



# **Fibromyalgia and Osteopathic Manipulative Treatment (OMT)**

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## TABLE OF CONTENTS

Cover Page	1
Copy Right	2
Acknowledgement	3
Table of Contents	4
History	5
Definition	5
Epidemiology	5
Pathophysiology	5
Histological and Histochemical Research	5
Psychology	6
Clinical Presentation	6
Characteristics	7
Physical Examination	7
Differential Medical Diagnosis	9
Laboratory Data and Imaging	9
Typical Medical Management/Treatment	9
Osteopathic Manipulative Approach for Management/Treatment	11
Conclusion	12
References	13

## **History**

Formerly known as Fibromyositis, Known for over 100 years to many clinicians. Redefined in the 1970's under controlled studies. Unfortunately it has a persistent lack of consistent objective diagnostic or pathologic findings to this day.

## **Definitions**

According to American College of Rheumatology, it is a chronic muscular generalised pain mainly as greater than 3 months in duration. Pain is considered widespread when present above and below the waist, on both sides of the body. Pain in 11 of 18 tender points on digital palpation appears with 4kg of pressure.

## **Epidemiology**

According to American College of Rheumatology, the epidemiology is based on the population studies is :

1. 2% of the population
2. 7% of women
3. 10% are functionally disabled
4. Ubiquitous amongst race and ethnic groups

## **Pathophysiology**

The changes that occur in the tissue seem to have localised predominance of the sympathetic, associated with impaired in the hydrogen ion concentration and calcium/sodium balance in the tissue fluids. This changes usually resulted from vasoconstriction and ischemic hypoxic tissue. Muscle spasm, hard, nodular tissue, localised continues tetanic contraction of muscle bundles are appears. Presented as sensation of aching, soreness, tenderness, tiredness and heaviness. It is also manifested as muscle tightness stiffness and swelling. The pathophysiological changes that happen in the muscles with fibromyalgia patients not only appears in the muscles but also appears as neurophysiological changes that leads to sleeping physiological disturbance, autonomic nervous system imbalance, near hormonal changes and psychological changes. Sleeping Physiology appears in Sleep Lab with EEG, Stage IV disruption and alpha wave intrusion.

## **Histological and Histochemical Research**

The findings in histology with fibromyalgia patients are mainly appears as a Metabolic Myopathy, Mitochondrial malfunction or Muscular deconditioning. there is also some Neurohormonal and Hypothalamic-pituitary-adrenal Axis with unknown cause. although

disturbance is seen in lab animals chronically exposed to stressors that are out of their control decreased Somatomedin C.

## Psychological

Studies shows high rates of psychological disturbances among Fibromyalgia population. Most of them has signs and symptoms of major depression, leads to prescribing antidepressants medications for them. Many Psychiatrists Physicians refer the patients to psychologist for therapeutic sessions to improve their depression that resulted from chronic pain, chronic fatigue and functional disability. Migraine headache is also common with Fibromyalgia patient which increase their physical and psychological stress. Because of Psycho-viscero-somatic relationship as one of the osteopathic principles, and autonomic nervous system (ANS) connection, most of the patient have some visceral dysfunction issues which commonly diagnosed as Irritable Bowel Syndrome (IBS). Also, impairment with ANS and continuous physical pain and stress, leads to over-activity of sympathetic nervous system, which usually called in osteopathic medicine sympathetic overdrive or overflow. Panic Disorder is a common complaint from the patient because of ANS unbalance and sympathetic over activity. All these symptoms that usually not responding to medications and allopathic medical interventions made the patient become anxiety about their life and their future. Which leads them to another psychological problem which is (Generalised Anxiety Disorder).

## Clinical Presentation

**A. Myalgic Model:** Which is most typical complain, it represents as pain within muscles and tendons, frequent myofascial trigger points, tendinitis, muscle shortening in multiple body areas. This patient usually complain of early morning muscle stiffness and pain that resolved within one hour.

