

Fibromyalgia and Chronic Myofascial Pain: Keys to Diagnosis and Treatment

by Devin Starlanyl © October 2003

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Please read "What Everyone on Your Health Care Team Should Know."

No matter what your specialty or title, if you are a medical care provider or in a related field, you have seen patients or clients with fibromyalgia syndrome (FMS) and/or myofascial trigger points (TrPs). These conditions are real and they are not the same. This means that you need the ability to recognize **two** distinct medical conditions. Once you grasp the concepts behind these conditions, your life, your job, and the lives of those who come to you for help will be changed. Many of your "problem" patients/clients can look forward to improved health, and you can take great satisfaction in knowing that you can make a greater difference in their lives.

These conditions need not be difficult to diagnose and treat. On this website, you will find well-documented information that will help you help others. There are some basic concepts to grasp that will aid you in diagnosing and treating FMS and myofascial TrPs. These conditions often, but not always, occur in the same patients, and it is important that **each** condition be diagnosed, as their treatment is very different and they may be affecting and/or amplifying and perpetuating each other.

Fibromyalgia Syndrome

FMS is not a catchall, "wastebasket" diagnosis of achy muscles. It is a specific, chronic, non-degenerative, non-progressive, noninflammatory, truly systemic pain condition. The pain and stress response systems are out of balance, and other biochemicals, such as hormones, may be as well. FMS is associated with central sensitization (Staud R, Cannon RC, Mauderli et al. 2003). The central nervous system reacts as if it has been amplified and/or distorted. Patients with FMS can be sensitive to smells, sounds, lights, odors, pressure and temperature fluctuations and vibrations. FMS sensitizes nerve endings as well as the rest of the autonomic nervous system, which means that the ends of the nerve receptors may have changed shape. Bright lights and noises, touch and even smells may be translated as pain. Flickering lights and droning, staccato or repetitive noises may be intolerable to these patients. They can easily go into a state of what can be described as sensory overload.

FMS is a syndrome, but that doesn't mean it is less serious or potentially disabling than a disease. Rheumatoid arthritis, lupus, and other afflictions are also syndromes. FMS may be present along with other conditions such as those just mentioned. There is no blood test that can accurately identify FMS. FMS patients

often look healthy, and others may expect them to act as if they are. FMS may vary in its severity, not only from patient to patient but from hour to hour and day to day. Careful pacing is a skill necessary for optimized function.

The official definition of FMS for patients requires that tender points must be present in all four quadrants of the body. Your patient must have had widespread, more-or-less continuous pain for at least three months to be diagnosed with FMS. The criteria of "11 of 18" specific FMS tender points were originally meant to screen patients for clinical study and not as diagnosis. It may be easier to look for the pattern of widespread diffuse body aches, with central sensitization including hyperalgesia and allodynia, and then check for tender points. Tender points occur in pairs on various parts of the body. Because they occur in pairs, the pain is usually distributed equally on both sides of the body. ***There are no trigger points in FMS.*** TrPs are part of myofascial pain syndrome. Localized pain usually indicates a co-existing condition. FMS can occur at any age. Most patients, when questioned carefully, reveal that their symptoms began at an early age. About 25 percent of the FMS patients I meet are men. There may be neurotransmitter-mediated objective signs, such as skin mottling or ridged nails. The latter are recognized signs of endocrine imbalance.

Only about 20% of FMS cases have a known triggering event that caused the first obvious "flare". During a flare, current symptoms become more intense, and new symptoms frequently develop. Much of the management of FMS depends on identifying the perpetuating factors and bringing them under control as much as possible. For example, lack of restorative sleep plays a crucial role in FMS. Its causes may be multifactorial. It is critical that sleep be optimized. Spending eight hours in bed is not sufficient. Your patient must feel refreshed on waking. If TrPs are present as well, they must be treated and prevented from recurring.

Myofascia 101: Take A Fresh Look

I ask specialist clinicians who are not totally at ease in the diagnosis of myofascial TrPs to please read this section even though it may seem basic, because it may help you get an edge in the diagnosing and treating TrPs. If you have already worn out at least one set of the Trigger Point Manuals and have at least 5 other well-read books on myofascial medicine and 5 to 10 years experience in diagnosing and treating TrPs, you may be able to skip this section, but I can't promise you won't miss something new.

Myofascial pain is probably the most common cause of musculoskeletal pain in medical practice (Imamura, Fischer, Imamura et al.1997). It is a vital factor in the practice of internists, in physical medicine and rehabilitation, internal medicine, dentistry, anesthesiology, gynecology, rheumatology, neurology, pediatrics, gastroenterology, proctology, psychiatry, cardiology, and about any other specialty you can think of. Myofascial medicine has been largely neglected in medical education, but once you grasp a few concepts and hone your observation and palpation skills,

you will find that myofascial dysfunction is amazingly common and may cause or contribute to many of your patients' symptoms.

