



Fibromyalgia Treatment: A Care Team Approach

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Abstract

Pain is a condition that affects millions of people worldwide. However, pain is difficult to treat because patients have different levels of pain tolerance and there are different types and descriptions of pain. Pain may be classified as acute or chronic. A type of chronic pain is Fibromyalgia Syndrome (FMS). Practitioners may find it difficult to effectively manage their patient's FMS because all symptoms are self-reported and patients may lack the ability to effectively describe the severity of their pain. Additionally, FMS involves a wide range of symptoms and requires several areas of care. Therefore, patients with FMS can benefit most if they receive therapy from a healthcare team. For example, the combination of therapies involving pharmacological, physical and occupational can be considered by patients who are seeking greater pain relief. This is because each healthcare professional provides perspective and additional insights, which provides for better understanding of the patient's pain. With a healthcare team that is able to properly communicate and work together, treatment plans can be more effectively formulated to improve management and increase the overall patient-centered care.





An informal description of chronic pain is any condition involving pain that has been ongoing for months or years. One of the subcategories of chronic pain is Fibromyalgia Syndrome (FMS). In the United States there is a 6% to 15% prevalence rate, with a five times greater incidence among women than men.¹ FMS is most commonly seen in young to middle-aged women.² Patients diagnosed at a younger age generally have a worse prognosis and poorer quality of life.² In rheumatology clinics within the US, the rate of new diagnosis is approximately 10% to 20%, whereas in non-specialized settings, the rate is 2.1% to 5.7%.^{3,4}

FMS is one of the most common diseases affecting the muscles and it can manifest with pain, stiffness, and tenderness of the muscles, tendons, and joints.¹ The most common body parts affected by pain from FMS includes neck, buttocks, shoulders, arms, upper back, and chest.¹ Patients are diagnosed with FMS if they have had pain for longer than 3 months and have 11 out of 18 tender-point sites (i.e. neck, chest, shoulders, elbows, hips, and knees).² Not only are FMS patients pain-ridden, they also have additional complications which include restless sleep, fatigue, anxiety, depression, and bowel disturbances.¹

Pathophysiology

The etiology of FMS is still unknown and has yet to be fully understood. However, characteristic alterations in sleep patterns and changes in neuroendocrine transmitters such as serotonin, substance P, growth hormone, and cortisol suggest that autonomic and neuro-endocrine system regulation appears to

be the root cause.¹ Chronic pain is often a result of sensory signal amplification as well as the pain threshold being lowered due to central sensitization and blunting of inhibitory pain pathways and neurotransmitter alterations, which ultimately leads to abnormal neurochemical processing of sensory signals in the CNS.^{5,6} Furthermore, the relationship of FMS and mood disorders suggests a major role in the stress response. The hypothalamic pituitary axis (HPA) is a critical component of the stress-adaptation response.⁷ In FMS, the stress response is interrupted resulting in stress-induced symptoms. Genetic and environmental factors are also possible mechanisms of fibromyalgia.²

Though FMS is a complicated disease to manage due to its unknown etiology, recent advances in treatment and therapy have helped to provide insight into the various associated comorbidities. The following discussion includes the therapies used in occupational, physical, and pharmacologic areas. Understanding these types of therapies and how they aid in the management of FMS can improve overall patient care.

Pharmacologic Management

Living with chronic pain can be extremely frustrating and demoralizing to patients. Often times, patients will have seen many different healthcare providers and will have tried a variety of therapeutic interventions. Healthcare providers should take the initiative to involve the patient in designing a treatment regimen that best suits that specific individual. By participating in their treatment plan, patients may have better adherence to the





regimen if they feel involved and in control of their disease state management.

