

Osteoarthritis and Fibromyalgia

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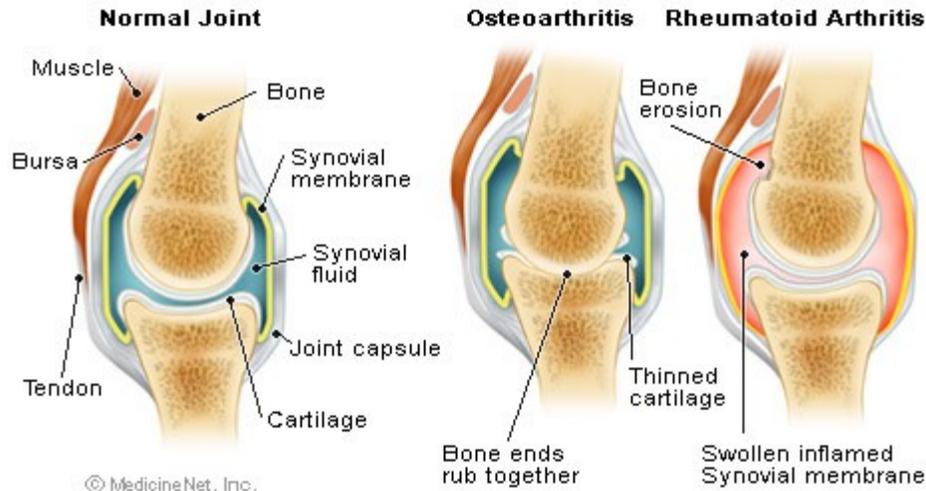


In this article, we discuss a couple of disorders that are not Repetitive Strain Injuries (RSI), but they share some common symptoms, are compounded by RSI, and may be mistaken for RSI, at least at the beginning. We should also point out that if you have unexplained musculoskeletal pain including diffuse bone, joint, or muscle pain, there can be many sources of the pain. A diagnosis from a medical professional is helpful in ruling out potential serious reasons for the pain which can have similar symptoms such as Lyme disease, rheumatic fever, hepatitis, Paget's disease, sickle cell anemia, or bone cancer.^{1,2} If you believe you are suffering from either osteoarthritis or fibromyalgia, you will have no trouble finding an abundance of helpful information online or through other sources. We offer some suggestions to help you better understand and deal with these conditions as a starting point in your learning process.

Frequently overlooked diagnoses. Dietary, climactic, and emotional conditions can manifest as diffuse joint, bone or musculoskeletal pain due in large part to inflammation, yet the medical community rarely considers these factors in the diagnosis of health problems. For instance, if you use the symptom checker for joint pain on MedicineNet.com, the only potential causes identified are purely physical and the solutions are all in form of over-the-counter pain relief or pharmaceuticals.³ Gluten intolerance, and other dietary intolerances can lead to inflammation and a variety of physical manifestations.^{4,5,6}

Osteoarthritis (OA)

OA is not a repetitive strain injury, but it definitely compounds the problems of RSI and shares many of the same symptoms. OA was once considered the result of "wear and tear" to the joints, however research now shows that heredity is also a factor.^{7,8} OA develops when your body progressively loses cartilage at the ends of bones in a joint or in the spine. Cartilage is spongy and filled with synovial fluid which lubricates the joints as they move. With OA, the water content of cartilage increases, the protein of the cartilage degenerates, and the cartilage starts to wear away, eventually causing bone to scrape against bone, triggering inflammation in the tissues surrounding the joints.^{7,8} Inflammation of the cartilage can stimulate new bone outgrowths or spurs called osteophytes.⁸ Ligaments and tendons supporting the joints become loose and the surrounding muscles grow weak, cracking, crunching, and creaking of the joint can occur.^{7,9} Using the joint causes aches, pain and stiffness that wasn't there in younger days.⁷