A small change in the myofascia can cause great stress to the body. Restriction of one major joint in a lower extremity can increase the energy expenditure of normal walking by as much as 40% (Greenman, 1996). If two major joints are restricted in the same extremity, it can increase by as much as 300%. Multiple minor restrictions of movement, particularly in the maintenance of normal gait, can also have a detrimental effect upon total body function. In "Principles of Manual Medicine" (ibid), the author finds it convenient to separate fascia into three layers, but it is continuous and three dimensional, so please visualize it as such.

Superficial fascia is attached to the underside of the skin. Capillary channels and lymph vessels run through this layer, as do many nerves, and subcutaneous fat is attached to it. If the superficial fascia is healthy, skin moves easily over the surface of the muscles. In FMS and CMP, it can get stuck. There is also a great potential to store excess fluid and metabolites in the superficial fascia. This fascia is often the easiest to palpate, but palpation may be hampered by the presence of excess fluid. The presence of this fluid is a clue that there is something wrong and may also give clues as to the location of the problem.

Deep fascia is tougher and denser, and is used to separate large sections of the body. It covers some areas like huge sheets, protecting them and giving them shape, and separates muscles and organs. The pericardium, the pleura and the perineum are all made up of specialized deep fascia. The dural tube is also fascial, and this fascia is connected to the membranes surrounding the brain. Together, they hold and protect the craniosacral system, and changes in the craniosacral fascia can affect what it contains. Sheets of fibrous myofascial adhesion can form anywhere along nerves and block normal healthy function.

The subserous fascia is loose tissue covering the internal organs and holding the network of blood and lymph vessels that keep them moist. Myofascia is fascia related to muscle tissue. Healthy myofascia allows for compression and tension, as well as relaxation. It is the fascia that forms adhesions and scar tissue. Healthy ground substance making up part of the myofascia has a gelatinous consistency so that it can better absorb the forces that are created during movement. Ground substance maintains the distance between connective tissue fibers. This prevents microadhesions from forming and keeps tissues supple and elastic. When the critical distance is not maintained, the fibers become cross-linked by newly synthesized collagen fibers, which are also part of the fascia. Collagen crosslinks are arranged haphazardly, unlike healthy linkages, and are harder and more painful to break up. If this pain is further amplified by FMS, extra care by the bodyworker and extra medication during and after treatment may be needed to prevent further central sensitization. It is insufficient therapy to break up the cross-linkages. The ground substance must be returned to its healthy, more fluid state. The transfer of nutrients from where they are metabolized into usable materials to where they

will be used, as well as the removal of waste products from these areas of use, takes place in the ground substance. The state of the ground substance can profoundly affect the state of health.

Muscles and tendons join bones and ligaments and come together at attachment areas. The cellular membranes in these areas can become extremely convoluted, which increases the surface area and changes the angle of force. This increases the potential for tissues to stick together and causes tissues near attachment areas to become more easily torn (Simons, Travell and Simons, 1999). Attachment TrPs can become fibrotic or calcified with time. The sooner they are appropriately treated, the easier it will be to return the myofascia to a healthy state. ***Chronicity can often be prevented by prompt and through acute care.***

Myofascial Trigger Points

Trigger Points (TrPs) are extremely sore points occurring in ropy bands throughout the body. To more easily palpate TrPs in the arm or leg muscles, stretch the involved muscle about 2/3 of the way out. If there is pain at the end of a restricted range of motion, there is probably a TrP involved. TrPs cause muscle weakness and other dysfunction before they cause pain. Much of the restricted range of motion and dysfunction often attributed to old age may be due to myofascial TrPs and thus can be successfully treated. Travell and Simons have carefully documented and detailed the maps and common associated proprioceptive and autonomic concomitants.

A latent TrP doesn't hurt unless you press it. Your patient might not even know it's there, but his or her body does. It weakens the affected muscle, restricting movement and preventing its full lengthening. If you press on the TrP it refers pain in its characteristic pattern. Latent TrPs may be activated by overstretching, overuse, or chilling the muscle. People who get little exercise have a greater chance of developing latent TrPs. Some people believe that by restricting their range of motion they are getting rid of their TrPs. Nothing can be farther from the truth. When someone with multiple latent TrPs falls, develops an infection, or is affected by any other stressor, all of the latent TrPs can activate simultaneously. Physical stress isn't the only thing that can cause TrPs. Tension TrPs can occur. These are not the psychological result of tension, but they are physiological biological effects of long-term emotional abuse, mental trauma or other stressor. Constantly holding muscles tight in a "fight-or-flight" stress response changes biomechanics. It will take both patient and care provider effort, time and persistence to change them back.

