

Fibromyalgia and Myofascial Pain Syndrome

This article will explore our current understanding of fibromyalgia syndrome (FMS) from both traditional and alternative perspectives, and will offer management options that can substantially improve treatment outcomes of patients suffering from this insidious condition. Understanding FMS is a tall order because there are so many possible causes for it, and because it can involve so many systems of the body. There is usually a dysfunction in the regulation of the central nervous, immunologic, and endocrine systems that is superimposed upon the malfunction of many organs. To make a long story short, however, conventional medicine does not understand either the etiology or the pathophysiology of this disease well enough to cure, or even manage it satisfactorily. Consequently, physicians and patients alike have experienced continuing frustration resulting from the typically poor treatment outcomes, as well as from the enormous economic burden incurred by ongoing medical costs and lost income. Even the insurance industry has been severely challenged by the mighty costs generated by this disease. This predicament has created the need to conceptualize a new approach that can provide a better management of the mal-homeostasis (the body's physiologic adjustment to metabolic abnormalities) that results from FMS, and causes its associated symptoms. This has been done! A new paradigm of natural healing has emerged that is based on supporting the innate healing capacity of the body, and relies on nutrition and natural therapies as its major tools. Unfortunately, conventional medicine has not yet acknowledged this paradigm. This new "natural healing" paradigm is based on what is called a "process oriented approach" (POA) to managing disease. The objective of the POA is to create a healthier homeostasis by identifying and correcting metabolic imbalances, and in responding to the specific increased metabolic needs created by the disease process. While symptoms are often addressed by interventions that address the "disease process" itself to effect a cure, the main goal is to initiate the innate wisdom of the body to heal itself thus allowing it to restore a more functional homeostasis, which can then manifest the healing process.

Much of the basis for this concept is developed from the premise that if all your cells are healthy and functioning perfectly, how can you be sick. Each individual human cell is analogous to a microscopic industrial plant. Without an adequate supply of appropriate raw materials, it cannot be expected to manufacture all of its products properly. Similarly, if it is supplied with the wrong raw materials, it will be unable to produce a product that is perfect. Put simply, we must consume all the nutrients (food) that our cells require, and avoid those that are not needed (and potentially toxic), if our cells are to manufacture everything required for perfect function. (Saputo 1998).

The Science

Fibromyalgia syndrome (FMS) is a controversial syndrome that was first recognized in 1987 by the American Medical Association (AMA). It is a rheumatologic diagnosis with a rather precise diagnostic criterion. FMS must be distinguished from Myofascial Pain Syndrome (MPS) even though they share several characteristics: both are affected by cold weather and may involve increased sympathetic nerve activity, resulting in conditions such as Raynaud's phenomenon. They both have tension headaches and paraesthesia as major associated symptoms (Donaldson et al 2001). Muscles (Chaitow *ibid*) that contain areas that feel like "a tight rubber band" are found in about 30% of patients with FMS, and in more than 60% of patients with MPS. Patients with FMS have reduced muscle endurance than do patients with MPS. Muscles in FMS patients tend to feel soft and doughy as compared to the tense, taut bands felt in MPS. FMS may be more of a systemic or medical disorder—possibly a component of chronic fatigue syndrome; and about 75% of patients of chronic fatigue syndrome meet the criteria of FMS; however, substance P levels are normal in MPS and chronic fatigue syndrome and not in FMS. MPS is more likely to be a musculoskeletal (orthopedic) condition. FMS occurs often as a development of chronic MPS, and 20% of MPS patients also have FMS. 72% of FMS patients have active trigger points (TPs) (Gerwin 1995). Patients with FMS often are hypermobile while patients with MPS are often hypomobile, at least at the affected region. This differentiation is important, since the prognosis of each of these is very different. Both MPS and FMS may be caused by a variety of conditions which include: endocrine disorders, allergies, neoplasms, connective tissue diseases, infections, nutritional, as well as joint and ligamentous dysfunctions.

MPS is a painful condition felt by some to be due to myofascial trigger point activation, either by direct causes or as a reactive mechanism to other dysfunctions. The pain of MPS is better localized than the pain from FMS. The pain may be confined to a large area and involve several separate sites; however, it is often unilateral with a defined pattern of distribution. MPS is associated with focal tenderness; FMS is associated with widespread tenderness. MPS is seen equally in males and females, whereas about 80% diagnosed with FMS are females (Donaldson et al *ibid*). The patient is often awakened from sleep by pain in both MPS and FMS, but chronic fatigue is not a common complaint in MPS patients. MPS does not produce morning stiffness as often as FMS does. Tension headaches are a common associated symptom in both. Prognosis for MPS is very favorable, and the condition responds well to techniques described in this text. In the MPS paradigm, emphasis is on short and tight muscles as causative factors of pain and dysfunctions. Table 11-1 compares FMS and MPS.

Fibromyalgia Syndrome

According to a consensus document on fibromyalgia syn-

Table 11-1: Fibromyalgia and Myofascial Pain Syndrome

SYMPTOMS AND SIGNS	FIBROMYALGIA	MYOFASCIAL PAIN SYNDROME
MUSCLES WITH A TIGHT BAND FOUND IN	30% of patients with FMS	60% of patients with MPS
REDUCED MUSCLE ENDURANCE	more in with FMS	less in MPS
TENSION HEADACHES	same	same
PAIN AFFECTED BY COLD WEATHER	same	same
INCREASED SYMPATHETIC NERVE ACTIVITY, RESULTING IN CONDITIONS SUCH AS RAYNAUD'S PHENOMENON	more in FMS	less in MPS
SUBSTANCE P LEVELS	elevated in FMS	normal in MPS
ABNORMAL LEVELS OF NEUROTRANSMITTERS AND HORMONE RESPONSES	common	less common
CHRONIC FATIGUE	common in FMS	not common in MPS
HYPERMOBILITY	common	less common
HYPOMOBIITY	less common	more common
INTERNAL MEDICAL PROBLEMS SUCH AS: IRRITABLE BOWEL SYNDROME, DYSMENORRHEA, INTERSTITIAL CYSTITIS, DEPRESSION, ANXIETY, MITRAL VALVE PROLAPSE, AND RESTLESS LEG SYNDROME	common	less common
MYOFASCIAL TRIGGER POINTS	found in 72% of patients	found in 100% of patients
WIDE-SPREAD TENDERNESS AND PAINFUL SKIN ROLE	found in 100% of patients	less common
SLEEP DISORDER	very common	less common
ALLODYNIA AND HYPERALGESIA	common	not common
COGNITIVE DIFFICULTIES	common	not common

drome (FMS)—the Copenhagen Declaration (Jacobsen, Samsøe, Lund, 1993)—FMS is a painful, non-articular condition predominantly involving muscles, and is the commonest cause of chronic widespread musculoskeletal pain. FMS affects an estimated 3-6 million persons in the US, most of whom are women between the ages of thirty and fifty (Goldenberg 1994), or about 2-3.3% of the North American population (Donaldson et al 2001). It was only in 1987 that FMS was recognized by the American Medical Association (AMA) as a distinct condition that is responsible for significant disability. Many, however, still do not believe FMS to be a distinct condition. They consider it a “garbage diagnosis” for many separate disorders, including “just being” a variety of a chronic affective (somatization) disorder. Some also think that FMS and related disorders such as chronic fatigue syndrome (CFS) and irritable bowel syndrome, rep-

resent the end of a continuum of pain amplification rather than a unique or discrete disorder. Most patients who meet the criteria for FMS also meet the CDC criteria for CFS (Clauw 1999). FMS, however, is a chronic disorder and is relatively unchanging, which most likely represents a distinct entity involving a disorder of the nervous system. FMS can be a source of substantial disability (Kaplan, Schmidt and Cronan, 2000). This is especially true if the patient has had it for a long time without adequate medical support. Nearly everyone with FMS exhibits reduced coordination skills and decreased endurance abilities, although some of this may be due to co-existing chronic myofascial pain (Starlanyl and Copeland 2001). In FMS the pain often is bilateral, variable, and generalized (involving all four quadrants). The pain cannot be explained by peripheral mechanisms only, and neural plasticity with *CNS sensitization* and *reduced*

pain threshold probably playing a major role. FMS has been described as widespread allodynia and hyperalgesia (Russell 1998). In allodynia, nonpainful sensations are translated into pain sensations. Hyperalgesia means that pain sensations are amplified. FMS and disorders such as restless leg syndrome, primary dysmenorrhea, migraines, tension headaches, post-traumatic stress disorder (PTSD) etc., have been grouped under the name, “Central Sensitivity Syndromes,” or sensitivity within the spinal cord and brain.

Patients often complain of fatigue, poor quality of sleep, morning stiffness, and increased perception of effort. Muscular pain increases during repetitive muscular activity and usually eases on cessation. FMS is frequently associated with other medical conditions such as: irritable bowel syndrome, dysmenorrhea, headaches, subjective sensation of joint swelling (Baldry *ibid*), interstitial cystitis, depression, generalized anxiety, mitral valve prolapse, restless leg syndrome, chronic fatigue syndrome, and myofascial pain syndrome (MPS). Seniors (Starlanyl and Copeland *ibid*) are more troubled by fatigue, soft-tissue swelling, and depression. In younger people, discomfort after minimal exercise, low-grade fever or below-normal temperature, and skin sensitivity are also common (*ibid*).

Common symptoms are: generalized pain that may be dull, deep, achy, or at times sharp, throbbing, shooting—especially if associated with other pathologies. There are often increased morning symptoms of stiffness, fatigue, and pain. (*OM: Often these symptoms are associated with Dampness, Cold/Yang-deficiency, and poor Blood circulation in TCM, in FMS patients.*) Other common symptoms are dizziness and/or light-headedness, “spaciness” or “brain fog” (cognitive difficulties), which can be due to orthostatic hypotension and/or hypovolemia (*OM: Often these last symptoms are associated in FMS patients with Phlegm, Central-Qi-deficiency with Clear-Yang not rising, Blood-deficiency, unstable-Yang or Wind*),¹ photophobia, ocular complaints (dry eyes, poor focus), stress intolerance, depression, sleep disturbances (including early morning awakening (*OM: Often associated in FMS patients with*

Liver-Blood and Liver-Qi), digestive symptoms of bloating, gas, cramping, diarrhea and/or constipation (*OM: Often associated with Dampness or Qi-stagnation in FMS patients*), palpitations, easy sweating or night sweats (*OM: Often associated in FMS patients with Qi-Yin-Blood-deficiency or Damp-Heat*), urinary symptoms, respiratory symptoms, and allergic symptoms (*OM: Often Kidney related in FMS patients*). A reduced threshold of the nervous system can result in sensitivity to odors, sounds, lights, and vibrations that others don’t even notice (*OM: often due to easy arousal of Yang, Wind or Phlegm in FMS patients*).

Dellenbach et al (2001) have suggested that many women with chronic pelvic pain are suffering from what they call *pelvic-fibromyalgia*. Pelvic pain is a frequent and difficult problem because, despite the quality and diversity of diagnostic procedures, no relevant etiology will be found in 30-40% of all cases. It has been proposed that in many cases the dominant pain is not visceral but parietal. In many of these patients, the pelvic envelope is more painful than the pelvic content. In these cases, one can evoke the diagnosis of pelvic-fibromyalgia; it is quite similar to classic FMS. This form of pain actually is the somatization of a past and difficult issue that will be revealed very slowly and progressively in the realm of a multidisciplinary, i.e. simultaneous physical and psychological approaches.² In the majority of cases these women have a history of physical, moral, or sexual trauma inflicted by family members or a third party. Taking in to account the physical dimension of body pain at the same time as psychotherapy will considerably enhance the efficiency of treatment. In the experience of the study authors, 70% of all women will be “cured” using this approach.

