeting of the American College of Rheumatology in San Francisco, acupuncture helped relieve symptoms such as pain and depression in women with fibromyalgia. The researchers reported that patients who received acupuncture treatments showed statistically significant improvement on measures of pain, depression and mental health after the first month.

Behavioral Therapies

Cognitive Behavior Training

Studies continue to show that when fibromyalgia patients increase their psychological capacity to deal with the specific conditions of their disorder and their lives, they are more apt to experience physical improvement. Cognitive-behavioral therapy is an effective method for enhancing patients' belief in their own abilities and to develop methods for dealing with stressful situations.

The primary goals of cognitive-behavioral therapy are to change any distorted perceptions that individuals have of the world and of themselves and to change their behavior accordingly. Using specific tasks and self-observation, patients gradually shift their fixed ideas that they are helpless against the pain that dominates their lives to the perception that pain is

FIBROMYALGIA

only one negative factor and, to a degree, a manageable experience among many positive ones.

Cognitive therapy is particularly helpful in defining and setting limits, behavior that is extremely important for these patients. Many fibromyalgia patients live their lives in extremes. They first become heroes or martyrs, doggedly pushing themselves past the point of endurance until they collapse and withdraw. This inevitable backlash reverses their self-perception, and they then view themselves as complete failures, unable to cope with the simplest task. One important aim of cognitive therapy is to help such patients discover a middle route, whereby they can prioritize their responsibilities and drop some of the less important tasks or delegate them to others. Such behavior will eventually lead to a more manageable life and to less of an absolutist perspective on themselves and others.

Cognitive therapy may be expensive and not covered by insurance, although it is usually of short duration, typically six to 20 one-hour sessions. Patients are also given homework, which usually includes keeping a diary and attempting tasks that they have avoided because of negative thinking.

A typical cognitive therapy program may involve the following measures:

- **Keep a Diary.** The patient is almost always asked to keep a diary, and it is usually a key component of cognitive therapy. The diary serves as a general guide for setting limits and planning activities. The patient uses the diary to track any stress factors, such as a job or a relationship that may be making the pain worse or better.
- **Confront Negative or Discouraging Thoughts.** Patients are taught to challenge and reverse negative beliefs ("eg, I'm not good enough to control this disease, so I'm a total failure.") to using coping statements ("Where is the evidence that I can control this disease?")
- **Set Limits.** Limits are designed to keep both mental and physical stress within a manageable framework so that patients do not get discouraged by forcing themselves into situations in which they are likely to fail. For example, tasks are broken down into incremental steps, and patients focus on one at a time.
- **Seek out Pleasurable Activities.** List a number of enjoyable low-energy activities that can be conveniently scheduled.
- **Prioritize.** Patients learn to drop some of the less critical tasks or delegate them to others.
- **Accept Relapses.** Over-coping and accomplishing too much too soon can often cause a relapse of symptoms. Patients should

FIBROMYALGIA

respect these relapses and back off. They should not consider them a sign of treatment- or self-failure.

Hypnosis

Hypnosis allows a person to participate in the healing process and take personal control over pain reduction.

In its simplest form, hypnosis involves inducing a trance-like state characterized by extreme relaxation, focused attention, and heightened susceptibility to suggestion. The two most common applications are the use of hypnosis to decrease sensitivity to pain (hyponeuralgia) and to numb sensation of pain (hypnoanesthesia).

Regardless of the application, the most important factor is the ability to focus attention. Research into psychological and physiological mechanisms supports the idea that the use of attention is what gives the mind power over the body.

Growth Hormone Therapy

About one third of fibromyalgia patients have low levels of insulin-like growth factor 1 (IGF-01), a surrogate marker for low growth hormone (GH) secretion. Among the many clinical features of growth hormone deficiency are diminished energy, dysphoria, impaired cognition, poor general health, reduced exercise capacity, muscle weakness, and cold intolerance. Researchers discovered that women with fibromyalgia and low IGF- I levels experienced an improvement in their overall symptomatology and number of tender points after nine months of daily growth hormone therapy.

Support Groups

The rise of patient self-help support groups has been an important factor in alleviating adjustment problems. Groups allow the airing of problems that are not discussed in detail at the doctor's office or at home. These often include the difficulty that fibromyalgia patients have in coping with the illness, the effects of the illness on other family members, or problems involving sleeping, working, and performing activities of daily living. At these meetings, people are able to share their fears and hopes, find friends, and come to terms with their illness. By lessening the anxieties about the illness, these group sessions end the isolation that so many patients impose on themselves.