Many FMS patients are seen in the ambulatory care setting to help manage pain, depression, and symptoms of stress. While there is no gold standard for treatment, the most commonly used and successful pharmacotherapies to date include CNS agents, antidepressants, muscle relaxants, and anticonvulsants.¹ Patients are encouraged to use a combination of lifestyle modifications such as exercise or cognitive behavioral therapy before pharmacologic therapies are initiated. If pharmacologic treatment is needed, pain medications such as ibuprofen or acetaminophen should be the first drug of choice. NSAIDs have been used but pain usually persists, while acetaminophen may ease the pain and stiffness caused by fibromyalgia.¹ Antidepressants also have a long track record of useful treatment in chronic pain.^{7,8} Mild to moderate symptom improvement has been seen with the use of tricyclic antidepressants, selective serotonin reuptake inhibitors (SSRIs), or a combination of both.

Dosages should not exceed the recommended maximum for the drug. Antidepressants are most commonly used because of their increased effect on serotonin, while duloxetine, which is a serotonin and norepinephrine reuptake inhibitor has shown to be effective as well.^{7,8} Recently introduced interventions for FMS include dopamine agonists, sodium oxybate, and growth hormone.^{7,8}

Three medications are FDA-approved for treating fibromyalgia: pregabalin (Lyrica®), duloxetine

(Cymbalta®), and milnacipran (Savella®). Pregabalin is an anticonvulsant and analgesic and was the first medication to be approved for diabetic neuropathy. It works by binding to voltage gated calcium channels in the central nervous system to alleviate pain. Duloxetine and milnacipran are both serotonin-norepinephrine reuptake inhibitors (SNRIs), and their exact mechanisms are unknown. There are limited studies comparing the efficacy of pregabalin, duloxetine, and milnacipran to each other. However, when compared to placebo, each of these medications is superior in treating FMS.² Adverse effects of each were similar, but duloxetine and milnacipran had a higher incidence of nausea and headache than pregabalin.²

As previously stated, other classes of medications can be commonly seen in the treatment of FMS. Amitriptyline, which is a tricyclic antidepressant (TCA), was the mainstay of therapy in the past, and it is still used often for treatment, but its use is off-label. TCAs work similarly to SNRIs by modulating the amount of serotonin and norepinephrine in the synapse of nerves, which helps relieve pain associated with FMS.

Another drug used off-label for FMS is cyclobenzaprine, which is a muscle relaxer. It is not used as often as other options because many patients report unwanted side effects (such as dizziness, sleepiness, upset stomach, and constipation) when using this medication.² Gabapentin has a similar mechanism to pregabalin and is therefore sometimes used for treatment of FMS, but it has not been extensively studied. Despite limitations to available data,





gabapentin seems to show potential benefit in improving pain severity but also tends to cause adverse effects such as dizziness, drowsiness, and weight gain.⁹

Tramadol, an opioid, is another option for patients experiencing FMS, and is often used as an alternative to pregabalin, duloxetine, and milnacipran.² Tramadol agonizes opioid receptors and inhibits reuptake of serotonin and norepinephrine similarly to TCAs and SNRIs.

In regards to pain, NSAIDs can be used to treat the pain associated with FMS. However, NSAIDs may not be as effective as other options because they act peripherally, whereas FMS is thought to be caused by autonomic and neuro-endocrine system regulation.² Opioids (other than tramadol) are not commonly recommended because they can worsen symptoms of FMS, such as fatigue and cognitive impairment.⁹

The end note on pharmacological treatment is that there are many options. Healthcare professionals should use their clinical judgement to choose the best drug class for the indicated symptoms. Treatment should be patient-specific and centered around symptom relief.