FMS caused by trauma or another precipitating event such as serious (often infectious) illness tends to be more severe and have a worse prognosis than idiopathic FMS (Romano 2000).³ *Basal autonomic states* of FMS patients are characterized by increased sympathetic and decreased parasympathetic tone with associated increased resting heart rate, reduced heart rate variability (especially remaining-active-at-night frequency domains, and cortisol or heart rate variability), deranged response to orthostatic stress,⁴ and a high incidence of Raynaud’s syndrome (Donaldson et al 2001). Thus, FMS may be a *sympathetically mediated syndrome* with alterations in the feedback loops interconnecting the hypothalamus-pituitary-adrenal axis.

The prognosis of FMS is much less favorable than MPS, and patients often respond only temporarily to treatment. Reeves (1994), however, reported that prolotherapy was successful in resolving symptoms in more than 75% of his

1. Some patients with FMS and up to 90% of patients with chronic fatigue syndrome may suffer from a *neurally mediated hypotension* (NMH), a condition characterized by an abnormal drop in blood pressure in response to prolonged standing, exposure to warm environments, or vigorous exercise. These patients usually feel dizzy and may suffer from syncope and palpitations. Some patients may feel muscle pains, nausea, sweating, abdominal pain, blurred vision, or severe itching. Assessment may need to be done with a head-up tilt table test performed by a cardiologist in a hospital. The patient is placed on a tilt table and brought up to seventy degrees for forty-five minutes. If no significant drop in blood pressure occurs, an adrenalin-like drug is given intravenously. This usually brings out the latent positives. Some patients can be diagnosed by an office orthostatic blood pressure test. First, blood pressure and pulse are taken after lying flat. Then, after standing against a wall for ten minutes without being stimulated, the blood pressure and pulse are taken again. Fainting, extreme dizziness, or a fall in blood pressure (or marked increase in pulse rate) may indicate the presence of NMH and treatment may be tried. Treatment usually includes increased salt and water intake to increase plasma volume. Licorice, drugs, that reduce adrenaline receptor sensitivity, or medications that increase blood pressure may be needed (Bouch 2001).

2. It is a common experience of acupuncturists and body-workers that such histories are revealed during treatments.

3. Information on treatment here reflects the author’s experience with patients in this category.

4. Usually low blood pressure and lightheadedness or “blacking out” on standing.

patients with “severe fibromyalgia.” OM and other natural approaches, preferably in concert, can be very helpful. Cures, however, are few.

Mechanisms of FMS

In general, FMS is thought to be a disorder of the nervous system involving activation of larger myelinated fibers, which are recruited (by chemical amplification in the spinal cord) to rapidly transmit stimuli to the dorsal horn area of the spinal cord. Because these fibers are so large and transmit signals so rapidly, stimuli that are normally not painful are perceived as painful—allodynia (Russell 1999). Animal studies (Mense 1990) have shown that activity in central nociceptive neurons that receive input mainly from muscles are more under central inhibitory control than central nociceptive neurons receiving input from the skin. This central inhibition may explain why treatment to the CNS with antidepressants often is helpful in FMS patients. Furthermore, a review article presented by Henriksson at the Second World Congress on MPS and FMS states that there are a fairly large number of studies that indicate that FMS patients either have a disturbance of pain modulation or a disturbed function of other regulatory systems. He further cites studies that implicate serotonin metabolism and deficiency, a marked increase of substance P in CSF, lower levels of cortisol,⁵ epinephrine and norepinephrine following exercise by patients than in control groups, enhanced pituitary release of ACTH, low metenkephaline levels, and lower levels of serum IGF-1. Finally, Henriksson cites a few reports of immunological disturbances in FMS, for example, a defect in the interleukin-2 pathway. Elevated levels of nerve growth factors may account for high substance P in CSF (Russell *ibid*). Patients with FMS (Bennett 1990) produced excessive lactic acid, which may add to their discomfort after exercise.

Recently, information from PET scans has shown a dysfunction in thalamic activity. Compared to healthy individuals, FMS patients have significantly lower resting-state levels of regional cerebral blood flow in the thalamus and caudate nucleus (Mountz et al 1995, Kwiatek et al 1997). About twenty-two percent of all patients with FMS have a deformity in which the cerebellum and medulla oblongata are impacted into the foramen magnum and upper spinal canal, known as Arnold-Chiari malformation (Russell *ibid*). Twenty-two percent of all patients that presented to the emergency room with whiplash injury show symptoms of FMS within three months (Buskila et al 1997). This may be due to the development of disturbances in CSF circulation and spinal canal size (and which may explain why many such patients respond to cranial osteopathy).

Because many fibromyalgia patients relate a history of acute febrile and congestive respiratory episodes prior to the onset of their illness, a viral cause has been suggested. Tyler

(1997) studied ten random fibromyalgia patients with blood testing to determine if viral infections could play a part in the development of fibromyalgia. Screening volunteers for antibodies to influenza type A viral antigen yielded positive results in nine of ten patients. Only three of ten patients with FMS in a similarly aged and sex-matched group demonstrated positive responses to influenza type B. With the positive results obtained, it appears that influenza type A viral infection, which primarily strikes the respiratory and autonomic nervous systems, might be involved in the development of fibromyalgia. In the FMS cases tested, the patients related a history of upper respiratory infection along with associated neurological symptoms prior to the onset of fibromyalgia symptoms. Retroviruses were also found in muscle tissues at a higher rate in FMS patients than in controls.

Bacterial overgrowth in the small intestine was evaluated in 815 individuals using the lactulose hydrogen breath test. Of these, 152 individuals had the diagnosis of FMS, of whom twenty-nine, who had concurrent inflammatory bowel disease, were excluded. Out of the 123 subjects with FMS syndrome, 96 (78%) tested positive for small intestinal bacterial overgrowth as diagnosed by the lactulose hydrogen breath test. Of those treated with antibiotics, 57% reported global improvement in their FMS symptoms. The data suggested that bowel symptoms in FMS may be caused by small intestinal bacterial overgrowth. Associations have been made between FMS symptoms and the bacterial species, *Chlamydia* and *Borrelia burgdorferi*. In animal models, small intestinal bacterial overgrowth can result in bacterial translocation to mesenteric lymph nodes and can produce systemic effects. These systemic effects are believed to be mediated by endotoxins from Gram-negative bacteria. These endotoxin effects may explain the soft tissue hyperalgesia that is seen in FMS, since injections of the endotoxin into lab animals results in similar hyperalgesia. The authors conclude that the intestinal symptoms of FMS patients may be related to small intestinal bacterial overgrowth, and treatment of small intestinal bacterial overgrowth can result in overall improvement in intestinal symptoms (Pimentel, Chow, Hallegua, Wallace, and Lin 2001).

Patients with genetic factors that predispose them to hyper-coagulability may be especially susceptible to the effects of microbes. Abnormal coagulation can result in the accumulation of soluble fibrin monomer (SFM) that leads to the formation of a dense film that settles on the inner surface of capillary walls. These deposits form a protective coat that covers microbes living in blood vessel walls, thereby making it difficult for the immune system to attack and destroy them. SFM may also make it difficult for nutrients to pass through thickened blood vessel walls to get into cells, as well as for waste products to pass from the cells into the blood stream. This may explain why so many organ systems and regions are involved in FMS (Saputo 2004).

Some authors suggest that FMS is a somatization syndrome due to depression; however, research suggests otherwise (Stiles and Landro 1995). Their data showed that the

5. Licorice (Gan Cao) supplementation is often useful in these patients, especially before exercise.

cognitive dysfunction that reflects a presumed compromise of the right hemisphere (which is present in major depression) is not found in primary FMS. They concluded that this finding would suggest that primary FMS and depression are different conditions. Cianfrini observed SPECT brain imaging during stimulation of tender points in FMS, chronic fatigue patients, depressed patients, and a control group. He found that both FMS and chronic fatigue patients (with FMS) had significant increases in bilateral regional cerebral blood flow in the somatosensory cortex and the anterior angulate cortex following pressure stimulation at three right-sided tender points. However, healthy controls and depressed patients only showed significant regional cerebral blood flow increases in the contralateral thalamus, somatosensory cortex, and anterior angulate cortex. Croft et al. (1994) have noted that many tender points are also found with depression, chronic fatigue, anxiety disorders, and other symptoms of a somatic nature and not part of this list, including pain. Other symptoms seen in both FMS and depression include poor sleep, fatigue, morning stiffness, poor concentration and poor immediate recall (Donaldson et al *ibid*).

Other hypothetical candidates for causal factors in FMS include: central neurotransmitter imbalances, thyroid hormone resistance, stress-related physiological changes, psychopathology, psychosocial factors, and disturbance of alpha stages of sleep (Donaldson et al *ibid*).

In conclusion, any of the above causes of FMS are thought by most authors to cause a disorder of the nervous system involving CNS sensitization and the activation of larger myelinated fibers that are recruited (by chemical amplification in the spinal cord) to rapidly transmit stimuli to the dorsal horn area of the spinal cord. In CNS sensitization, the nervous systems undergoes remarkable changes, often after an initial painful stimulus at the periphery (or after an emotional stress) so that subsequent stimuli, even if normal, registers as pain and/or altered sensations.

Differential Diagnosis

Several conditions can mimic fibromyalgia. Some examples include (Jacobsen, Samsøe and Lund 1993):

- Hypothyroidism
- Widespread malignancy
- Polymyalgia rheumatica
- Osteomalacia
- Generalized osteoarthritis
- Early Parkinson's disease
- Initial stage of various connective tissue diseases.

Diagnostic Criteria

The American College of Rheumatology criteria for the classification of fibromyalgia are:

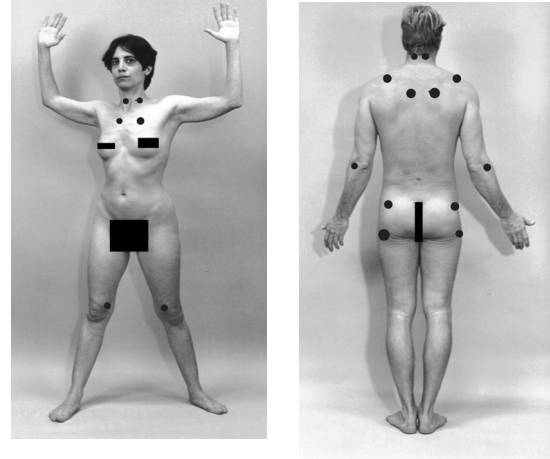


Figure 1: Tender points in FMS patients.