FIBROMYALGIA

REFERENCES

- Bennett, Robert M. *The Clinical Neurobiology of Fibromyalgia and Myofascial Pain: Therapeutic Implications*. The Haworth Medical Press, 2002
- Bennett RM. Beyond fibromyalgia: ideas on etiology and treatment. *J Rheumatol* 16(suppl 19):185, 1989.
- Boland EW. Psychogenic rheumatism: the musculoskeletal expression of psychoneurosis. *Ann Rheum Dis* 6:195, 1947.
- Buchwald D et al. The chronic, active Epstein-Barr virus infection syndrome and primary fibromyalgia. *Arthritis Rheum* 30:1132,
- Campbell SM et al. Clinical characteristics of fibrositis. I. A "blinded" controlled study of symptoms and tender points. *Arthritis Rheum* 26:817, 1983.
- Caudill, Margaret A.. *Managing PAIN Before It Manages You*. The Guilford Press, 2002
- Crofford LJ et al. Hypothalamic-pituitary-adrenal axis perturbations in patients with fibromyalgia. *Arthritis Rheum*. 37:1583-1592, 1994.
- Fennell, Patricia A. *The Chronic Illness Workbook*. New Harbinger Publications, Inc, 2001
- Fitzcharles MA, Costa DD, Poyhia R. A study of standard care in fibromyalgia syndrome: a favorable outcome. *J Rheumatol* 2003 Jan; 30(1):154-9
- Fitzcharles MA, Boulos P. Inaccuracy in the diagnosis of fibromyalgia syndrome: analysis of referrals *Rheumatology (Oxford)* 2003 Feb; 42(2):263-7
- Goldenberg DL. Fibromyalgia and chronic fatigue syndrome: are they the same? *J Musculoskel Med*. 7:19, 1990.
- Hauri P, Hawkins DR. Alpha-delta sleep. *Electroenceph Clin Neurophysiol*. 34:233, 1973.
- Hobson JA. Sleep after exercise. *Science* 162:1503, 1968.
- McCain GA et al. A controlled study of the effects of a supervised cardiovascular fitness training program on manifestations of primary fibromyalgia. *Arthritis Rheum* 31:1135, 1988.
- McIlwain Harris H. and Fulghum, Bruce Debra. *The Fibromyalgia Handbook: A 7-Step Program To Halt And Even Reverse Fibromyalgia*. Henry Holt and Company, 2003
- Mense, Siegfried, Simons, David G. and Russell, I Jon. *Muscle Pain—Understanding Its Nature, Diagnosis, and Treatment* Lippincott, Williams & Wilkins, 2000
- Moldofsky HD et al. Musculoskeletal symptoms and non-REM sleep disturbance in patients with "fibrositis syndrome" and healthy subjects. *Psychosom Med*. 37:341, 1975.
- Moldofsky HD. A chronobiologic theory of fibromyalgia. *J Musculoskel Pain* 1(3/4):49, 1993
- National Fibromyalgia Partnership (NFP). *Fibromyalgia: A Resource Guide For Health Care Professionals (2002/2003 Edition)*
- Pellegrino, Mark. *From Whiplash to Fibromyalgia: A Painful Beginning That Doesn't End*. ORC Publishing, 2002
- Pellegrino, Mark. *Inside Fibromyalgia*. Anadem Publishing, Inc., 2001
- Pellegrino MJ et al. Familial occurrence of primary fibromyalgia. *Arch Phys Med Rehab* 70:61, 1989
- Peres MF. Fibromyalgia, fatigue, and headache disorders. *Curr Neurol Neurosci Rep* 2003 Mar; 3(2):97-103
- Pfeiffer A, Thompson JM, Nelson A, Tucker S, Luedtke C, Finnie S, Sletten C, Postier J. Effects of a 1.5-day multidisciplinary outpatient treatment program for fibromyalgia: a pilot study. *Am J Phys Med Rehabil* 2003 Mar; 82(3):186-91
- Russell IJ et al. Elevated cerebrospinal fluid levels of substance P in patients with the fibromyalgia syndrome. *Arthritis Rheum* 37:1593-1601, 1994.
- Russell IJ. Neurochemical pathogenesis of fibromyalgia syndrome. *J Musculoskel Pain* 4(1/2):61-92, 1996.
- Schachter CL, Busch AJ, Peloso PM, Sheppard MS. Effects of short versus long bouts of aerobic exercise in sedentary women with fibromyalgia: a randomized controlled trial. *Phys Ther* 2003 Apr; 83(4):340-58 *Fibromyalgia Abstracts*: June 2003 11