Bodywork and exercise can activate TrPs, and so can a TrP examination. Ask your patients for feedback about after-effects of your examination. You may need to modify your technique. Please don't strum across the taut bands. If your patient has both FMS and myofascial TrPs, s/he may need medication to allow for complete testing without further sensitizing the central nervous system. You may need

to restrict examination to one muscle function group and treat the TrPs in that group immediately after you test. Full range of motion stretches and a hot bath with Epsom salts and ground ginger may help relieve post-exam and post-therapy soreness.

An active TrP not only hurts when it is pressed, like an FMS tender point, but it "triggers" a referred pain pattern somewhere else in the body. This pain pattern is *similar* from patient to patient and may include spillover pain areas. These TrPs often produce symptoms other than pain. Active TrPs hurt when the muscle is in use. When the TrP becomes very active, pain and other symptoms occur even when the muscle is resting. The fact that these pain patterns are very much similar from patient to patient helps *if* the diagnostician is familiar with the patterns so well described by Travell and Simons. A comprehensive history will tell you where to look for TrPs and may help prevent needless pain. If your patient has a stiff neck, for example, you can check for TrPs in the levator scapulae, and if there is a problem with incontinence, there are TrPs that can affect that too. Some other TrP associated symptoms include localized sweating, tearing, poor balance, nausea, tinnitus, goosebumps, runny nose, buckling knees, weak ankles, illegible handwriting, headaches, and muscle cramps.

It is of critical importance to become familiar with the referral pain patterns of the individual myofascial TrPs and their TrP locations. TrPs are sometimes within their pain referral pattern, but they also can be at some distance from it. The specifics of the TrP referral pattern give you clues to the location of the TrP. With multiple TrPs, there can be complex overlying pain patterns. Knowing the specifics is the key to unraveling the puzzle. TrPs may form as a result of other medical conditions. A case of arthritis may be otherwise well managed, for example, but the accompanying TrPs are overlooked. The pain load of that patient could be substantially lessened if the secondary TrPs were treated successfully.

TrPs can occur in the myofascia, skin, ligaments, bone lining, and other tissues. They can be caused by a surgical incision, as is often the case with abdominal surgery. Each specific TrP on the body has a referred pain or other symptom pattern that is carefully documented in the Trigger Point Manuals. Most specific pains commonly attributed to FMS are actually from TrPs. Trigger Points seem to form throughout life as a response to many things that happen to our bodies. This includes overuse, repetitive motion trauma, bruises, strains, joint problems, etc. Pain creates a neuromuscular response, and the muscle around the pain site tightens, "guarding" the hurt area.

Dr. Janet Travell, in her autobiography, "Office Hours Day and Night," explains how dizziness, ringing of the ears, loss of balance, and other symptoms can all be caused by TrPs in the sternocleidomastoid (SCM). Proprioceptors in the SCM transmit nerve impulses that inform the brain of the position of the head and body in relation to the environment. Trigger points distort proprioception. When head movement changes the SCM message, dizziness can result. This can make it seem that the walls are tilting or result in a "drunken" walk, with unintentional veering

and bumping into doorways and walls. Checking for SCM TrPs costs nothing, takes a minute, and can save needless time and expense.

Chronic Myofascial Pain

If TrPs are treated appropriately, immediately and vigorously, and perpetuating factors (conditions that aggravate and perpetuate the TrPs) are avoided or controlled, TrPs can be eliminated. Unfortunately, if TrPs are left untreated, are inappropriately treated, or muscle action is restricted to avoid pain, the TrP usually becomes latent. If the muscle is pushed to work in spite of the pain, especially if perpetuating factors exist, active TrPs may develop secondary and satellite TrPs. Secondary TrPs develop when a muscle is subject to stress because another muscle with a TrP isn't fully functional. Satellite TrPs develop in muscle in the referred pain zone of another TrP. Without proper intervention, and with perpetuating factors, the TrPs can lead to severe and widespread chronic myofascial pain (CMP). TrPs can occur in any layer of any muscle, in any position in a muscle and there may be multiple layers of TrPs in many areas of one muscle, and many or even all muscles may be involved. The TrPs diagramed in the Trigger Point Manuals are in the most common areas and are simply guides to show you where to start looking.

Developing secondary and satellite TrPs can give the false impression that CMP is a condition that is progressive. CMP is not progressive. TrPs can be minimized or eliminated with proper treatment and control of perpetuating factors. TrPs can be broken up and minimized or even eliminated, depending on how well the perpetuating factors can be controlled.

Patients with Both Fibromyalgia and Chronic Myofascial Pain

FMS and CMP are different conditions, even though the vast majority of physicians lump them together because they see many patients who have both. Unless doctors have a thorough knowledge of and familiarity with individual TrPs, they can't sort out the symptoms. One interesting difference between the two syndromes is that more women than men have FMS, but CMP affects men and women in equal numbers. Another difference is that muscles in locations that are some distance from TrPs of CMP have normal sensitivity. In FMS, there is a generalized sensitivity. Hard nodules, ropy bands and restricted range of motion are part of myofascial pain.