1. History of widespread pain, extending into the sides of the body, and pain above and below the waist.
2. Axial skeletal pain must be present. Low back pain is considered lower segment pain.
3. Pain must also be present in eleven of eighteen tender sites on digital palpation of an approximate force of 4kg. At (fig-1):
 - The suboccipital muscle insertions
 - Anterior aspects of the intertransverse spaces of C5-C7
 - Midpoint of the upper border of the trapezius
 - Origins of supraspinous above the scapula
 - Upper lateral aspects of the second costochondral junction
 - 2 cm distal to the lateral epicondyle
 - The upper outer quadrants of the buttocks in the anterior fold of the gluteal muscle
 - The posterior aspect of the trochanteric prominence of the greater trochanter
 - Medial fat pad proximal to the joint line of the knee.

The diagnostic criteria suggested by Yunus et al. 1981 and Moldofsky et al. 1975 are:

- Widespread aching of more than three months duration
- Cutaneous and subcutaneous sensitivity as demonstrated by skin roll
- Morning fatigue stiffness with disturbed sleep
- Absence of laboratory evidence of inflammation or muscle damage
- Bilateral tender points in at least six areas.

Fibromyalgia and Traditional Chinese Medicine

Because fibromyalgia presents with a variety of symptoms and fatigue is a common complaint, the disorder often falls within traditional Chinese medicine (TCM) internal medical

and Painful Obstruction (painful conditions) classifications. Stress, poor sleep quality, poor diet, insufficient rest, and unresolved emotions (such as fear, anger, frustration, depression, anxiety) or trauma can influence Organ functions, deplete True-Qi (a type of vital energy and functions), Blood, and Fluids, all of which may result in stagnation of Qi (energies and functions of organs) and Blood, formation or retention of Dampness, Phlegm, Wind (types of pathologies in TCM), and symptoms and signs of FMS. Blood loss may injure the Liver, Blood and Qi, which then may fail to nourish the sinews (soft tissues). The muscles may tighten and lose their strength. FMS with a primary syndrome of Blood-deficiency is more commonly seen in females, as blood is lost with the menses. Blood-stasis may be seen in chronic diseases and secondary to trauma.

Although FMS is not necessarily an externally contacted disorder (one of the causes of disease in TCM), many FMS patients present with a history of infectious disease, injury, and/or severe medical conditions in which Pathogenic Factors often play a major role. FMS may be best described by six TCM clinical presentations:⁶

1. Retention of Pathogenic Factors.
2. Latent Pathogenic Factors (a kind of hidden infection such as stealth virus).
3. Pathogenic Factors between the Interior and Exterior (Shao Yang) (an area of the body between the deeper bodily functions such as the organs and the more superficial tissues such as the muscles).
4. Part of Organic or other internal disorder with or without externally contracted Pathogenic Factors. General stress depleting the Righteous (basic healthy functions) and Organs, resulting in Pathogenic Factors and Organic disorders with Liver, Spleen, and Heart involvement

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6. Flaws and Sionneau (2001) state, that in their view the “core” disease mechanism of FMS is Liver-Spleen disharmony. They list the following patterns:

Liver-Spleen disharmony, that they treat with Rambling Powder +- (Xiao Yao San);

Damp-Heat, that they treat with Pinelliae Drain the Heart Decoction +- (Ban Xia Xie Xin Tang);

Qi and Yin-vacuity with Liver-depression and Fire Effulgence, that they treat with Heavenly Emperor Supplement the Heart Elixir +- (Tian Wang Bu Xin Dan Jia Jian);

Spleen-Kidney-Yang Vacuity with Liver-Depression, that they treat with Supplement the Center and Boost the Qi Decoction (Bu Zhong Yi Qi Tang), plus Restore the Right +- (You Gui Yin);

Spleen-Qi and Yin and Yang vacuity with Heat and Liver-depression, that they treat with Supplement the Center and Boost the Qi Decoction (Bu Zhong Yi Qi Tang) and Two Immortals Decoction +- (Er Xian Tang);

Blood-stasis, that they treat with Body Pain Dispel Stasis Decoction +- (Shen Tong Zhu Yu Tang);

Phlegm Nodulation, that they treat with Disperse Scrofula pills (Xiao Luo Wan) and Two Aged Decoction +- (Er Chen Tang).

being the most common. The Lungs and Kidneys are affected often, as well.

5. Trauma injuring Qi, Blood, and related tissues and Organs.
6. Hemorrhage.

FMS often begins following an infectious or other medical disease, which can lead to retained Pathogenic Factors. It may also result from trauma, blood loss, chronic stress, or chronic disease. Stress, trauma, and retained Pathogenic Factors are said to result in obstruction (which almost always result in pain in TCM), and often secondary unstable Yang (such as Yin-Fire, Empty-Heat, endogenous-Wind, and deficient-Yang rising). Unstable Yang can manifest as a facilitated sympathetic nervous system and depressed parasympathetics. This autonomic nervous dysfunction often manifests with increased pulse rate (both day and night) that tends to be variable at *rest* (frequent changes in rate strength and quality with little stimulation, which, in TCM, is often associated with weakness), wiry pulse (often with Shao Yang syndrome), decreased circulation with trophic edema, and increased red skin responses on various areas (the skin remains red when scraped or when a needle is inserted, due to poor circulation from excessive sympathetic activity, or is red due to histamines), increased fascial tissue sensitivity demonstrated by pinching or rolling the skin, tender muscles, nodulations in muscles, hypochondriac tension (felt in abdominal [Hara] evaluation), thoracic inlet/outlet tension (felt at and around the SCM muscles), and reactions at the Kidney/Chong channels (TCM meridians of circulation). The organs/Organs can become congested and dysfunctional. The patient is often oversensitive to stimulations such as noise, odors, light, and stress (often when Phlegm or Liver disorders are seen).

The main pathogenic factor seen clinically in FMS patients is Dampness, often with underlying Deficiency. Transformative-Heat and Yin-Fire/unstable Yang are common complicating factors. The severity of muscle aches is often related to the level of pathogenic Dampness or Phlegm. With time, Blood-stasis and more severe and fixed pain can develop. There are five distinct risk factors for Dampness, Phlegm, and related conditions are: 1) Improper treatment; 2) Fever/Heat/Fire/Cold and other Pathogenic Factors; 3) Damage to the Spleen/pancreas and Liver; 4) Damage to the Lungs; 5) Kidney Yin, Yang, Essence or True-Qi-deficiency. I will discuss each of these in turn.

1. Improper treatment.

A common clinical iatrogenicity is due to excessive use of tonifying methods in a patient with Pathogenic Factors.⁷ This is said to result in further penetration of Pathogenic Factors (often the development of Phlegm) and increased

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7. Many of the author's patients were taking herbs such as Ginseng, either self-prescribed or given by other health-care practitioners.

symptoms of Deficiency, stagnation, and Heat. In such cases, the proper treatment would be to eliminate pathogens. This may then result in the recovery of the patients' Righteous-Qi (vital strength). In some patients a combined approach is warranted.

Excessive or improper use of cold medicines or antibiotics is said to be capable of damaging the Spleen/Stomach and may result in Dampness and Phlegm. It may drive Exterior Wind-Cold Pathogenic Factors (simple viruses, etc.) inside/Interiorly, which become hidden or turn into Heat. With hidden-Heat, the patient becomes ill later, when another infection sets in or life stresses increase. Latent-Heat disorder is said to be more common in a patient with a Deficient constitution or condition, especially Yin.

Excessive or improper use of hot and spicy medicines or foods are said to thicken and consume Fluids that may transform into Phlegm and mucus, and lodge internally, or within the joints and muscles. This may result in pain and obstruction. Hot and spicy medicines are also said to be capable of injuring Yin, resulting in deficient-Yin Empty-Heat and difficulties with sleep.

The excessive use of Qi-moving medicines (or coffee and some spicy foods) is said to be capable of injuring Qi and may result in stagnation due to lack of movement from Qi-weakness. Qi-stagnation may then result in *local* transformative-Heat and inflammatory signs (local inflammation in a Cold and Deficient patient). Deficient-Qi may result in eventual weakness of Blood. The sinews (soft tissues) may tighten and the patient's sleep become affected with increased dreams. Because many Qi-moving herbs are spicy (or food such as curry), they can injure the Yin and Blood, as well.

The excessive use of Blood-moving medicines is said to be capable of injuring both the Qi and Blood, again, resulting in obstruction due to lack of vitality.

An inappropriate use of diuretics can injure Yin, Yang, or True-Qi or drive Pathogenic Factors inside/Interiorly. Pharmaceutical anti-histamines and some expectorants can result in thickening mucus and Phlegm-Heat.

2. Fever/Heat/Fire/Cold and other Pathogenic Factors.

Any fever, Heat, and stagnation may damage the Fluids, which congeal and thicken and do not flow. Excessive *Coldness* from external or internal causes is said to be able to congeal the Fluids, as well.

These common clinical presentations may result in the development of "Trigger Points" (called Ashi-sensitive-Kori-tight bands in Oriental medicine) in muscles that generally feel soft, soggy, and *nodular* with low general tone. Dual Dampness and Yin-deficiency may develop. Blood-stasis is a secondary complication seen frequently. When Blood-stasis is significant, the patient may develop abdominal reactions at the left lower quadrant, visible darkened blood vessels, skin discoloration (especially lips in early stage), choppy or slippery/wiry pulse, and a hard

area or point (fibrous tissue) within the muscular taught band (Kori), often at the motor points (usually at midpoint of muscle), and fixed pain that is worse at night or during inactivity. If Phlegm and Blood-stasis combine and stagnate, the patient may develop bony swellings, spurs, and inflamed and hard calcified bursae. Insertional or calcific tendinitis may develop.

Deficient-Yin patients may show a tight radial blood vessel or a quick, thready-wiry pulse. A pounding pulse⁸ may be seen in both Deficient and Excess conditions with Pathogenic Factors. A significantly weak patient may present with a pounding pulse, which may be slow or fast. The blood vessel wall tends to be tight in Excessive conditions and softer in Deficient patients (at least in Yang-deficiency and Dampness). As the patient's strength is increased, the underlying (Organ) pulse may become more evident. The tongue often shows signs of Dampness and Phlegm. Signs of Blood-stasis may or may not be seen.

3. Damage to Spleen/pancreas and Liver.

Pathogenic Factors may damage the Spleen/pancreas disturbing the transforming and transporting functions of the Spleen. These patients may have digestive symptoms and may be sensitive to foods. They often feel bloated and have epigastric or lower abdominal discomfort and gas. The area around the umbilicus and between CV9-12 may be tight and sensitive. A pulse around the umbilical region may be visible or palpable. The degree of Dampness or Phlegm is often seen on the tongue coat, but not always.

Similar presentations may be seen in patients with prior weakness of the Spleen/pancreas and a tendency to develop or retain Dampness. This condition is often secondary to poor dietary habits and/or excessive stress. Signs and symptoms are similar, but the patient has a long history of weak digestion and/or fatigue. The patient, at times, just reports fatigue or sleepiness after eating and mild bloating. The tongue coat may be normal, but the tongue body is often swollen and pale. The right middle pulse tends to be soft or weak.

Spleen/pancreas weakness is also said to result in deficiency of Blood, which then may weaken ("fail to lubricate") the Liver and may result in Liver Qi-stagnation/congestion. The Liver then may fail to nourish the sinews. The muscles and sinews may develop tension and weakness. Liver-congestion Qi-stagnation may result in variable and poorly localized pains and leave the patient susceptible to emotional stress and aggravation. Because Qi (or Phlegm/Dampness) stagnation is said to slow circulation, Blood-stasis or transformative/congested-Heat may develop. When Qi-stagnation becomes severe and rebels, swelling (usually not substantial or changing) may develop. Heat may congeal Fluids, which become Phlegm. When Phlegm and Blood join, muscles may

8. Not a classical pulse description but seen quite frequently.

become fibrotic and lose flexibility, possibly permanently. With Qi-stagnation, the patient's symptoms may frequently change.