To take the post-test for CE credit, go to: WWW.CHEAPCEUS.COM

FIBROMYALGIA

- Schroder HD et al. Muscle biopsy in fibromyalgia. *J Musculoskel Pain* 1(3/4):165, 1993.
- Simms RW et al. Lack of association between fibromyalgia syndrome and abnormalities in muscle energy metabolism. *Arthritis Rheum* 37:801-807, 1994.
- Smythe H. Fibrositis syndrome: a historical perspective. *J Rheumatol* 16(suppl 19):2, 1989.
- Soderberg S, Strand M, Haapala M, Lundman B. Living with a woman with fibromyalgia from the perspective of the husband. *J Adv Nurs* 2003 Apr; 42(2):143-50
- Sprott H. What can rehabilitation interventions achieve in patients with primary fibromyalgia? *Curr Opin Rheumatol* 2003 Mar; 15(2):145-50
- Staud, Roland. *Fibromyalgia for Dummies*. Wiley Publishing, Inc., 2002
- Vestergaard-Poulsen P et al. ³¹P NMR spectroscopy and electromyography during exercise and recovery in patients with fibromyalgia. *J Rheumatol* 22:1544-1551, 1995.
- Wallace DJ. et al. Fibromyalgia, cytokines, fatigue syndromes, and immune regulation. In: *Advances in Pain Research and Therapy*, JR Friction and E Awad, eds., Raven Press, v.17: 227-287, 1990.
- White KP et al. Work disability evaluation and the fibromyalgia syndrome. *Semin Arthritis Rheum* 24:371-381, 1995.
- Wolfe F et al. The American College of Rheumatology 1990 criteria for the classification of fibromyalgia: report of the multicenter criteria committee. *Arthritis Rheum*. 33:160, 1990
- Wolfe F. Fibromyalgia: on diagnosis and certainty. *J Musculoskel Pain* 1(3/4):17, 1993.
- Wolfe F. The epidemiology of fibromyalgia. *J Musculoskel Pain*1(3/4):137, 1993.
- Yunus MB et al. Relationship of clinical features with psychological status in primary fibromyalgia. *Arthritis Rheum* 34(1):15-21, 1991.

Appendix A**SELECTED RECENT FIBROMYALGIA PUBLISHED RESEARCH
ABSTRACTS****Gustafsson M, Ekholm J, Ohman A.****From shame to respect: musculoskeletal pain patients' experience of a rehabilitation programme, a qualitative study. J Rehabil Med. 2004 May;36(3):97-103.**

OBJECTIVE: This study aimed to describe and analyse how participants with fibromyalgia or chronic, widespread, musculoskeletal pain, 1 year after completion, experienced a rehabilitation programme; and what knowledge and strategies they had gained. DESIGN, METHODS AND SUBJECTS: Semi-structured interviews with 16 female patients were analysed using the grounded theory method of constant comparison. RESULTS: One core category, from shame to respect, and 4 categories, developing body awareness/knowledge, setting limits, changing self-image and negative counterbalancing factors, and hopelessness and frustration over one's employment situation emerged from the data. The core category represents a process where the informants changed emotionally. Three categories were identified as important for starting and maintaining the process, one category affected the process negatively. CONCLUSION: The rehabilitation programme started the process of change, from shame to respect. The informants learned new strategies for handling their pain and other symptoms; they improved their self-image and communication in their social environment.