**B. Neuropathic Model:** This kind of patients has some peripheral numbness and tingling not related to any neurological diseases or neural injuries. Usually presented in four limbs. Increase with psychological stress or physical fatigue. Not associated with myotome weakness or dermatome sensation impairments or impaired deep tendon reflexes.

**C. Axial Skeletal Model:** It is represented as Pseudo-degenerative disk disease, peripheral joint arthritis, feeling of deep bone pain, cartilage lesions and sensitivity.

**D. Arthralgic Model:** The patient complains of localised joint pain and tenderness, increase with joint movement, joint loading, weight-bearing and joint-capsule stretching.

### **American College of Rheumatology Criteria for the Diagnosis of Fibromyalgia:**

#### **1. History of widespread pain**

Pain is considered widespread when all of the following are present:

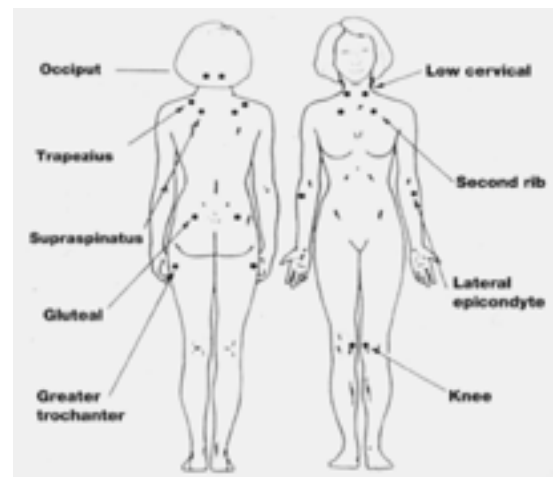
- pain in the left side of the body
- pain in the right side of the body
- pain above the waist
- pain below the waist

In addition, the patient should complain of pain in the spine or the neck or front of the chest or thoracic spine or low back

## 2. Pain in 11 of 18 palpated sites

There should be pain on pressure (around 4 kg of pressure maximum) in not less than 11 points of the following sites:

- Base of skull and sub occipital muscles.
- Side of neck
- upper trapezius
- supraspinatus
- second rib in pectoral area
- outer side of the elbow
- large buttock muscles mainly gluteus medius
- piriformis muscle.
- knee fat pad



## Characteristics

Fibromyalgia is often insidious at onset, it become chronic generalised muscles and joint pain, diffuse, intermittent symptoms associated with sleeping disturbance, general body fatigue, functional limitation and psychological problems like (depression and anxiety). Causes is usually unknown, but according the research studies, that one third has history of trauma, one third has history of a viral illness and one third has no clear aetiology.

## Physical Examination

Physical examination by any health care practitioner especially (Physicians, Osteopaths, Chiropractors and Physiotherapists) should be completed and sequence as following:

- I. History taking: including personal dat, age/sex of the patient, occupation/sport activities, onset of the problem, chief complaint, history of any trauma or infection, history of medical problems or psychological problems, history of any surgeries. It is recommended as well to ask about any previous intervention and how much the success to resolve the problem. Patient's goals is should be written in the documentation to assure patient-preferences.

II. Symptoms: Pain location, pain scale, kind of pain, other symptoms, aggravating factors and alleviating factors. Pain Threshold/Tolerance.