Liver-congestion is a common condition. Liver/wood congestion/stagnation is an Excessive condition and may result in over-regulation of Spleen/earth (according to five-Phases theory). This disharmony is another risk factor of Spleen/pancreas failing to transform and transport, which may result in Dampness.

4. Damage to the Lungs.

Pathogenic Factors can disturb the Lung's descending function, which normally directs Fluids to the Kidneys (often after respiratory infections). This results in dryness, edema, and Qi-dysfunction: the Lungs are said to control Qi, which is the motive force behind Fluids and Blood. The failure of the Lungs to control Qi and vessels may lead to a pooling of Blood or Fluids in the lower body and may become visible as varicose veins or edema.

These patients more commonly show signs of upper edema (Phlegm) under eyes (baggy eyes), face, and sinuses, and tenderness/induration at Lu-1, GB-21, and UB-13 (upper back) *areas*. Upper arm and shoulder symptoms are common. Patients may or may not have other respiratory symptoms. The tongue coat may show signs of Dampness/Phlegm and may also show Dryness at the root.

5. Kidney Yin, Yang, Essence, or True-Qi deficiency.

The Kidneys are the source of Yin and Yang and can influence most of the bodily systems that may lead to FMS. It is Kidney-Yang that is the origin of Spleen-Yang, the catalyst within the Spleen that is in charge of transformation and transportation (digestion and metabolism). The Kidneys are the root of Qi, and healthy functional breathing requires the Kidneys to accept and root Qi. The Fire/force of the Heart and Triple Warmer come from the Kidneys. Therefore, both Blood and Fluid circulation are ultimately dependent on healthy Kidney function. The Fluids that travel with Defensive-Qi (via Triple Warmer) at the *Cuo Li* (the space between the skin and muscles/membranes/interstice) are rooted in Mingmen (Kidney-Yang), and therefore depend on the Kidneys for motility and warmth. The creation of Blood is also ultimately dependent on healthy marrow and Kidneys, because the Kidneys warm the Spleen/pancreas; they motivate, moisten and nourish the Liver; they root the Lungs and warm the Heart. All of these functions are needed to form Blood. The Kidneys are said to be in charge of Fluids; therefore, Dampness and other Fluid dysfunctions can result from Kidney disorders.

Patients with Kidney (Essence or True-Qi) weakness may have a long history of poor health and general physical weakness, especially poor physical and mental *endurance*. These may be due either to constitutional factors or chronic illness. The lower abdomen of such patients may be soft at the surface and tense deep inside,

with excessive pulsations palpable. Kidney points at or just below the umbilicus may be tight and tender. The patient's complexion may be dull, and, especially in women, the area around the mouth and eyes may be green and dark. Tenderness and tightness/indurations may be felt especially at UB-52 (quadratus lumborum), CV4-6, K-7, and K-3. Phlegm develops due to a lack of vitality. This may be "unseen Phlegm," *affecting non-mucus membranes* and lacking many of the usual signs of Phlegm such as a greasy and slimy tongue coat, especially in Kidney-Yin-deficient patients. The pulse at the proximal positions may reflect weakness.

Latent Pathogenic Factors are said to be seen most commonly in Deficient patients who do not have a *clear* history/onset of infectious disease. An insufficiency of the patient's True-Qi, Kidney-Qi, Yin and Essence (i.e., Righteous or basic functional strength) is said to result in Pathogenic Factors entering the Interior. This may be seen without the development of superficial symptoms (due to the absence of a struggle between the weakened antipathogenic-Qi and the pathogens) or with only mild symptoms. Later, symptoms of Heat, irritability, digestive disturbances, fatigue, and possibly muscle pain may develop.⁹ Yin-deficient patients may tend to develop a complex syndrome with symptoms of Heat, Cold, and Dampness. Yang-deficient patients may tend to develop a Cold syndrome with Dampness; however, local Fire may be seen.¹⁰ In FMS patients, if treatments that usually work in "latent-Heat" prove effective, the patients may or may not show the classic syndrome of latent or retained Pathogenic Factors (such as infection, irritability, digestive symptoms and signs, etc.). Signs may be felt in the tissue texture of muscles and joint end-feels. They usually include "rheumatic" type changes and little or no systemic symptoms and signs.

Pathogenic Factors may be retained at the Shao Yang level (between the Exterior and Interior), especially in stressed patients. The patient is said to be temporarily deficient (from stress) and therefore unable to dispel the external Pathogenic Factors. The Pathogenic Factors are often weak, as well. The main manifestation is alternating or combined symptoms of Heat and Cold or cyclical symptoms (or changing symptoms and/or symptoms that are sometimes present sometimes not). FMS patients with Shao Yang syndrome may not show the classic (Shang Han Lun) syndrome. They do not have to have Exterior symptoms or a history of external Pathogenic Factors. They do, however, often present with both Interior and Exterior symptoms and have relatively strong, muscular physiques, but not always.¹¹ They often complain of temperature dysregulation, saying that "since

9. Muscle pains are not classically among of the symptoms associated with hidden-latent Pathogenic Factors. However, Latent/hidden Pathogenic Factors are said to "reside in the bones/marrow, *Cuo Li* (membranes, space between the skin and muscles), and muscles."

10. These patients are treated mainly as Deficient Cold.

they have been sick” their internal temperature has not been right—sometimes they feel excessively cold or hot, or just uncomfortable when external temperature is extreme. They often feel nauseous and have a bad taste in the mouth, especially in the morning. They may feel relatively fine when rested, but when fatigued or stressed they develop symptoms. Clinical experience (of the author) suggests that this condition is slightly more common in male patients. Secondary Yin-deficiency, Liver-stagnation, and Blood-stasis may be complicating factors. The soft tissues, muscles, and joints of these patients have a tighter feel compared with the more Deficient patient. The patient usually appears to be physically strong. The subcostals and possibly the epigastric and right lateral abdomen areas may be tight, sensitive, and may show tight bands and indurations. (They often develop extensive congestions that may be anywhere within the three Warmers.) The pulse is wiry.

Treatment

FMS is notoriously unresponsive to standard biomedical treatment. The reductionistic approach of Western Medicine is designed to primarily focus on the body as the major malfunctioning factor that “needs fixing.” The inseparability of body, mind and spirit is acknowledged, but not revered. No healing therapy would be complete without honoring this holism. It is not surprising that there is scientific evidence supporting the value of other disciplinary approaches such as Tai Chi, Qi Gong, Ayurveda, Chinese Medicine, and a multitude of others, where attention is paid to “balance and movement” as reflected by breathwork, physical exercise, and “mobilization of the life force.” It is especially important to work in collaboration with other disciplines when requested by our patients, especially when what we are doing isn’t working very well (Saputo 1998). An integrative approach is therefore imperative.

Education is probably one of the most important aspects in its management. The patient must understand that being out of condition contributes to myofascial pain. Therefore, an exercise program that includes stretching, strength building, and aerobic conditioning is extremely important. However, patients should not over-exercise and should conserve their energy. A one-day rest between exercise sessions may be prudent. The patient’s sleep quality must be improved, as altered sleep patterns are probably the most important clinical facet of FMS. Patients should try to sleep at least eight hours per day. Sleep hygiene is important. Having the patient observe regular bedtime hours and encouraging them to regulate their daily activities (such as rest and meals) can be helpful. Patients should avoid caffeine for eight hours, large

meals for four hours, and exercise for six hours before sleep (Bennett 1999).

The standard of care (in the US) is treatment with antidepressant medication, despite a great deal of research showing that in most instances depression is a result, rather than a cause of the condition (Block 1993, Duna and Wilke 1993). The effectiveness of this treatment has much to do with improvement in sleep. Possibly this treatment results in reduced substance P formation by increasing serotonin control and by modulating pain in other ways. Lower doses are usually used than for depression. NSAIDs are of marginal value, with propionic acid derivatives (Daypro, Orudis) possibly the most effective¹² of these drugs. Analgesics, especially Tramadol, a drug that is a weak opioid and that also inhibits reuptake of norepinephrine and serotonin, have been advocated. The muscle relaxants levodopa, carbidopa, and quinine are sometimes used for restless leg syndrome or muscle cramps (Bennett *ibid*).

An alternative pharmaceutical treatment using the OTC expectorant guaifenesin (Robitussin) has been suggested to be helpful for FMS and chronic fatigue syndrome by Dr. Amand. The basic theory behind this protocol is that FMS is a manifestation of a genetic anomaly that affects the body’s ability to excrete phosphates (and perhaps other minerals) effectively. Guaifenesin is said to excrete phosphates, and, to a lesser degree, oxalates and blood calcium. Progression is said to be cyclical, beginning with exacerbation of symptoms followed by good days, generally within a few months. An average reversal rate is said to be about one year for every two months of the proper dosage. Dr. Amand recommends a starting dose of 300mg BID. Within a week, the patient is said to feel significantly but tolerably worse, if the patient is not taking salicylates. Salicylates must be avoided in the form of any aspirin-related compounds including herbs. Other NSAIDs and Tylenol are okay. This dosage suffices for 20% of all patients. If there is no increase in symptoms in that time, the dose is increased to 600mg BID. This dose is maintained for three to four weeks. In 70% of the patients 1200mg/day suffices. The upper dose range is 3600mg/day.

Other treatments may include physical medicine procedures such as acupuncture, manual therapies (especially muscle energy, functional, counter-strain and cranial techniques), ultrasound, and heat. Internal interventions such as herbal and nutritional therapies are often helpful. Psychotherapy (especially Cognitive Psychotherapy), biofeedback, and other relaxation exercise techniques, and EEG biofeedback may be helpful.

Osteopathic approaches have been shown to be helpful in treating patients diagnosed with FMS. Stotz and Kappler (1992) treated patients using a variety of Osteopathic approaches. Goldenberg (1993) measured the effects of

11. Minor Bupleurum Decoction (Xiao Chai Hu Tang) in some Japanese traditions is used more for “weak confirmations.” This formula is then used to strengthen the patient’s constitution and is taken for long periods. In the author’s experience, many of the above FMS patients respond to modifications of Xiao Chai Hu Tang or Da Chai Hu Tang and therefore *may* be categorized as Shao Yang.

12. Although recently, Wallace et al. has shown increased levels of three cytokines (inflammatory mediators): IL-6, IL-8, and IL-1Ra in FMS patients.