Huuhka MJ, Haanpaa ML, Leinonen EV.**Electroconvulsive therapy in patients with depression and fibromyalgia. Eur J Pain. 2004 Aug;8(4):371-6.**

The effect of electroconvulsive therapy (ECT) on depression and other symptoms of fibromyalgia was studied in a prospective 3-month trial in 13 patients with fibromyalgia and concomitant depression. All the patients met the DSM-IV diagnostic criteria for Major Depressive Disorder and fulfilled the American College of Rheumatology diagnostic criteria for fibromyalgia. The Montgomery and Asberg Depression Rating Scale (MADRS) and the clinical global impression scale (CGI) were used to assess the severity of depression and the clinical change of the patients. The fibromyalgia impact questionnaire (FIQ) was used to evaluate the severity of the fibromyalgia symptoms. The intensity of pain was evaluated using a 6-point scale (0=no pain, 5=very severe pain), and tender point palpation. All assessments were performed at baseline and at follow-up visits, which took place one week, one month and three months after ECT. There was a significant improvement in depression after ECT according to MADRS. Using CGI, six patients were much or very much improved, while four patients were minimally improved and three patients had no change. There was significant improvement in four out of ten FIQ item scores, "feel good", "fatigue", "anxiety" and "depression". No significant change was found in the FIQ item scores "physical function", "pain", "stiffness" and "morning tiredness" or number of tender points and self-reported pain. We conclude that ECT is a safe and effective treatment for depression in fibromyalgia patients, but has no effect on the pain or other physical symptoms of these patients.

Yildiz S, Kiralp MZ, Akin A, Keskin I, Ay H, Dursun H, Cimsit M.**A new treatment modality for fibromyalgia syndrome: hyperbaric oxygen therapy. J Int Med Res. 2004 May-Jun;32(3):263-7.**

Fibromyalgia syndrome (FMS) is characterized by longstanding multifocal pain with generalized allodynia/hyperalgesia. There are several treatment methods but none has been specifically approved for this application. We conducted a randomized controlled study to evaluate the effect of hyperbaric oxygen (HBO) therapy in FMS (HBO group: n = 26; control group: n = 24). Tender points and pain threshold were assessed before, and after the first and fifteenth sessions of therapy. Pain was also scored on a visual analogue scale (VAS). There was a significant reduction in tender points and VAS scores and a significant increase in pain threshold of the HBO group after the first and fifteenth therapy sessions. There was also a significant difference between the HBO and control groups for all parameters except the VAS scores after the first session. We conclude that HBO therapy has an important role in managing FMS.

Nielson WR, Jensen MP.**Relationship between changes in coping and treatment outcome in patients with Fibromyalgia Syndrome. Pain. 2004 Jun;109(3):233-41.**

The present study utilized a sample of 198 individuals with Fibromyalgia Syndrome (FMS) to examine the association between treatment process variables (beliefs, coping strategies) and treatment outcomes (pain severity, activity level, emotional distress and life interference) related to a 4-week multidisciplinary fibromyalgia treatment program. Multiple regression analyses were utilized to evaluate these relationships pretreatment to posttreatment as well as from pretreatment to 3- and 6-month follow-ups. The results indicated that outcomes were most closely related to: (1) an increased sense of control over pain, (2) a belief that one is not necessarily disabled by FM, (3) a belief that pain is not necessarily a sign of damage, (4) decreased guarding, (5) increased use of exercise, (6)

FIBROMYALGIA

seeking support from others, (7) activity pacing and (8) use of coping self-statements. These findings are consistent with a cognitive-behavioural model of fibromyalgia, and suggest targets for therapeutic change.

Redondo JR, Justo CM, Moraleda FV, Velayos YG, Puche JJ, Zubero JR, Hernandez TG, Ortells LC, Pareja MA.
Long-term efficacy of therapy in patients with fibromyalgia: a physical exercise-based program and a cognitive-behavioral approach.
Arthritis Rheum. 2004 Apr 15;51(2):184-92.

OBJECTIVE: To analyze the long-term efficacy of 2 interventions for female fibromyalgia (FM) patients: 1) cognitive-behavioral therapy (CBT), and 2) a physical exercise (PE)-based strategy. **METHODS:** We conducted a prospective, long-term, randomized, parallel clinical trial. The outcome variables are physical activity, aerobic capacity, and results of the Fibromyalgia Impact Questionnaire (FIQ), Short Form 36, Beck Anxiety and Depression Inventory, Chronic Pain Self-Efficacy Scale, and Chronic Pain Coping Inventory. All were measured at baseline, posttreatment, 6 months, and 1 year. The duration of both treatments was 8 weeks. **RESULTS:** Some items of the FIQ and some strategies to cope with pain improved significantly in both groups after treatment. All variables measuring functional capacity improved significantly in the PE group, whereas only physical activity of the vertebral column improved in the CBT group. There were no differences in anxiety, depression, and self efficacy after treatment in either group. After 1 year of followup, most of the parameters had returned to baseline values in both groups. However, in the PE group, functional capacity remained significantly better. **CONCLUSIONS:** PE and CBT improve clinical manifestations in FM patients only for short periods of time. Improvement in self efficacy and physical fitness are not associated with improvement in clinical manifestations.