Normal and Arthritic Joints

Illustration courtesy of MedicineNet.com⁸

Primary osteoarthritis is due to aging and hereditary factors. Secondary osteoarthritis is brought on by other factors including obesity, repeated trauma, surgery on the joint, abnormal joints at birth, gout, diabetes, or growth hormone disorders.⁸ Obesity is the second most powerful risk factor for osteoarthritis of the knees after aging.⁸ Every extra pound you carry can have the impact of three pounds of pressure on your knees and hips as you move.⁷ Over 50% of all the cases of OA of the knee and 25% of the cases of OA of the hip are linked to excess weight.⁷

Gout and pseudogout are buildup of crystals in the joints that cause inflammation. In a few cases, both types of crystals can occur in the joints.¹¹ In the case of gout, the crystals are monosodium urate which form in some people who have too high a level of uric acid in the blood.¹⁰ In the case of pseudogout, the crystals are calcium pyrophosphate.¹¹

Damage to the joints can begin at the age of 20 if someone participates in high impact sports like football, soccer, tennis, basketball, and high-impact aerobics. Interestingly, long-distance running has not consistently been shown to increase the risk of osteoarthritis.^{8,12,13} Since running is not an impact sport, injury to the knees less likely, however there appears to be other factors such as being overweight, body structural differences, and hereditary predisposition to cartilage deterioration, that make the effects of running unclear. In fact, it appears that in some cases running increases the thickness and health of cartilage.¹² Most of this research was conducted on rats or mice, so the effects on humans may or may not be similar, but in any event, if joint pain and inflammation follow periods of running, damage may be occurring and another form of exercise may be wiser to reduce the risk of developing OA.

Clearly, if you're overweight, have played contact sports, and you're getting older, the likelihood of developing OA are going to be high. The most common symptom of osteoarthritis is pain in the joint after repetitive use or after periods of inactivity, such as sitting in a theatre. Joint pain is usually worse later in the day.⁸

OA can affect the hands, feet, hips, knees, neck and spine.^{7,8} OA of the feet and hands may have genetic origin, with numerous female members of one family developing it.⁸



Heberden's nodes are hard bony enlargements in the fingers which may form with OA. They are not necessarily painful, but do limit movement of the fingers.¹

Photo courtesy of Reference 1.

OA is not related to rheumatoid arthritis or other types of arthritis. Rheumatoid arthritis is a systemic autoimmune disease where the body's immune system attacks its own tissues leading to inflammation of the joints and around other organs.¹⁴ Blood tests can show if rheumatoid arthritis is likely, however no tests are available for osteoarthritis. Diagnosis of osteoarthritis is made by determining if symptoms are present: cracking and popping, inflammation of joints, reduced range of motion, pain and tenderness when joints are moved or pressed on.¹⁵ X-rays of the affected joints will show reduced space within joints, wear at ends of the bones and/or bone spurs.¹⁵

Treatment

Evidence of osteoarthritis in humans dates back to 4500 B.C. and has been referred to as the most common ailment of prehistoric people.¹⁶ This ailment has been around for a very long time, so attempted treatments abound from copper bracelets to prescription steroid shots. Basic treatment that aims at improving biomechanics, injury prevention, weight control, strengthening and low-impact exercises should always be the first line of defense.^{17,18} Learning more about how to care for the joints, participating in physical therapy, and wearing supportive devices can be helpful.¹⁹ Treatment consists of attempting to aid the ailing joints through strengthening, support, reduction of inflammation, and prevention of further damage to the cartilage, and secondarily to reduce pain.

Exercise – Physical therapy, regular non-impact exercise, stretching, strength training, range of motion, aerobic or endurance exercise, and movement like tai chi are all extremely important in treatment of OA.^{7,18,19} Being physically active encourages the production and flow of lubricating joint fluids, builds muscle strength, helps weight control, improves flexibility and joint movement, and eases pain in joints.⁷

Bicycling is great for strengthening the quadriceps above the knee and can help reduce symptoms significantly in arthritis of the knee.¹⁷ Swimming and water aerobics are great non-impact activities which can improve strength without further damaging the joints.¹⁷ Although not much research has been done to verify, yoga is reported to be very helpful in reducing hand pain and increasing range of motion.¹⁷