FITT Recommendations for Individuals with Fibromyalgia			
	Aerobic	Resistance	Flexibility
Frequency	Begin with 1-2 days per week and gradually progress to 2-3 days per week.	2-3 days per week with a minimum of 48 hrs between sessions.	Begin with 1-3 days per week and progress to 5 days per week.
Intensity	Begin at very light intensity (<30% HRR). Gradually progress to moderate intensity (40-59% HRR).	Strength: 40-80% 1-RM. Gradually increase to 60-80% 1-RM Endurance: use ≤50% 1-RM.	Active and gentle ROM stretches for all muscle tendon groups in the pain-free range. Stretch to the point of tightness or slight discomfort.
Time	Begin with 10 mins per day and gradually progress to a total of 30-60 mins per day.	Strength: Gradually progress from 4-5 to 8-12 repetitions, increasing to 2-4 sets per muscle group with at least 2-3 mins between sets Endurance: 15-25 repetitions, increasing to 2 sets with a shorter rest interval.	Initially hold the stretch for 10-30 secs. Progress to holding each stretch for up to 60 secs.
Type	Start with low impact or nonweight-bearing exercises (i.e. water exercise, cycling, walking) to minimize pain that may be caused by exercise.	Elastic bands, dumbbells, cuff/ankle weights, weight machines, or body weight exercises.	Elastic bands and unloaded (nonweight-bearing) stretching.

Table 1. Aerobic, resistance, and flexibility training recommendations based on the American College of Sports Medicine exercise guidelines.¹⁴ (HRR = heart rate reserve, 1-RM = one repetition maximum, ROM = range of motion).



Physical Therapy Management

When living with a debilitating disease such as FMS, self-management becomes a critical part of the treatment process. This is where healthcare disciplines such as occupational and physical therapy can contribute to the overall care of a patient. The overall goal of physical therapy treatment for patients with FMS is to help them manage their pain, decrease their levels of fatigue, and improve their level of function.¹⁰ Physical therapists can implement a number of interventions shown to be beneficial for patients with FMS including strength and aerobic exercise, passive interventions, and activity management strategies.^{11,12} Physical therapists also often play an important role in educating patients on how to self-manage their symptoms.¹¹ Patients suffering from FMS may require healthcare management throughout their life, however, learning to self-manage their symptoms as best as possible can lead to better quality of life for these individuals.

When considering non-pharmacological treatment options for FMS, exercise has been shown to be one of the most effective choices.^{11,13} However, when exercising patients with FMS, it is critical to understand how to safely monitor and manage their symptoms. Physical therapists can assist in bridging this gap in order to ensure that a safe, yet effective, exercise program is put into place for these patients. The American College of Sports Medicine (ACSM) provides recommendations for aerobic, resistance, and flexibility training for individuals with FMS based on the FITT

principle.¹⁴ The FITT principle corresponds to the frequency, intensity, time, and type of exercise performed. These recommendations can be seen in Table 1. Other special considerations that the ACSM recommend includes allowing adequate rest breaks during exercise sessions, prescribing exercise intensity based on current fitness levels and previous exercise experience, and creating a program that limits barriers in order to encourage adherence to the program.

A few recommendations provided by the American Physical Therapy Association (APTA) for exercising patients with FMS include slowly progressing their exercise program, teaching the individual how to pace themselves properly, understanding how to set realistic fitness goals, and how/when to modify the program.¹⁰ Modification of an exercise program can be done through the adjustment of the FITT principle. In order to progress or regress an individual's program, the frequency, intensity, or time of therapy can all be adjusted. It is recommended that only one variable be adjusted at a time when progressing the program in order to ensure tolerance of the progression.¹⁴ Individuals with FMS should be educated on the importance of adjusting their program based on their symptoms. For example, if the patient is having increased symptoms, they should avoid any intense exercise on that day.