Osteopathic manipulative therapy (OMT) on the intensity of pain reported from tender points in eighteen patients who met all of the criteria for FMS. Each patient had six treatments. Over a one year period, twelve of the patients responded well, and their tender points became less sensitive (14% reduction versus a 34% increase in the six patients who did not respond). Activities of daily living were significantly improved, and general pain symptoms decreased. Lo et al (1992) studied nineteen patients with all of the criteria of FMS. The patients were treated once a week for four weeks using OMT. At the end of treatment 84.2% of the patients had improved sleep, 94.7% reported less pain, and most patients had fewer tender points on palpation. Rubin et al. (1990), in a study involving thirty-seven patients with FMS, tested the differences resulting from using drugs only (ibuprofen, alprazolam), Osteopathic treatment (including strain-counterstrain and muscle energy) plus medication, OMT plus a placebo, and a placebo only. Drug therapy alone resulted in significantly less tenderness than did drugs and osteopathy, or the use of placebo and OMT, or placebo alone. Patients receiving placebo plus Osteopathic manipulation reported significantly less fatigue than the other groups. The group receiving medication and (mainly) osteopathic soft tissue manipulation showed the greatest improvement in their quality of life. Jiminez et al. (1993) selected three groups of FMS patients, one of which received OMT, another had OMT plus self-teaching (study of the condition and self-help measures), and a third group received only moist-heat treatment. The group with the lowest level of reported pain after six months of care was the one receiving OMT, although benefits were also noted in the self-teaching group.

Acupuncture has been shown to be helpful in FMS. Berman, Ezzo, Hadhazy, and Swyers (1999) conducted a search for the key words “acupuncture” and “fibromyalgia.” They selected all randomized or quasi-randomized controlled trials, or cohort studies of patients with FMS who were treated with acupuncture. Seven studies (three randomized, controlled trials and four cohort studies) were included; only one was of high methodologic quality. The high-quality study suggests that real acupuncture is more effective than sham acupuncture for relieving pain, increasing pain thresholds, improving global ratings, and reducing morning stiffness of FMS, but the duration of benefit following the acupuncture treatment series is not known. Some patients report no benefit, and a few report an exacerbation of FMS-related pain. Lower-quality studies were consistent with these findings.

Sprott, Franke, Kluge, and Hein (1998) performed acupuncture therapy on FMS patients and established a combination of methods to objectify pain measurement before and after therapy. Acupuncture treatment of patients with FMS was associated with decreased pain levels and fewer positive tender points as measured by Visual Analogue Scale (VAS) and dolorimetry (pressure sensitivity). They also showed a decreased serotonin concentration in platelets and an increase of serotonin and substance P levels in serum after

treatment. These results suggest that acupuncture therapy is associated with changes in the concentrations of pain-modulating substances in serum.

Sprott, Jeschonneck, Grohmann, Hein (2000) have shown that, besides normalization of clinical parameters, acupuncture results in improvement in microcirculation above “tender points.”

Zborovskii and Babaeva (1996) showed that 9.6% of 1240 patients making complaints of osteomuscular pains had clinical signs of *primary* fibromyalgia (PFM). They suggested therapies that combine the use of dimexide with NSAIDs and sessions of acupuncture to promote the normalization of dysfunctions.

Targino et al (2002), in a review of the literature on the use of acupuncture as an adjunct or chief treatment for patients with fibromyalgia, compared it with other clinical experience. He found that traditional acupuncture gives positive scores in the Visual Analogue Scale, Myalgic Index, number of tender points, and improvement in quality of life based on the SF-36 questionnaire.

Insomnia, depression, and Raynaud's are common in FMS patients. These related symptoms can be treated. For example, Montakab (1999) has shown acupuncture to be helpful for insomnia. Forty patients with primary difficulties in either falling asleep or remaining asleep were diagnosed according to TCM, assigned to specific diagnostic subgroups, and treated individually by a practitioner in his private practice. The patients were distributed at random into two groups, one receiving *true acupuncture*, the other needed at *non-acupuncture* points for three to five sessions at weekly intervals. The outcome of the therapy was assessed in several ways: first by an objective measurement of the sleep quality, and second by polysomnography in a specialized sleep laboratory, performed once before and once after termination of the series of treatments. Additional qualitative results were obtained from several questionnaires. The objective measurement showed a statistically significant effect only in the patients who received the true acupuncture.

Evaluation of the effects of a standardized acupuncture treatment in *primary Raynaud's syndrome* showed a significant decrease in the frequency of attacks from 1.4 day⁻¹ to 0.6 day⁻¹, $P < 0.01$ (control 1.6 to 1.2, $P = 0.08$). The overall reduction of attacks was 63% (control 27%, $P = 0.03$). The mean duration of the capillary flowstop reaction decreased from 71 to 24 s (week 1 vs week 12, $P = 0.001$) and 38 s (week 1 vs week 23, $P = 0.02$) respectively (Appiah, Hiller, Caspary, Alexander, Creutzig 1997).

Acupuncture has been used successfully to treat *depression*. For example, Allen et al (1998) treated thirty-eight women between eighteen and forty-five years of age. The patients were randomly assigned to one of three treatments: receiving specific acupuncture treatment ($n=12$), receiving nonspecific acupuncture treatment ($n=11$), or being on a waiting list ($n=11$). Patients who were in the nonspecific treatment group received eight weeks of nonspecific treatment first, and then eight weeks of specific treatment.

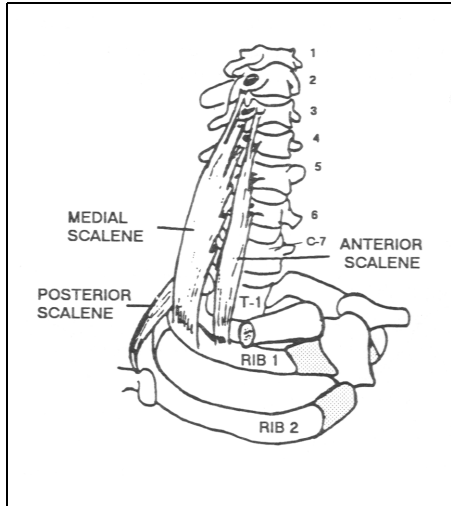


Figure 2: Scalene muscles and upper ribs (From Kuchera WA and Kuchera ML, *Osteopathic Principles in Practice*, KCOM press 1993, with permission).

Patients on the waiting-list group waited eight weeks before receiving eight weeks of specific treatment. Each eight-week treatment regimen was comprised of twelve treatment sessions: two sessions a week for the first four weeks, followed by once per week thereafter. Of the women, 64% experienced full remission. Patients receiving specific acupuncture treatments improved significantly more than those receiving the placebo-like nonspecific acupuncture treatments, and marginally more than those in the waiting-list condition. Results from this small study suggest acupuncture can provide significant symptom relief in depression at rates comparable to those of psychotherapy and pharmacotherapy.

In general, however, a review study by Sim and Adams (1999) stated that there is little *empirical* evidence for the effectiveness of physical and other non-pharmacological approaches to the management of FMS. Although a number of studies have been conducted concerning such approaches, many of these are uncontrolled. Moreover, relatively few randomized controlled trials of appropriate size and methodological rigor have been carried out. Sim and Adams reviewed evidence presented under the headings of: exercise, EMG biofeedback training, electrotherapy, acupuncture, patient education, self-management programs, multimodal treatment approaches, and other interventions. They concluded that 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.

It is this author's experience that no one style of medicine or technique is effective in the majority of FMS patients (except perhaps exercise). An integrated approach is superior to any single intervention.

Acupuncture

Acupuncture is best utilized to address the patient's physical presentation with analysis based on palpation techniques. Pulses are balanced by four-needle technique or other channel therapies; abdominal presentations such as subcostal tension are addressed with techniques utilizing the Chong, Yin Wei, Liver, and Pericardium channels (meridians of circulation). Since the pathogenesis and obstruction in MPS patients manifests mostly in the muscles (even when associated with internal Organic syndromes), muscle triggers/Kori-Ashi points are released in affected and related areas. A gentle technique that results in *mild* muscle twitches is used first. The Sinew channels in the affected areas are sedated (trigger release), and the paired Main channel may be tonified. Moxa can be used on areas with poor muscle and skin tone when they are found within the same muscle that has indurated triggers. Moxa (warming acupuncture points) can also be used to vitalize Deficient channels. Blood-stasis is treated mainly via Chong and Liver channels, UB-17, LI-11, Sp-10, and 21; Dampness via the Spleen/pancreas, Lung, and Kidney channels. Microsystems such as ear and wrist/ankle can be used at the same time for further symptomatic relief (type of acupuncture systems). Since distortion of body image (sensation of swelling without swelling, sensation of shrinking without shrinking) and difficulty describing symptoms are common in FMS patients, Sp-4, Lu-7, UB-11, St-37, and 39 are used often. Sp-21 can be used for "total body" pain.

Acupuncture is also helpful in treating the patient's mood and sleep, which are extremely important to address. Poor sleep which is one of the most important perpetuating factor seen in these patients can be treated. H-7, P-6, Amnien, Yinteng, Du-20 and the French ear points: wrist, stress control, tranquilizer, and master cerebral and Chinese ear Shenman points may be used. A study on the effects of acupressure, manual acupuncture, and laser-needle acupuncture on the EEG bispectral index and spectral edge frequency showed that stimulation at Yinteng results in EEG similarities induced by acupressure and general anaesthesia. All of the interventions reduced scores on tests of sedation based on verbal reports (Litscher (2004).

Manual Therapy

In all FMS patients, the thoracic inlet/outlet must be carefully evaluated by assessing soft tissue tension and length, respiratory functions, and proper joint play. Treatment can begin with trigger release, but if the function of any of the above structures does not improve, other techniques such as muscle energy, indirect/functional, and cranial techniques should be incorporated. For example, it is common for the first rib to subluxate due to scalene muscle tension (due to stress), with a sudden sidebending of the neck. The rib lodges above the transverse process of the first thoracic vertebra. Subluxation results in poor rib-cage function. Release of scalene muscle tension, on its own, will not restore the rib

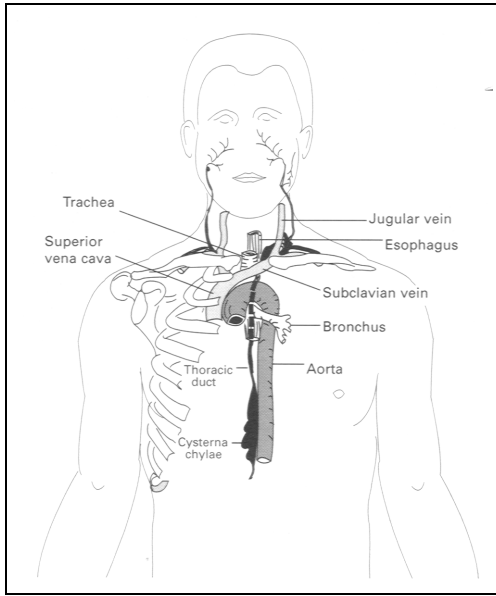


Figure 3: Lymphatic and circulatory organs related to thoracic structures (From Kuchera WA and Kuchera ML, *Osteopathic Principles in Practice*, KCOM press 1994, with permission).

to its proper location. One must use manual therapy to restore rib-cage function.

Also, good diaphragm and abdominal muscle tone are important in maintaining the abdominal viscera in proper position and for proper venous drainage via the diaphragmatic pump. Poor rib-cage function and/or somatic dysfunction can result in disturbances of circulation, poor muscle tone, and disturbances of organ functions. Innervation to many organs and trunk musculature is provided via the thoracic segments. It has been suggested (Chaitow *ibid*) that poor “drooped posture” can result in diaphragm and abdominal muscle relaxation, which cease to support abdominal organs. The disturbances of circulation resulting from a “low diaphragm and ptosis” may give rise to chronic passive congestion in one or all of the organs of the abdomen and pelvis. Furthermore, the drag of these “congested organs” on their nerve supply, as well as the pressure on the sympathetic ganglia and plexuses, probably cause many irregularities in their function, varying from partial paralysis to overstimulation. Proper rib-cage and spinal functions are therefore extremely important, as they control respiration, lymphatic and blood circulation, and nervous and organ functions, all of which are necessary for FMS patients to recover. Good *manual functional evaluation* is therefore suggested, regardless of the treatment style used.