Diet – Nutrition is often regarded with skepticism by the medical community in dealing with osteoarthritis, however, in reality since this condition is largely a result of long-term deterioration, dietary factors over the years may actually play a significant role in the prevention or the advancement cartilage and joint deterioration. Rather than resorting to drugs, especially nonsteroidal anti-inflammatories (NSAIDs) with serious adverse side-effects in long-term use,

nutrition, functional foods, and nutraceuticals could provide a significant alternative because they are devoid of adverse effects.²⁰ Maintaining a healthy weight is critical. Drinking 64 oz of water daily keeps the body's tissues hydrated and lubricated. Consumption of Omega-3 fish oil will, over time, reduce inflammation.^{7,21,22}

Gluten sensitivity can result in very similar symptoms to arthritis including aching of bones, joints, and muscles. With or without a diagnosis of OA, it is quite simple to follow a gluten-free diet plan as part of the process to determine if there is relief from symptoms and pain. If not, there is no need to continue with such a diet, but in many people, it has been quite helpful.^{4,5}

Current research in England is looking at the benefits of eating broccoli and garlic on osteoarthritis.²³ A compound in broccoli, sulforaphane, has been found to block the enzymes that cause joint destruction in osteoarthritis.²³ Eating broccoli leads to a high level of sulforaphane in the blood, but it's not yet known if it gets into the joints in amounts large enough to be effective. The three-year study starting in 2010 will also look at other effects of diet on osteoarthritis, including diallyl disulfide found in garlic, which also appears to slow cartilage destruction in laboratory tests.²³ In general, the study found that diets high in non-citrus fruits and alliums (garlic, onions, leeks) showed the strongest protective effects on hip OA.²⁴

Acupuncture – Some people find pain relief in acupuncture.¹⁷ Research findings are mixed as to whether acupuncture helps, but in many cases, it does improve function and reduces pain.¹⁷

It appears that acupuncture and fake acupuncture are equally effective in treating OA, and both were more effective than no treatment at all.²⁴ ConsumerLab.com attributes virtually all of the benefits of acupuncture to “placebo effect”. The placebo effect has been previously disregarded as a fluke or purely imagination on the part of the patient. However if there is significant improvement in symptoms, clearly something measurable is happening. No scientific study should simply pass off a statistically significant finding as placebo effect. The symptoms are not imaginary, nor is the improvement. Whether this is a state of relaxation, a different mental attitude about the symptoms, or something else, is unknown. But if acupuncture (or fake acupuncture) produces the desired reduction in symptoms, this treatment should certainly be considered a reasonable and safer alternative treatment than some of the traditional medical treatments.

Drugs - Acetaminophen, or Tylenol, may help relieve pain, but it does not relieve inflammation. Nonsteroidal anti-inflammatories (NSAIDs) can be effective for short-term relief of inflammation and pain, but may cause moderate to severe irritation of the stomach and intestines (GI), even ulcers and bleeding. These over-the-counter or prescription-strength drugs include ibuprofen, aspirin, and naproxen.⁷

Supplements and creams

Glucosamine and Chondroitin. 42 clinical studies have concluded that these treatments are beneficial.¹⁷ Some very well-controlled studies have been conducted, but the findings are still inconclusive, with these supplements sometimes indicating significant improvement in OA patients and other times, not.²⁵ Glucosamine is thought to promote formation and repair of cartilage, while Chondroitin is believed to increase water retention and elasticity in cartilage and to inhibit enzymes that break down cartilage.²⁶ Looking at the sum of the evidence, it appears that taking at least 1,500 mg of glucosamine for at least 3 years may help slow down the degenerative process, increase the generation of new cartilage, prevent collagen from breaking down, and protect the joints from damage.^{17,25} Results for chondroitin are not as conclusive, but both glucosamine and chondroitin are extremely safe to take and it appears to at least help those with moderate to severe knee pain.¹⁷