III. Reviewing any radiological imaging or laboratory results.

IV. Objective physical examination which including

- Observation of the body: body biotypology, any Musculoskeletal deformities, asymmetries, gait, function, swelling, muscle atrophy...etc.
- Active joint range of motion testing: to see the quality and quantity of the movement.
- Passive joint range of motion testing: to see the quantity, end-feel, pain-resistance sequence, irritability.
- Passive joint play/accessory motion or spinal segmental mobility testing for any restrictions or pain provocation.
- Muscle flexibility testing.
- Palpation for the fascia restriction sensitivity, myofascial structures mobility, trigger points or fibrotic tissues. To test Tenderness at Muscle and Tendon Insertion Sites.
- Special tests to rule out any other orthopaedic conditions like: Bursitis, Synovitis, or Tendonitis.
- Neurological examination to rule out any neural conditions. including muscle strength testing, sensory testing and deep tendon reflexes testing.
- Neural mobility testing: to test flexibility of peripheral nerves of upper and lower extremities.
- Cranio-Sacral Assessment: for osseous mobility of cranial bones/sutures, for primary respiratory mechanism (PRM) or Craniosacral rhythm. To assess any change in the symptoms during listening of palpation especially feeling of headache or dizziness changes.
- Visceral system: to assess the viscera through palpation to find any mechanical visceral dysfunction (restrictions and pain).
- To Assess functional ability: It is recommended to use functional assessment questioner or any other objective outcome measures that are recommended by the literature for fibromyalgia and to use it as a baseline to assess the improvement and detect any changes after the OMT intervention.



## Differential Medical Diagnosis

Fibromyalgia should be differentiated from other medical problems that can cause same symptoms. These are some diseases that could be cause of patient's complaint and not caused by (Fibromyalgia Syndrome):

- **Hypothyroidism:** Alteration of thyroid gland and decrease the function of it, leads to decrease of hormone release from the gland. Most common symptoms that come with hypo-function of thyroid gland (hypothyroidism) is general joint ache and general fatigue. It is recommended to send the patient for a medical physician for further investigation and laboratory tests to evaluate the levels of the hormones.
- **Rheumatoid Arthritis/Polymyalgia Rheumatica:** Rheumatoid Arthritis (RA), another cause of general body symptoms that are similar to the fibromyalgia symptoms. If there is signs and symptoms of RA or any other joint diseases, the patient should be referred to the Rheumatologist for further investigation and clear diagnosis. The common signs of RA is inflammation signs in the small joints with stiffness of hands joints in the morning with sometimes hotness and swelling in the joints without history of trauma.
- **Polymyositis:** This is a disease where the muscle become inflamed and sore. Same thing we can do. If suspected, we can refer to the Rheumatologist for further investigation and clear diagnosis. This kind of problems and RA responding to medications, unlike the Fibromyalgia syndrome.
- **Systemic Lupus Erythematosus:** This also some other disease that can mimic Fibromyalgia symptoms. If suspected refer for a medical specialist to rule it out.

## Laboratory Data and Imaging

- **Radiological Imaging:** If the criteria are met the imaging can be requested is usually over (depending on the health-care practitioner). Usually with Fibromyalgia patients the Radiology findings are normal.
- **Laboratory findings are usually normal.**
- **Basic studies are considered the standard of diagnosis/care in a medical-model.**

## Typical Medical Management/Treatment

**Reassurance:** Not crippling, deforming, progressive or life threatening.

- **Pharmacological Intervention that are prescribed to the patients with Fibromyalgia are:**

- Amitriptyline (Tricyclic antidepressant)
- Cyclobenzaprine (Muscle relaxant-Central)
- SSRI's (Selective Serotonin Reuptake Inhibitors)

#### - Exercise

- Low levels of aerobic exercise
- Stretching routine exercises for whole body muscle. Recommended three times a day.
- Gradual progressive overload of functional activities or sport activities.

#### - Group Support

**Information sharing:** many group support the Fibromyalgia, almost every country there is one forum that has some kind of discussion about their experience and how they improve with such a kind of treatment.

#### - Psychological therapy

- Behaviour modification, behavioural therapy sessions.
- Psychological therapy sessions for anxiety, stress and depression.

#### - Psychiatric

**Pharmacological:** usual they provide a medication for anxiety, sleeping disturbance and anti- depressants.

- **Pain Center/Clinic:** Usually it is poor control and unresponsive to pain medication control.

#### - Physiotherapy, Including:

- Therapeutic exercises: range of motion exercises, stretching exercises, progressive resisted exercises and progressive aerobic exercises.
- Electrotherapy: uses for pain management mainly
- Therapeutic Ultrasound: to improve circulation in localised area.
- Head/Cold Therapy: to treat hypertonicity of the muscles.
- Lazer Therapy: to improve circulation and treat myofascial trigger points.
- Taping: currently focusing on Kinesio-Taping to inhibit overactive muscles and decrease the load on the fascia and improve circulation and lymphatic drainage.