TCM Herbs

As noted above, FMS caused by trauma or another precipitating event such as serious illness tends to be more severe and have a worse prognosis than idiopathic FMS. The information below mainly reflects this author’s experience and is based by and large on patients within this category. It is the

author’s experience that FMS patients are often sensitive and do not tolerate strong, spicy, hot, or cold formulas. They tend to develop side-effects (even with so called individually patterned appropriate formulas) and are often non-compliant, especially if prolonged herbal therapy is needed. A mild approach to herbal formula design is often preferable. The most difficult aspect is to decide between the elimination of Pathogenic Factors, tonification, and harmonization. Although, by following traditional theory, one usually eliminates Pathogenic Factors before tonifying, this is not always the best clinical approach in FMS patients. Also, as stated in the *Classic of Internal Medicine*, “When Pathogenic Factors converge, the Qi becomes Deficient in that location...Deficient Qi allows for Pathogenic Factors.” Therefore, patients that seem to have infectious-like symptoms (such as cold and flu) should be carefully assessed to determine whether the syndrome is truly Internal (miscellaneous/internal diseases), External, or combined. When there are no *clear* Exterior symptoms or signs (such as stuffy or runny nose, body aches and floating pulse), an Interior cause is possible. In patients with clear, acute Exterior Pathogenic Factors (or hidden-latent ones), a mildly clearing formula can be used first. In hidden-latent Heat, a small to moderate dose of Fructus Gardenia (San Zhi Zi) and Bombyx Bartriticatus (Jiang Can) can be prescribed. For symptoms/signs of Yin-deficiency, Radix Scrophulariae (Xuan Shen), Radix Rehmanniae (Sheng Di) and Radix Pansis Quinquifolii (Xi Yang Shen) can be used. Some deficient patients, especially if they develop Exterior syndromes often, do better with a harmonizing or combined Exterior releasing formulas with mild tonification from the start. Even with these patients, however, one must carefully analyze their condition, and, most often, use only small amounts of tonic herbs. Patients who feel sick often, complaining of throat discomfort, fatigue, and aching, but do not have clear symptoms or signs of Exterior syndrome, may do better with a Qi-tonifying and Damp-transforming approach.

The following are treatment strategies based on common clinical presentations seen by the author. These formulas are based on disease diagnosis (biomedical FMS) and are modified for symptoms and TCM pattern discriminations.

To improve sleep and general physical condition and to eliminate Pathogenic Factors in FMS patients, a modification of Sour Jujube Decoction (Suan Zao Ren Tang) can often be used. The following formula gently regulates the Liver (by clearing Heat, nurturing Blood, and ensuring free flow), strengthens Spleen/pancreas without being warm or spicy, and gently regulates Qi and Blood flow, leading Pathogenic Factors to the surface and helping settle the spirit:

Semen Ziziphi Spinosae (Suan Zao Ren) 12g
 Radix Puerariae (Ge Gen) 9g
 Poria (Fu Ling) 12g
 Rhizoma Ligustici Wallichii (Chuan Xiong) 6g
 Folium Perillae (Zi Su Ye) 3g
 Semen Coicis (Yi Yi Ren) 15g
 Rhizoma Pinelliae (Ban Xia) 6g
 Rhizoma Corydalis (Yan Hu Suo) 9g
 Rhizoma Dioscoreae Hypoglaucae (Bei Xie) 12g

Piperis Kadsurae Caulis (Hai Feng Teng) 12g
 Bulbus Lillii (Bai He) 9g
 Radix Salvia Miltiorrhizae (Dan Shen) 9g
 Concha Margaritifera Usta (Zhen Zhu Mu) 15g
 Rhizoma Anemarrhenae (Zhi Mu) 2g
 Radix Glycyrrhizae (Gan Cao) 3g
 Fructus Zizyphi Jujubae 12 pieces

Modifications:

1. For insomnia with imbalance of Defensive and Nutritive-Qi, use Cinnamon Twig Decoction (Gui Zhi Tang) to be taken at a different time than the main formula.
2. For insomnia with agitation and retained Wind-Heat, remove the Piperis Kadsurae Caulis (Hai Feng Teng). Add Semen Sojae Praeparata (Dan Dou Chi) 9g, and Fructus Gardeniae (San Zhi Zi) 5g.
3. For insomnia, agitation, early or frequent awakening, and Empty-Heat from febrile disease or other causes, remove Piperis Kadsurae Caulis (Hai Feng Teng). Add Gelatinum Asini (E Jiao) 12g and Rhizoma Coptidis (Huang Lian) 4g, Rhizoma Anemarrhenae (Zhi Mu) 6g, Bulbus Lillii (Bai He) 9g.
4. For insomnia due to Defensive-Qi not entering the Organs, add Pinelliae (Ban Xia) 20g (note high dose), Coicis (Yi Ren) 20g.
5. For chronic and more severe insomnia, add Rhizoma Pinelliae (Ban Xia) 12g, Caulis Bambusae in Taeniis (Zhu Ru) 9g, Spica Prunellae Vulgaris (Xia Gu Cao) 6g, Fructus Aurantii Immaturus (Zhi Shi) 3g, Os Draconis (Long Gu) 20g.
6. For Yin and/or Kidney-deficiency, add Fructus Schisandrae (Wu Wei Zi) 6g, Semen Cuscutae (Tu Si Zi) 9g, Rhizoma Dioscoreae (Shan Yao) 15g, Radix Pseudostellariae (Tai Zi Shen) 6g.
7. For Liver Yin-deficiency, add Flos Chrysanthemi (Ju Hua) 9g, Semen Cuscutae (Tu Si Zi) 9g, Fructus Lycii (Gao Qi Zi) 9g.
8. For Liver Qi-stagnation, add Flos Chrysanthemi (Ju Hua) 9g, Herba Abri (Ji Gu Cao) 3g, Tuber Curcumae (Yu Jin) 6g, Fructus Hordei Vulgaris Geminatus (Mai Ya) 20g.
9. For Spleen and Qi-deficiency, add Rhizoma Dioscoreae (Shan Yao) 9g, Radix Ginseng (Ren Shen) 6g.
10. For unstable and deficient-Yang harassing the Heart or non-communication between Heart and Kidneys, add Cortex Cinnamomi Cassiae (Ru Gui) 6g, Rhizoma Coptidis (Huang Lian) 2g.
 If due to Yin-deficiency Empty-Heat, remove Piperis Kadsurae Caulis (Hai Feng Teng) and add Gelatinum Asini (E Jiao) 12g and Rhizoma Coptidis (Huang Lian) 4g.
11. For poor appetite, add Endothelium Corneum Gigeriae Galli (Ji Nei Jin) 9g.
12. For digestive symptoms with Dampness and bloating, add Pericarpium Arecae Catechu (Da Fu Pi) 6g, Herba Eupatorii Fortunei (Pei Lan) 6g.
13. For Damp-Heat, add Rhizoma Coptidis (Huang Lian) 4g.
14. For Cold pain, add Rhizoma Corydalis (Yan Hu Suo) 12g, Radix Clematidis Chinensis (Wei Ling Xian) 6g, Rhizoma Zingiberis Officinalis (Gan Jiang) 5g, Ramulus Cinnamomi Cassiae (Gui Zhi) 3g.
15. For Blood-stasis or history of trauma, add Radix Cyathulae (Chuan Niu Xi) 9g, Excrementum Troglodyteris Seu Pteromi (Wu Ling Zi) 6g, Radix Salvia Miltiorrhizae (Dan Shen) 12g, Radix Puerariae (Ge Gen) 9g.
16. For joint pains and stiffness from transformative-Heat, add Piperis Kadsurae Caulis (Luo Shi Teng) 12g, Ramulus Mori Albae (Sang Zhi) 9g, Ledebouriellae/Siler (Fang Feng) 6g, Flos Carthami (Hong Hua) 6g, Radix Rubrus Paeoniae Lactiflorae (Chi Shao) 6g, Ramus Lonicerae Japonicae (Ren Dong Teng) 12g.
17. For severe fatigue after exercise, add Radix Glycyrrhizae (Gan Cao) 1g (one hour prior to exercise in capsule form), Fructus Lycii (Gao Qi Zi) 12g, Semen Cuscutae (Tu Si Zi) 12g, Fructus Mori Albae (Sang Shen Zi) 15g, Salt 0.15g.
18. For weak immune system with frequent colds or respiratory allergies, add Radix Astragali (Huang Qi) 9g, Radix Ginseng (Ren Shen) 3g, Rhizoma Atractylosis Macrocephalae (Bai Zhu) 3g, Radix Ledebouriellae (Fang Feng) 6g, Fructus Schisandrae (Wu Wei Zi) 3g, Radix Glehniae Littoralis (Bei Sha Shen) 4g.
 If with Phlegm-Heat, add Radix Scutellariae Baicalensis (Huang Qin) 6g, Rhizoma Coptidis (Huang Lian) 3g.
19. For excessive sweating due to Qi/Yin-deficiency, add Radix Ephedrae (Ma Huang Gen) 9g, Concha Ostreae (Mu Li) 15g.
20. For upper edema, add Cortex Mori Albae Radicis (Sang Bai Pi) 12g, Sclerotium Polypori Umbellati (Zhu Ling) 9g, Ramulus Cinnamomi Cassiae (Gui Zhi) 3g, Rhizoma Atractylosis Macrocephalae (Bai Zhu) 3g.
21. For headaches, add Ramulus Uncariae Cum Uncis (Gou Teng) 9g, Rhizoma Gastrodiae Elatae (Tian Ma) 6g, Radix Ligustici Wallichii (Chuan Xiang) 9g.
22. For psychiatric symptoms, add Herba Pycnostelmae (Liao Diao Zhu) 6g, Rhizoma Acori Graminei (Shi Chang Pu) 3g.
23. For muscle cramps (especially calf or nocturnal) and restless legs, add Radix Paeoniae Alba (Bai Shao) 12g, Ramulus Cinnamomi Cassiae (Gui Zhi) 4g, Radix

Glycyrrhizae (Gan Cao) 4g, Fructus Chaenomelis Longenariae (Mu Gua) 9g, Semen Persicae (Tao Ren) 6g, Os Draconis (Long Gu) 15g.

24. For fibrotic muscles and sinews, add Semen Persicae (Tao Ren) 6g, Radix Cyathulae (Chuan Niu Xi) 9g, Bulbus Fritillariae Thunbergii (Zhe Bei Mu) 12g, Concha Ostreae (Mu Li) 20g, Radix Clematidis Chinensis (Wei Ling Xian) 6g.

25. For severe tension, spasms, and pain, add Agkistrodon Deu Bungarus (Bai Hua She) 6g, Scolopendra Subspinipes (Wu Gong) 6g, Buthus Martensi (Quan Xie) 5g.