SAMe (S-adenosylmethionine). A substantial body of research indicates that SAMe can relieve symptoms of OA, is about as effective as standard anti-inflammatory drugs at reducing inflammation, and may protect the cartilage from damage.²⁷ SAMe appears to be quite safe, only occasionally causing mild digestive distress, though not causing damage to the stomach.²⁷ SAMe is expensive at the recommended dosage of 200 mg to 400 mg, 2 to 4 times daily.²⁷ The higher dosage and frequency is indicated for severe symptoms, though a lower dosage may be required to start if mild stomach distress is experienced. The lower dosage may be sufficient for maintenance after symptoms are relieved and will make the supplement more affordable. A lower dosage will likely not be sufficient to relieve severe symptoms, however.²⁷

Avocado/Soybean Unsaponifiables (ASUs). Several controlled studies have shown great promise of ASUs in relieving symptoms of OA, particularly knee OA. There was no significant difference between dosages of 300 mg or 600 mg daily, so the lower dosage would be recommended.²⁵ No evidence to date has shown that ASUs actually slow the progression of OA.²⁵

Cetylated Fatty Acids. These naturally occurring fatty acids can be used as either a topical cream or as a supplement. Solid controlled studies have shown that either of these appear to significantly reduce swelling and pain while increasing mobility. Results are preliminary, but so far these look promising.²⁵ A typical oral dose of Cetylated Fatty Acids is 1,000 to 2,000 mg daily. Creams are applied 2-4 times daily.²⁸

MSM (methylsulfonylmethane). Research on MSM is lacking, though the claim is that MSM is supposed to help relieve the pain associated with OA. Chemically, it is related to DMSO (dimethyl sulfoxide), a chemical solvent, which is no longer approved as a supplement because of a large range of adverse reactions.²⁶ How MSM is used by the body is not well understood, though it contributes to the sulfur in the body which can be used to synthesize certain amino acids (protein building blocks), and it can act as an antioxidant.²⁶ Evidence does not strongly support use of MSM as a supplement.

Ginger, turmeric, and galanga. Natural COX-2 inhibitors are found in ginger and turmeric. These natural alternatives do not have the associated side effects of synthetic COX-2 inhibitors, but do reduce inflammation, reduce pain, and increase mobility.²⁹ Turmeric is not absorbed easily from the digestive tract when taken orally, but a turmeric formulation called Meriva has proven to be very effective in treating osteoarthritis and reducing the need for other medications.^{29,30} After 8 months of taking Meriva, patients showed significant improvement in treadmill walking measures as well as biochemical improvement in inflammation markers in the blood.²⁹ Meriva is available as a non-prescription supplement. Consuming turmeric with black pepper facilitates its absorption (and other vitamins as well) during digestion by inhibiting some of the digestive enzymes in the intestines and is a potential method of ingesting natural turmeric through dietary means.³¹

Ginger and galangal taken in a standardized, concentrated extract proved to significantly reduce knee pain in a large study of 261 patients as compared with a control group.³² Aside from occasionally reported mild digestive distress, ginger, especially in combination with galangal, is potentially effective as a dietary supplement in relieving OA pain.³²

Capsaicin. The component of hot peppers is capsaicin and research shows that it does modestly reduce pain sensation if used as a topical cream.³³ Although it causes a burning sensation, it doesn't actually damage any body tissues. The sensation created by causing the release of a

chemical in the body called Substance P, normally released when tissues are damaged.³³ When capsaicin is applied regularly in one area, supplies of Substance P are depleted in that area, resulting in a reduced sensation of pain.³³ The effects are modest.

Pycnogenol. Research of one study has shown that pycnogenol, an extract from the bark of the French maritime pine tree, was very successful in significantly improving performance of people walking on a treadmill ($p<0.05$), decreased the use of other drugs ($p<0.05$), decreased gastrointestinal complications, reduced treatment costs, and significantly reduced foot edema ($p<0.05$).^{34,35} The control group, matched for age, sex distribution, mobility scores while walking on a treadmill, walking distance, and use of anti-inflammatory drugs, received a placebo.³⁴ More research is needed to replicate these findings and gain status as a potential treatment, but the findings are quite promising.