Sverdrup B.
Use less cosmetics--suffer less from fibromyalgia?
J Womens Health (Larchmt). 2004 Mar;13(2):187-94.

BACKGROUND: Widespread muscular pain, tenderness, unrefreshing sleep, and fatigue all constitute the fibromyalgia syndrome (FMS), which is often seen in both general and rheumatology practice, primarily in women. The etiology is unknown. The FMS patient usually looks normal. The cardinal finding is the presence of focal areas of hyperalgesia, that is, tender points. My clinical impression was that FMS patients often complained of dry skin. My hypothesis was that overambitious cleaning, resulting in dry skin, and regular use of cosmetics as moisturizers could contribute to their symptoms. **METHODS:** A prospective, randomized, controlled trial of 48 women with FMS (some of whom had a rheumatic condition) who were regular users of cosmetics was carried out to investigate if a reduced use of cosmetics would reduce the symptoms. The intervention group received special instructions on skin care, with reinforcement when needed. **RESULTS:** After 2 years, there was significant improvement in pain ($p < 0.02$), sleep ($p < 0.01$), and stiffness ($p < 0.02$), together with better physical function ($p < 0.01$) and improved wellbeing ($p < 0.01$) in the experimental group, as measured by the Fibromyalgia Impact Questionnaire (FIQ). **CONCLUSIONS:** The results should motivate further studies on the possible adverse effects of cosmetic use in FMS and perhaps other conditions.

Cedraschi C, Desmeules J, Rapiti E, Baumgartner E, Cohen P, Finckh A, Allaz AF, Vischer TL.
Fibromyalgia: a randomised, controlled trial of a treatment programme based on self management.
Ann Rheum Dis. 2004 Mar;63(3):290-6.

OBJECTIVE: To evaluate the efficacy of a treatment programme for patients with fibromyalgia (FM) based on self management, using pool exercises and education. **METHODS:** Randomised controlled trial with a 6 month follow up to evaluate an outpatient multidisciplinary programme; 164 patients with FM were allocated to an immediate 6 week programme ($n = 84$) 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 programme and 6 month follow up examinations. Six months after programme 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 programme 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 6 months after programme completion.

FIBROMYALGIA: A CURRENT PERSPECTIVE

PRE/POST-TEST

1. Which organization established the criteria for the classification and diagnosis of fibromyalgia?
 - A. American College of Rheumatology
 - B. Arthritis Foundation
 - C. American College of Family Physicians
 - D. American Medical Association

2. How many tender points must a patient have to meet the established criteria of fibromyalgia?
 - A. 8
 - B. 11
 - C. 14
 - D. 18

3. Which of the following is NOT a common site for tenderness
 - A. Occiput
 - B. Second rib
 - C. Greater trochanter
 - D. PSIS

4. Most fibromyalgia patients have an associated sleep disorder called
 - A. Beta stress insomnia
 - B. Gamma stage 4
 - C. IBS
 - D. Alpha-EEG anomaly

5. The definitive differentiation between Myofascial Pain Syndrome and Fibromyalgia is
 - A. Fibromyalgia has trigger points
 - B. Myofascial Pain Syndrome has trigger points
 - C. There is no difference between the two diagnoses
 - D. Fibromyalgia pain is localized

FIBROMYALGIA

6. Which of these medications is a Tricyclic Antidepressant?
- A. Elavil
 - B. Xanax
 - C. Prozac
 - D. Norflex
7. Muscle Relaxants can cause
- A. Mood swings
 - B. Constipation
 - C. Sexual difficulties
 - D. Drowsiness
8. Which of the following would NOT be an appropriate PT/OT activity for fibromyalgia patients?
- A. High impact aerobics
 - B. Stretching
 - C. Postural education
 - D. Gentle pool exercises
9. A typical cognitive therapy program involves which of the following?
- A. Psychoanalysis
 - B. Medication
 - C. Keeping a diary
 - D. Hypnosis
10. About one third of fibromyalgia patients have low levels of
- A. IGF-01
 - B. Insulin
 - C. Antidiuretic hormone
 - D. Adrenaline