26. For discogenic symptoms add: Fructus Arctii (Niu Bang Zi) 30g, Tripterygium Wilfordii (Lei Gong Teng) 12g.

For patients with generalized muscle pain, mild articular signs, but no *significant* difficulty with sleep and energy (more likely to be extensive MPS) use:¹³

Rhizoma Dioscoreae Hypoglaucae (Bie Xie) 12g
Radix Puerariae (Ge Gen) 9g
Radix Clematidis Chinensis (Wei Ling Xian) 6g
Piperis Kadsurae Caulis (Hai Feng Teng) 12g
Cortex Erythrinae (Hai Tong Pi) 12g
Gentianae (Qin Jiao) 12g
Semen Coicis (Yi Yi Ren) 20g
Semen Cuscutae (Tu Si Zi) 12g
Radix Cyathulae (Chuan Niu Xi) 9g
Rhizoma Corydalis (Yan Hu Suo) 9g
Herba Lycopi Lucidi (Ze Lan) 6g
Aquama Manitis Pentadactylae (Chuan Shan Jia) 12g
Concha Margaritifera Usta (Zhen Zhu Mu) 15g
Fructus Hordei Vulgaris Geminatus (Mai Ya) 20g
Rhizoma Ligustici Wallichii (Chuan Xiang) 6g
Pseudoginseng (San Qi) 6g

If more Wind and Blood-deficiency, use:

Radix Gentianae (Qin Jiao) 6g
Radix Ledebouriiellae (Fang Feng) 9g
Ramulus Uncariae Cum Uncis (Gou Teng) 6g
Radix Paeoniae Alba (Bai Shao) 6g
Semen Cassiae Torae (Cao Jue Ming) 12g
Semen Ziziphi Spinosae (Suan Zao Ren) 12g
Flos Chrysanthemi Morifolii (Ju Hua) 6g
Fructus Hordei Vulgaris Germinatus (Mai Ya) 12g
Semen Biotae Orientalis (Bai Zi Ren) 9g
Radix Clematidis (Wei Ling Xian) 6g
Radix Glycyrrhizae Uralensis (Gan Cao) 3g

Modifications:

- For muscle cramps and tightness, add Radix Paeoniae Alba (Bai Shao) 12g, Ramulus Cinnamomi Cassiae (Gui Zhi) 4g, Radix Glycyrrhizae (Gan Cao) 4g, Fructus Chaenomelis Longenariae (Mu Gua) 9g.
- For upper body symptoms, add Radix Puerariae (Ge Gen) 6g, Rhizoma Curcumae (Jiang Huang) 9g Ramulus Cinnamomi Cassiae (Gui Zhi) 6g (for Cold), Ramulus Mori Albae (Sang Zhi) 9g (for Heat).
- For lower body symptoms, add Radix Achyranthis Bidentatae (Huai Niu Xi) 12g, Radix Stephaniae

13. This formula is also good for postural phase of pain.

Tetrandrae (Fang Ji) 6g, Ramulus Loranthei Seu Visci (Sang Ji Sheng) 12g. For Wind-Damp add Radix Angelica Pubescentis (Due Huo).

4. For swelling in joints or superficial edema, add Herba Lycopi Lucidi (Ze Lan) 6g.

For patients with Damp-Heat depleting Kidney and Liver-Yin (i.e., primary pathology of Damp-Heat), often seen with Spleen-deficiency and Stomach-Heat (this is a very common presentation that may be due to hidden/lurking pathogens), use:¹⁴

Rhizoma Atractylodis (Cang Zhu) 6g
Radix Atractylodis (Bai Zhu) 9g
Rhizoma Dioscoreae Hypoglaucae (Bie Xie) 12g
Radix Astragali (Huang Qi) 9g
Herba Eupatorii Fortunei (Pei Lan) 12g
Ramus Lonicerae Japonicae (Ren Dong Teng) 12g
Tuber Curcumae (Yu Jin) 9g
Bombyx Bartriticatus (Jiang Can) 6g
Radix Scrophulariae (Xuan Shen) 6g
Radix Rehmanniae (Sheng Di) 12g
Radix Glehniae Littoralis (Bei Sha Shen) 4g
Poria (Fu Ling) 12g
Herba Lophatheri (Dan Zhu Ye) 12g
Radix Ledebouriiellae (Fang Feng) 6g
Semen Coicis (Yi Yi Ren) 15g
Radix Glycyrrhizae (Gan Cao) 1g

If there is also a Qi-deficiency, use a variation of Master Li's Decoction to Clear Summer-Damp-Heat and Augment the Qi (Li Shi Qing Shu Qi Tang):

Radix Astragali Membranaceus (Huang Qi) 12g
Radix Rehmanniae (Sheng Di Huang) 9g
Radix Polygoni Multiflori (He Shou Wu) 9g
Radix Ginseng (Ren Shen) 3g
Rhizoma Atractylodis (Cang Zhu) 6g
Ramus Lonicerae Japonicae (Ren Dong Teng) 12g
Rhizoma Atractylodes Alba (Bai Zhu) 9g
Radix Ophiopogonis (Mai Dong) 12g
Cortex Phellodendri (Huang Bai) 9g
Rhizoma Anemarrhenae (Zhi Mu) 6g
Radix Angelica Sinensis (Dang Gui) 6g
Radix Puerariae (Ge Gen) 20g
Massa Fermentata (Shen Qu) 9g
Pericarpium Citri Reticulatae (Chen Pi) 6g
Pericarpium Citri Reticulatae Viride (Ching Pi) 4g
Fructus Schisandrae (Wu Wei Zi) 6g
Fructus Mume (Wu Mei) 6g
Rhizoma Cimicifugae (Sheng Ma) 5g
Honey-fried Radix Glycyrrhizae (Zhi Gan Cao) 3g

For a patient that is Kidney and Heart deficient and is depressed, stressed, anxious, fatigued, but does not have any digestive issues and is not particularly sensitive, use:

Radix Puerariae (Ge Gen) 20g
Radix Rehmanniae (Sheng and Shu Di Huang) 15g each
Radix Dioscoreae (Shan Yao) 15g
Poria (Fu Ling) 12g
Cortex Mountain Radicis (Mu Dan Pi) 9g
Rhizoma Alismatis (Ze Xie) 9g
Cortex Cinnamomi Cassiae (Rou Gui) 3g
Ramulus Cinnamomi Cassiae (Gui Zhi) 6g
Radix Aconiti Praeparata (Fu Zhi) 3g
Radix Astragali Membranaceus (Hunag Qi) 12g
Radix Glycyrrhizae (Gan Cao) 9g

14. This is one of the commonest presentations seen by the author. Symptoms may include any of the typical symptoms seen in FMS patients. There are *signs* of Damp-Heat and Yin-deficiency.

Fructus Triticici (Xiao Mai) 20g
Cortex Albizziae (He Huan Pi) 15g
Bulbus Lillii (Bai He) 9g

For external Wind attack or retained Wind pathogenic factor, use:¹⁵

Flos Chrysanthemi (Ju Hua) 6g
Flos Puerariae (Ge Hua) 6g
Folium Perillae (Zi Su Ye) 3g
Caulis Perillae (Su Gen) 4g
Poria (Fu Ling) 12g
Fructus Hordei Vulgaris Geminatus (Mai Ya) 15g
Herba Artemisiae Capillaris (Yin Chen Ho) 3g
Ramulus Uncariae Cum Uncis (Gou Teng) 6g
Radix Glycyrrhizae (Gan Cao) 1g

Modifications:

1. For Heat, add Radix Cynanchi Atrati (Bai Wei) 2g, Fructus Forsythiae Suspensae (Lian Qiao) 9g.
2. For symptoms of infection, add Herba Traxaci Cum Radice (Pu Gong Ying), 12g, Herba Houத்துyniae Cordatae (Yu Xing Cao) 12g, Herba Andrographis Paniculatae (Chuan Xin Lian) 6g.
3. For high fever, add Gypsum (Shi Gao) 20g, Rhizoma Phragmitis Communis (Lu Gen) 12g.
4. For Wind-Cold, add Radix Ledebouriellae (Fang Feng) 9g.
5. For Damp-Heat-Phlegm, add Radix Astragali (Huang Qi) 3g, Rhizoma Dioscoreae Hypoglaucae (Bi Xie) 12g, Herba Artemisiae Capillaris (Yin Chen Hao) 12g, Bulbus Fritillariae Cirrhosae (Chuan Bei Mu) 9g, Radix Scutellariae Baicalensis (Huang Qin) 6g.
6. For Damp-Cold, add Rhizoma Dioscoreae Hypoglaucae (Bi Xie) 12g, Rhizoma Atractylodis (Cang Zhu) 3g, Rhizoma Zingiberis Officinalis Recens (Sheng Jiang) 6g, Angelica Pubescentis (Due Huo) 9g.
7. For sinus symptoms, add Fructus Xanthii (Cang Er Zi) 15g, Periostracum Cicadae (Chan Tui) 9g.
If also forehead headache, add Radix Angelicae (Bai Zhi) 6g.
8. For severe pain, add Angelica Pubescentis (Due Huo), Rhizoma Corydalis (Yan Hu Suo) 12g, Radix Clematidis Chinensis (Wei Ling Xian) 9g, Radix Angelicae (Bai Zhi) 3g.
9. For digestive symptoms, add Fructus Hordei Vulgaris Geminatus (Mai Ya) 15g, Pericarpium Arecae Catechu (Da Fu Pi) 6g, Herba Eupatorii Fortunei (Pei Lan) 6g.
If with symptoms of Stomach Heat, add: Bambusae In Taeniis (Zhu Ru) 9g, Rhizoma Phragmitis Communis (Lu Gen) 12g.

15. This is a rather mild formula that can be used in weak and sensitive patients.

10. For Shao Yang symptoms, add Radix Bupleuri (Chi Hu) 4g, Radix Scutellariae Baicalensis (Huang Qin) 6g, Radix Ginseng (Ren Shen) 3g.
11. For hoarseness, scratchy, or sore throat, add Radix Platycodi Grandiflori (Jie Geng) 9g, Radix Glycyrrhizae (Gan Cao) 3g, Semen Sterculiae Scaphingerae (Pang Da Hai) 12g.
12. For severe sore throat, add Fructus Lasiosphaerae (Ma Bo) 1.5g, Radix Isatidis Seu Baphicacanithi (Ban Lan Gen) 9g.
13. For ear pain, add Radix Scutellariae Baicalensis (Huang Qi) 9g, Radix Bupleuri (Chi Hu) 3g, Radix Gentianae Scabrae (Long Dan Cao) 6g.
14. For strong Interior Heat and irritability, add Fructus Gardeniae Jasminoidis (Zhi Zi) 6g.
15. For constipation, add Rhizoma Rhei (Da Huang) 4g.
16. For insomnia with agitation due to Wind-Heat, add Semen Sojae Praeparata (Dan Dou Chi) 9g, Fructus Gardeniae (San Zhi Zi) 5g.