## **Osteopathic Manipulative Approach for Management/Treatment**

Careful evaluation including all the sequence as we have discussed in the Physical Examination section. The goal of the Osteopaths to find mechanical structural dysfunction that affecting the function (the physiology) and leads to a symptom or (a pathology). So, the Osteopath try to find the somatic dysfunction within the whole body and diagnosis it. Somatic dysfunction can be identified by (TART), which is finding the area that are Tender, Asymmetrical, Restricted and

with Texture changes. It is mainly to Musculoskeletal System. Then the Osteopaths goes through Craniosacral Assessment to find any signs of somatic dysfunction within cranium or sacrum, any impairment within dural and meningeal/membranes mobility. Then to assess Visceral function and visceral mobility and motility function.

Osteopathic Manipulative Approach to Fibromyalgia will be holistic global gradual intervention. It includes:

- Superficial Fascia Release: it helps to improve superficial fascia mobility, fluidity. It prepare the body for hands-on manual therapy and it start to inhibit sensitivity in the soft tissue and myofascial trigger points.
- Myofascial (Muscles/Tendons) Release (MFR): It will be more deeper targeting the muscles and tendon as the patient can tolerate. It help to increase muscles and tendon flexibility, increase circulation, blood supply, and Oxygenation. It will help as well for venues return and lymphatic drainage. It will play a strong role in positive changing in the central nervous system and return normal balanced neurophysiology of the muscles and tendons.
- Diaphragms Release: It indirect technique could be considered as a part of fascia release, or visceral manipulation or cranial osteopathy. It involves mainly seven diaphragms which are: pelvic diaphragm, abdominal diaphragm, thoracic inlet, hyoid bone, sub occipital area and tentorium at parito-temporal suture level. Releasing this diaphragms helps balancing the body and return homeostasis of the body. It helps to normalise the inter abdominal, pelvic, thoracic and cranial pressures. It works as a preparation for the deep visceral techniques.
- Joint/Articular Mobilisation: It is indicated when there is limitation in range of motion of the joint or capsular restriction associated with the fibromyalgia. It could be used with routine general osteopathic treatment (classical body adjustment technique that developed by little john and Warnnum).
- Muscle Energy Technique (MET): It will help to improve muscle flexibility, increase circulation, decrease muscle tension and decrease myofascial trigger points and decrease fatigue of the body.
- Visceral Manipulation: According to Jean-Barral the French Osteopathic Pioneer who re-invent the visceral manipulation concept. That 90% of chronic musculoskeletal problem is associated directly or indirectly to visceral dysfunction. And visceral tissues should be assessed, palpated for any restriction with the patients who have fibromylgia and treat these restriction with consideration of every case.
- Craniosacral Therapy (CST): This will help decrease headache, sleeping disorders and normalising autonomic nervous system. According to the recent studies that CST helps to reduce the pain, decrease depression, improve sleeping and improve quality of life for patient who diagnosis with Fibromyalgia.

- High Velocity Thrust (HVT): It is recommended to be done after preparing the body and decrease the tension and sensitivity of the soft tissue after many sessions. Contraindication should be considered.

## **Conclusion**

Strong correlation to depression but not necessarily to chronic fibromyalgia syndrome. Apparent link to hypothalamic dysfunction. Multifaceted treatment with the emphasis on being to address the obvious first - assist the person to normalize the abnormal – treat the somatic dysfunctions. Treatment of the whole person addressing the primary and secondary somatic dysfunctions. Multi-interventions approach from different health care providers would be more helpful to improve the condition including medical care and medications, physiotherapy, psychology, dictation and Osteopathy. Osteopathic manipulative therapy approach should be comprehensive progressive general involved all approaches that could help to decrease the condition such as soft tissue techniques, joint mobilisation, MET, CST and HVT. Home exercise program and advices and instruction is highly beneficial to maintain the improvement that achieved by the different treatment.

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