FMS is, among other things, a systemic neurotransmitter imbalance with many biochemical factors involved. These may vary from patient to patient. There are other imbalances as well, but they are all *systemic* in nature. Chronic myofascial pain, however, is a neuromuscular condition. Due to the nature of trigger points, some of the symptoms may seem to be systemic, but they are localized, even if the local TrPs are overlapping and cover the body. Initiating events, such as repetitive motion injury, trauma and illness, can start a cascade of TrPs, but it is reversible.

TrPs form with excess acetylcholine release at the motor end plate, with resultant excess calcium release. This is part of a cycle that causes physiological contraction of muscles due to TrP formation. The specific muscle weakness that occurs from TrPs is not the same as the diffuse fatigue of FMS, but this can lead to confusion. TrPs can cause enough pain to disrupt sleep, although the mechanism is different than that of FMS sleep-disruption.

People with both FMS and CMP face more than just the two sets of symptoms of both conditions. Today, a few researchers are realizing that FMS and CMP not only occur together – they reinforce each other. The peripheral stimulation of TrPs can perpetuate the central sensitization of FMS, and the central sensitization of FMS can amplify the pain of TrPs. In patients with both of these conditions, to gain control over FMS symptoms you must gain control over the TrPs as well. Unless they understand the magnitude of both of these conditions, care providers tend to underestimate the amount of pain involved.

Bodywork and all other forms of treatment must proceed carefully. Any treatment regimen will be both more complicated and less successful than if the patient had only one of the two conditions. Some of the treatments normally prescribed for FMS patients can cause damage to CMP patients, and the reverse is also true. For example, you cannot strengthen a muscle with a TrP, because it is physiological contracted and already contracting it. Repetitive motion exercises, weight training and “work hardening” are torture for TrP patients and can result in permanent disability. In FMS patients without co-existing TrPs, limited strengthening exercises tailored to the patient’s condition may be appropriate if they are started gently and increased very gradually as the patient improves.

In the context of FMS, many different neurotransmitters are affected to different degrees and in different combinations in each patient. Also, other biochemicals in the body are affected to different degrees. Various hormones may be involved. Standard tests may be meaningless or must be evaluated in context. For example, the standard TSH test depends on a working hypothalamus-pituitary-adrenal axis. In FMS the HPA axis is usually out of balance. Histamine, a neurotransmitter, is often an important factor and easily overlooked. The possible combinations are endless, so this is no place for “cookbook” medicine, especially when you figure in the possible combinations of TrPs. FMS perpetuates CMP and the reverse is also true. The spiral of pain/contraction/pain/contraction continues until it is interrupted by an outside force in some form.

Treatment must be appropriate to the patient’s status and must be done properly. ***You cannot become an expert in TrP diagnosis and treatment by looking at TrP diagrams.*** You must understand the nature of the TrP and the proper performance of therapies. Spray and stretch cannot be done well without proper positioning of the patient, palpation, and “spray and stretch” together. It is not appropriate to spray the patient with vapocoolant and tell them to stretch later. The spraying must be done in conjunction with the stretching for full effect, with rewarming of the tissues. TrP injections also must be done according to protocol in

order for them to be effective and lasting. Injection without proper positioning, range of motion stretch and attention to perpetuating factors will not bring a lasting result. The Trigger Point Manuals tell you how to inject TrPs most effectively, and training is available. Different treatment methods and medications may work better for specific patients. Every patient will be different. This is a challenge, but be assured that it is a challenge for your patient as well. The body will be constantly finding a new balance, and it will take time.

Chronic pain, all by itself, causes stress and lack of sleep. That's another reason why many cases of FMS are accompanied by CMP. But many things can be done to relieve the patient's symptoms and return some measure of balance to the bio-chemistry. The key to management of both FMS and CMP is understanding the concepts of each illness. Then you can proceed with a careful assessment of the perpetuating factors, including chronic pain. Each of these perpetuating factors must be found and brought under control. The patient is an important part of this process. Life style modification – including good sleep hygiene, postural awareness, diet modification, appropriate exercise and stretching, elimination of smoking and excess alcohol, and avoidance of immobility – all lie within the patient's control. You need to work as a team, enlisting other health care providers as needed. The task may seem daunting for you and your patient, but perseverance will bring rewards.

I am presently compiling a symptom analysis of 175 patients with diagnosed or suspected FMS. Many had CMP as well. Some had other conditions. These patients are represented from over 1000 interviews done over an approximately 10-year time span. The analysis will appear on this website when complete.

This website contains an annotated bibliography of medical books and training resources as well as an extensive list of relevant medical journal articles for care providers, as well as resources for patients.

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