Copper bracelets, magnets, etc. – No scientific evidence shows that these types of remedies are effective at all.¹⁷

Supports

Wearing lightweight elastic wraps or supports can be quite helpful and has been shown to reduce knee pain in one study by 40% after wearing the wrap for 3 weeks.¹⁹ Wearing shock absorbing insoles, shoes, or orthopedic shoes can help in daily activities and during exercise.¹⁹

Lifestyle modification/assistive devices

Changing the way you do things, learning to rest or reduce stress on painful joints, and using assistive devices can make everyday tasks easier to perform.¹⁸ An online search for “arthritis aids” will turn up many websites that offer devices that make all sorts of tasks easier to perform with various types of arthritis issues.

Weather and Climate

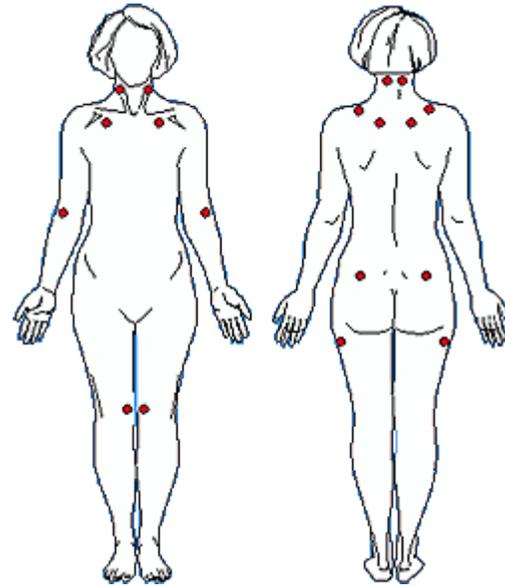
Interestingly, moving to a warm climate does not appear to help.³⁶ Most research has found only a minor connection between weather and OA pain.^{36,37} Low barometric pressure may actually result in a bit of expansion of inflamed tissues, so this may be responsible for the effects observed. An additional factor may be that when temperatures drop, blood flows toward your core and away from your extremities and reduced blood flow in the muscles will make the joints stiffer and more painful.^{36,38} Cold wet, rainy weather can affect mood and decrease the threshold for pain perception.³⁸ And bad weather tends to keep people indoors and more sedentary, so that preventive exercise is reduced, and stiffness and pain results.^{36,38}

Fibromyalgia Syndrome (FMS)

Fibromyalgia is a chronic disorder characterized by widespread pain, fatigue, anxiety, and depression.^{39,40,41} The best description we found states that it feels somewhat like having a bad flu, where every muscle in your body hurts and you feel like all of your energy has been sucked out of you.⁴² About 5 million Americans over the age of 18 are affected by FMS. 80-90% of these people are women, but it can occur in children, the elderly, and men.^{39,40,41} Men tend to develop FMS in only one area, such as the shoulder, while women typically experience more widespread pain.^{40,41} Experts in the field of FMS and chronic fatigue syndrome (CFS) believe that these two syndromes may be the same thing, but not enough is yet known to understand either one of these disorders.⁴² In fact, 33-50% of fibromyalgia patients also suffer from multiple chemical sensitivity, so there is significant overlap with that disorder also.^{41,42} Routine blood tests and x-rays reveal no abnormalities with either FMS or CFS.⁴² FMS is not related to arthritis despite the fact that it is often considered an arthritis-type condition.³⁹ FMS does not cause

inflammation or damage to joints, muscles or other body tissues, but like arthritis, it does cause significant pain and can interfere with daily activities.³⁹

Diagnosis of FMS involves testing of 18 specific tender points in the neck, spine, shoulders, and hips. The test for FMS was defined by the American College of Rheumatology (ACR) in 1990.^{39,42,44} All of the tender points are where muscles attach to ligaments or bones and they tend to exhibit pain with just the pressure of a thumb. Pain must be in both sides of the body and pain must exist in four specific quadrants of the body, both above and below the waist for at least 3 months.³⁹ According to the ACR test, pain must exist in 11 of the 18 tender point sites.^{39,42,44} Authorities feel that many people have pain in less than the 11 required tender points, but they have widespread pain and many of the other common symptoms associated with FMS.⁴² In fact, in May, 2010, the ACR introduced a totally new preliminary criteria for diagnosing



1990 American College of Rheumatology criteria for Fibromyalgia:

18 tender points for testing.