A final approach that physical therapists can use when treating patients with FMS is to use more passive techniques. Passive techniques require no active muscle contraction from the patient and rely solely on the physical therapist to





perform the treatment. The passive treatments typically used in the treatment of FMS include manual therapies such as joint manipulation, myofascial release, and trigger point massage. Though there is currently less research supporting this approach to treatment, some research exists stating these manual techniques can assist in reducing stress, inducing relaxation, and improving load tolerance during exercise when used in conjunction with more traditional treatment options.¹² The concern behind passive techniques revolves around the desire to allow patients to learn to control their own symptoms. Passive techniques may provide symptomatic relief temporarily, but clinicians do not want patients to become reliant on passive treatments.¹²

Occupational Therapy Management

Similar to physical therapy, occupational therapy (OT) can help manage patient's symptoms and improve function. The overall goal of occupational therapy in fibromyalgia treatment is to improve the patient's quality of life and enable them to increase participation in their occupations. The definition of occupations in this case is very broad, including anything that the patient finds meaningful or important to do including getting dressed, cooking, leisure activities, or work. An occupational therapist would work with an individual with fibromyalgia on a one on one basis to provide interventions that will focus on adapting their current occupations to increase success and improve their physical functions or symptoms.

Typical options for treatment interventions in occupational therapy with

FMS can include relaxation training, physical activity, aquatics, desensitization, and energy conservation techniques. Individuals' with FMS many times have difficulty relaxing due to their constant symptoms, so one goal of OT could be to teach mindfulness stress reduction or guided imagery to reduce stress related symptoms and calm the individual's body.¹⁵ Another common intervention is a large array of physical activity during therapy, including: strengthening, aerobic exercise, yoga, home exercise programs, endurance training, or aquatics.^{15,16} These activities target the facilitation of endurance, strength, pain reduction, balance, or flexibility. The physical activity chosen for each patient would be different, depending on the severity of FMS, symptoms, and what the patient enjoys doing. For example, a patient with current increased pain levels, stiffness, and sensitivity could benefit more from a yoga based physical activity.¹⁵

Aquatics would also be a beneficial choice since it helps alleviate the weight of the body, reduce pain, eliminate stiffness, and increase endurance.¹⁶ Based on the patient, and what they prefer or enjoy, either yoga or aquatics could then be the physical activity of choice to benefit the patient.

Individuals' with FMS can have symptoms of decreased or abnormal sensation in their hands or arms. There are desensitization interventions that can be performed in OT to help the patient's normal sensation return. Activities may include brushing the areas, providing vibration, or rubbing different textures on the desensitized areas.¹⁷ These activities help the patient's hand and arms regain normal feeling in order to increase accurate use during fine motor activities. Lastly, one of the most important interventions that OT would perform with





individuals struggling with FMS symptoms includes energy conservation techniques.¹⁸ Energy conservation's main goal is to modify an activity, task, or daily routine to preserve energy levels. Individuals with FMS have decreased endurance and are more easily fatigued by doing their daily routines or common tasks. By educating these individuals on energy conservation, the objective is to minimize the amount of energy used on tasks so that the individuals do not push themselves passed their fatigue point, causing increased symptoms. This intervention can be beneficial for anyone diagnosed with FMS to teach them how to break down tasks into steps, modify body mechanics or task set up to reduce energy expenditure.

Once an individual's improvement plateau's, the occupational therapist would educate the patient on how to maintain improvements and then discharge the patient. Education could include a home exercise plan, reiteration of energy conservation techniques, discussion of what activities would be beneficial for the patient to continue doing outside of therapy, and ways to continue with relaxation training. The therapist would then discontinue treatment. If the patient has a flare-up of symptoms in the future, therapy can be reinstated to address additional performance deficits.



Knowledge Check: True or False? The management of fibromyalgia syndrome involves several healthcare providers because it is a type of chronic pain that involves a wide range of symptoms.

Answer: True

Conclusion

For many patients with FMS, a combination of healthcare providers can provide the best symptom relief. It is evident that many disciplines, including OT and PT, can overlap in treatment plans for patients. For this reason, it is imperative that health care professionals in all fields communicate effectively and understand when to refer a patient to a different specialty to improve management. By knowing what each field does for patients with FMS, health care professionals can work together to form effective treatment plans and patients can receive better care, ultimately leading to a better quality of life.





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