For a patient that has Shao-Yang symptoms and signs and is depressed, stressed, fatigued, with mostly upper body pain or changing and conflicting signs and is not particularly sensitive, a modification of Miner Bupleuri Decoction (Xiao Chi Hu Tang) can be used:¹⁶

Radix Bupleuri (Chi Hu) 10g
Radix Scutellariae (Huang Qin) 10g
Rhizoma Pinelliae (Ban Xie) 15g
Rhizoma Zingiberis Officinalis (Sheng Jiang) 6g
Radix Glycyrrhizae (Gan Cao) 4g
Fructus Ziziphi Jujubae (Da Zao) 9g
Rhizoma Ligustici Wallichii (Chuan Xiang) 6g
Piperis Kadsurae Caulis (Hai Feng Teng) 12g
Radix Pseudostellariae (Tai Zi Shen) 12g
Radix Astragali (Huang Qi) 15g
Rhizoma Atractylodis Alba (Bai Zhu) 6g
Radix Ledebouriellae (Fang Feng) 9g

For a patient that, due to weakness, manifests diverse and confusing symptoms and is generally sensitive, addressing Central-Qi first may be helpful. Minor Construct the Middle Decoction (Xiao Jian Zhong Tang), a modification of Cinnamon Twig Decoction (Gui Zhi Tang), can be used, as it can gently nourish Central and Righteous-Qi (Yin and Yang). It harmonizes the Defensive and Nutritive-Qi and can outthrust pathogens.

Maltose (Yi Tang) 18g
Ramulus Cinnamomi Cassiae (Gui Zhi) 9g
Radix Paeoniae (Bai Shao) 18g
Honey-fried Radix Glycyrrhizae Uralensis (Zhi Gan Cao) 6g

16. This and other “harmonizing” formulas are often helpful in patients who suffer from cyclical disorders including pain. Often there is a conflict between their Righteous-Qi and Pathogenic Factors, with *both* mostly being mild or weak. There are often signs of both Deficiency and Excess; the dominance of each may change frequently. While such formulas may not be appropriate during *active* stages of the disease, they can be used to prevent attacks. Harmonizing formulas tend to both strengthen the patient and address Pathogenic Factors.

Rhizoma Zingiberis Officinalis Recens (Sheng Jiang) 9g
Fructus Zizyphi Jujubae (Da Zao) 12 pieces

As the patient's strength increases, other issues become clearer and are then addressed.

Nutritional and Other Natural Therapies

As stated earlier each individual human cell is analogous to a microscopic industrial plant. This means that a supply of appropriate raw materials, energy and discharge of by products is needed to manufacture all of its products properly. Put simply, we must consume all the nutrients (food) that our cells require, and avoid those that are not needed (and potentially toxic), if our cells are to manufacture everything required for perfect function. The by-products and toxic materials must be discharged (Saputo *ibid*).

While surprising, widespread nutritional deficiencies in the standard American diet (SAD) are quite common (Adams 1975). Much of the population consumes refined foods which makes it difficult to provide the nutrition our cells need. These "unnatural" foods are generally high in calories and low in nutrient density, thereby setting the stage for a pandemic of both obesity and malnutrition. In this era of "fat phobia," it is ironic that we are significantly malnourished in the omega 3 and 6 fats that are absolutely essential for good health, and are overdosed with saturated and trans fats that are not only making us fat, but are also killing us. It is interesting that these imbalances in fat metabolism have been found to be particularly common in patients with FMS, and that normalization through supplementation usually leads to clinical improvement (Saputo *ibid*).

Metabolic demands are dramatically increased in FMS, further highlighting the vital importance of proper nutrition. Regrettably, Western medicine has persisted in its single minded search for the "magic bullet" to cure a "the" single cause of FMS. However, FMS is clearly a clinical syndrome resulting from multiple causes and this approach is probably doomed to fail. The only alternative left in Western medicine is to use synthetic pharmaceuticals that might at least suppress the symptoms.

Making matters worse, like all of us, patients with FMS are continually exposed to the estimated one hundred thousand synthetic chemicals and radiation that have been synthesized within the past 100 years. These chemicals frequently interfere with an already stressed out metabolism, as the thousands of years that are probably required to evolve and enable our bodies to render these chemicals nontoxic, have not yet lapsed. These ubiquitous chemicals have saturated the food, water, and air that sustain and poison us on a daily basis. While most healthy people have the necessary metabolic capacity to compensate for many of these insults, sick people very often do not. This is the reason why many people with FMS are called "chemically sensitive," and why they decompensate from what seems trivial to the rest of us (Saputo *ibid*).

While routine laboratory testing is usually normal in patients with FMS, a myriad of abnormal findings are discovered when special tests that are designed to measure how well the patient is nourished, how much toxic activity is occurring, how well he/she capable to eliminate toxicity, and how effectively their defense systems are operating to sustain normal homeostasis, are ordered. The gastrointestinal tract provides a great window through which we can assess our body's capacity to nourish itself and to defend itself against toxic exposures. Three tests are particularly informative in this regard (Saputo *ibid*).

1. A comprehensive digestive stool analysis provides information about gastrointestinal digestive and absorptive capacities, and offers important clues about the gut's ability to keep toxic chemicals out of the body. It assesses the ecological balance of the intestinal microflora, the adequacy of digestive enzyme and acid production and of digestion itself, the capacity of the gut's immune system to defend itself, and screens for parasitic infections. It is easy to appreciate that cell metabolism can significantly improve when abnormalities found in these tests are corrected.
2. Permeability across the intestinal surface is very often increased in FMS, creating the so-called "leaky gut syndrome." Intestinal permeability is very simple to measure, is economical, and provides information that is vital in terms of assessing the potential extent to which the body is challenged to cope with toxic and allergy provoking chemicals that can gain entry into the internal body.
3. A liver detoxification profile test assess the liver's capacity to detoxify what does get across the intestinal lining which is often genetically determined. This information allows us to devise a nutritional protocol that will support liver detoxification in such a way that fewer toxins are allowed access into the general circulation.

A recent study by Teitelbaum et al (2001) has shown that treatment of perpetuating factors (or functional imbalances) is helpful in FMS and chronic fatigue syndrome (CFS). These factors include:

- Hormonal deficiencies of thyroid, adrenal, and ovarian/testicular hormones.
- Opportunistic infections, especially parasitic and fungal.
- Sleep disorders that were treated aggressively.
- Nutritional inadequacies and subclinical abnormalities (these are important and should be treated).

It is clear therefor that a healthy diet is important for patients with FMS and when treating other chronic musculoskeletal disorders. The patient should avoid simple carbohydrates and sugars as these can result in insulin resistance and pain sensitization. An assessment for food allergies should be made using an elimination diet, blood or saliva

tests. Assessment for hormonal levels is helpful, as some patients benefit from DHEA, testosterone, thyroid, and/or growth hormone supplementation.

Some patients suffer from toxicity and should be evaluated for pesticide, formaldehyde, solvents, and heavy metal toxicity, all of which can result in pain and cognitive symptoms. Oral DMSA at dosages of 10mg/kg-30mg/kg per day (or DMPS 100mg TID) can be used to chelate lead, mercury, arsenic, copper, silver, cadmium, tin, nickel, zinc, thallium, manganese and bismuth. Because chelation is achieved via the kidneys, kidney function must be assessed by a 24 hour urine challenge and clearance test before starting treatment. Treatment is done for 3-5 days followed by an off cycle of 9-14 days. The more sensitive the patient the longer the off cycle. Oral (or IV) CA-EDTA is said to be safe and may be taken for prolonged periods. Phase I and Phase II liver detoxification support (mainly with n-acetyl-l-cysteine, silymarin, alpha lipoic acid and SAME), vitamin and mineral supplementation, and other supporting therapies for the bowels are used during the off cycle period.

In patients with gastrointestinal symptoms, the use of deglycyrrhizinated licorice, bismuth salts, Oregon grape extract, l-glutamine, and probiotics are often helpful. Antibiotics may be used if needed, especially for small intestine infections diagnosed by a breath test.

Many patients with FMS seem to be deficient in magnesium and calcium. Dr. Hans Neiper popularized the use of magnesium aspartate. Another researcher, Guy Abrahams, studied magnesium maleate in a controlled trial in patients with FMS. He found that the magnesium passes well into the cells and the mitochondria. The extrapolation of the effect to other aliphatic fractions, such as aspartate, glycinate, and citrate (which is the cheapest) is by implication and has not been confirmed. Myer's cocktail (intravenous) is used with an emphasis on magnesium and calcium, as tolerated, remembering that high concentrations of magnesium tend to give a flush and may precipitate hypotension. The success rate is about 50%, which is superior to that achieved in conventional medicine. Women who receive this preparation sometimes experience a pleasant vaginal warmth. The addition of oral lithium can offer a synergistic benefit (Dorman, personal communication). A malic acid-magnesium supplement can be helpful. Since oral absorption of magnesium is not optimal, a magnesium oil can be used topically.

A good multi-vitamin and mineral supplementation can be helpful. Methyl-sulfonyl-methane (MSM), capsaicin, devil's claw, glucosamine, curcumin and baswellia have been reported to be helpful. For restless legs and nocturnal leg cramps, oral potassium, calcium, and magnesium may be helpful. Because some patients feel better when pregnant, the use of the hormone relaxin has been promoted.

For depression, 5-HTP (a precursor for serotonin), SAME, and St. John's wort (inhibits reuptake of both serotonin and norepinephrine) are used. For sleep and anxiety disorders: kava, chamomile, valeriane, GABA, l-theanine (all of which can help increase GABA; l-theanine can decrease neu-

rotransmitter excretion as well as increase alpha wave production in the occipital and parietal regions) and Garum armoricum (Stabilium; which has been shown to have anti-anxiety effects similar to valium without side-effects) or pharmaceutical medications can be used.

N-acetylcysteine can be useful for Raynaud's phenomenon and systemic sclerosis. In sixteen women and six men who received a two-hour loading dose of 150 mg/kg of N-acetylcysteine intravenously, followed by fifteen mg/kg/hour for five days, there was a significant reduction in the frequency and severity of Raynaud's phenomenon attacks compared with pretreatment values. Active digital ulcers were significantly less in number at follow-up visits, totaling 25.18% of baseline count on day thirty-three from the beginning of infusion (Sambo, Amico, Giacomelli, et al 2001). L-arginine can affect NO activity and result vasodilation and is therefore also useful in the treatment of Raynaud's phenomenon. Together with ornithine, l-arginine can support growth hormone levels and muscle mass. Ornithine has been shown to support healthy nitrogen balance which is important in muscle protein support (Luigi et al 1999). The use of dl-phenylalanine can be used for neurotransmitter and endorphin support. L-phenylalanine is a precursor to tyrosine, which converts to norepinephrine, epinephrine, dopamine and tyramine, which are all excitatory in their effects. D-phenylalanine may regulate endorphins by decreasing enkephalin degradation and may relax the muscles and joints and increase the pain threshold. DL-phenylalanine (which contains both l-phenylalanine and d-phenylalanine) may also increase the analgesic effects of acupuncture. Because dl-phenylalanine and SAME are excitatory, some patients cannot tolerate them and may suffer from increased anxiety and insomnia, especially if their inhibitory neurotransmitters levels are low.¹⁷ These patients should be first treated with amino acids that support GABA, serotonin and other inhibitory neurotransmitters. Taurine, glycine, 5HTP, N-acetylcysteine, and l-theanine are used for three weeks at which point dl-phenylalanine (or l-tyrosine), l-glutamine and SAME are added.¹⁸

17. "Neuroscience urine test" can be used to evaluate neurotransmitter levels.

18. These therapies can be used to treat patients with other chronic pain syndromes as well.