Illustration from Reference 44

fibromyalgia based on pain in 19 different body regions experienced within the past week.⁴² The resulting score is called the Widespread Pain Index (WPI).⁸ Some people feel that this new test will dilute the criteria and result in diagnoses that are actually some other disorder and the criteria are vague.⁴² Time will tell if this new test is adopted or refined.

The symptoms associated with FMS may include.^{39,40,41,42,44}

- Pain - People describe the pain as deep muscular aching, throbbing, shooting and stabbing, or intense burning. Pain and stiffness are often worse in the morning *in muscle groups that are used repetitively*.
- Fatigue - The feeling of being drained of energy and unable to concentrate, varying from mild to incapacitating.
- Sleep disorder - Sleep does not feel refreshing and the person wakes up feeling exhausted.
- Chronic headaches - Headaches similar to migraines or tension headaches occur in about 50% of patients.
- Chemical sensitivities - Many patients experience sensitivities to noise, bright lights, odors, medications, and certain foods.
- Irritable bowel syndrome - 40-70% of patients experience diarrhea, constipation, and abdominal pain and gas.
- Jaw pain including temporomandibular joint dysfunction - Close to 75% of FMS patients have a varying degree of jaw discomfort, typically related to the muscles and ligaments surrounding the jaw joint rather than the joint itself.
- Other common symptoms - Premenstrual syndrome (PMS) and painful periods, chest pain, morning stiffness, cognitive or memory impairment, numbness and tingling sensations, muscle twitching, irritable bladder, skin sensitivities, dry eyes and mouth, dizziness, brain fog, sensitivity to bright lights, sounds, or odors, and impaired coordination.

Causes and Triggers

It is important to separate the causes from the triggers of FMS. Recent research suggests that an imbalance of chemicals and hormones in the nervous system or brain that amplify sensation may be the cause.^{39,40,41} The super-sensitivity to pain appears to be genetic; the disorder runs in families, and researchers have identified genes believed to be involved in the syndrome.^{39,41} People with FMS have higher than normal levels of a neuropeptide called Substance P that is involved in pain signals and subnormal levels of serotonin and norepinephrine, hormones that modulate pain and act as a messenger between nerve cells.^{40,42} Substance P and nerve growth factor are increased threefold and fourfold, respectively, in the spinal fluid of people with FMS, though it is unknown why these elevations exist.⁴²

Even with a genetic predisposition, however, a person usually experiences an event that triggers the onset of FMS.^{39,41,42} A viral or bacterial infection, automobile accident, injury, rheumatoid arthritis, lupus, emotional stress, or even exposure to certain drugs or chemicals may trigger the disorder.^{39,40,42} Once the disorder has been triggered, certain aggravating factors may contribute to flare-ups including changes in the weather, cold or drafty environments, hormonal fluctuations (PMS or menopause), stress, depression, anxiety, and over-exertion.⁴²

Treatment

Treatment for fibromyalgia requires a comprehensive approach. There are many things that can help manage the symptoms of FMS.^{39,40,41,42,45} It is important to find a doctor who is familiar with treating fibromyalgia because not all doctors are, in fact some still deny that fibromyalgia is real because it cannot be detected by traditional diagnostic tools such as blood tests or x-ray.^{39,42} A combination of exercise, medication, physical therapy, and relaxation works the best.^{39,8,42} Learn what factors aggravate your symptoms and avoid them.

Exercise - Regular physical activity, at least 30 minutes daily, has been found to be one of the most effective treatments.^{39,40,42} Muscle pain may increase during exercise, but the pain usually dissipates within 30 minutes and will lessen gradually after the first few weeks as you become more conditioned.⁴² Low impact aerobic activity such as warm water aerobics, swimming, walking, tai chi, yoga, or bicycling is excellent.^{42,5,42,45} High impact activities like jogging or basketball are not advisable.^{40,41,42} Isometric exercises can help you increase strength without draining your energy.⁴² Stretching exercises can help reduce pain and fatigue while increasing muscle strength and a sense of well-being.^{41,42}

Hands-on treatments – Various types of manual manipulation have been found to be effective in relieving muscle pain including gentle low-pressure massage, osteopathic manipulation, neuromuscular adjustment, manual lymph drainage, and connective tissue massage.^{42,45} Results on balneotherapy (bath therapy) are not conclusive due to lack of adequate research, however it may be of benefit in relieving pain.⁴⁵

Almost all of the 18 diagnostic tender points are actually myofascial trigger points.⁴² Knotted muscles at the trigger points cause tremendous pain and shoot pain to other regions.⁴² In addition to other hands-on treatments, trigger point therapy is, not surprisingly, often helpful in releasing the muscular tension and resulting pain of fibromyalgia. Lidoderm patches applied to trigger points for 4 days, myofascial release and trigger-point therapies performed by a massage or physical therapist, application of heat and subsequent stretching, or use of coolant topical medications that act as anesthetic can bring relief.⁴² For especially stubborn trigger points, injection of lidocaine into the eye of the trigger point, followed by gentle massage and application on/off of a cold pack can force release of knotted, contracted muscles.⁴² Low level laser therapy

that brings energy deep into the tissues helps some people, not others, and it must be professional-level laser therapy, not the inexpensive ones available to the lay person.⁴²

Alternative approaches - You can change your perception of pain using mind-body methods, and since stress seems to be a major factor in FMS, relaxation techniques such as meditation, progressive relaxation, and breathing exercises are critical.^{41,42} Learn to reduce pain by changing the way you think about life.^{41,42} Guided imagery is a very powerful way to use your mind to alter your perception and ability to deal with pain. Belleruth Naparstek is one of the masters of guided imagery and we recommend that you investigate her website for materials that will not only help you deal with Fibromyalgia, but will help you sleep, deal with pain, mentally guide you to a position of wellness.⁴⁶

Several other alternative methods do not have enough research to determine if they are effective for fibromyalgia including acupuncture, biofeedback, homeopathy, Reiki, chiropractic, hypnosis, magnet therapy, or natural products and creams such as capsaicin, SAME, or soy.⁴⁵

Drugs - In a recent survey of 3,500 fibromyalgia patients, over 100 different prescription medications were identified as having been used in alleviating pain and other symptoms.⁴² In all cases, it is extremely important to tell your doctor about all other prescriptions you are taking, use of nutritional and/or herbal supplements, previous medical and mental issues, chemical dependencies, and addiction history.^{47,48} All prescription medications have side effects, some of them potentially life-threatening, interactions are common, and it is imperative that you take prescription medications exactly as prescribed without increasing, decreasing, or eliminating dosages.^{47,49} Drugs and medications do not do anything to cure fibromyalgia. They are used to bring some relief from the most disabling of an individual patient's symptoms.

The use of tricyclic antidepressants at lower doses than prescribed for actual depression, elevate levels of serotonin and norepinephrine in the central nervous system.^{39,42} This can help promote sleep, relax painful muscles, and heighten the effects of endorphins. These drugs have been around for over 50 years and may be effective, especially in combination with other drugs, though they do have side effects and cannot be used for some patients.^{47,49} Other antidepressants, selective serotonin reuptake inhibitors (SSRIs), taken in lower doses than for depression, can reduce fatigue and some other symptoms.⁴² Pregabalin (Lyrica) is a drug used to reduce pain by reducing the number of pain signals sent out by damaged or oversensitive nerves in the body.⁴⁸

Use of aspirin to help you begin to tolerate exercise is OK for a little while, but do not depend on pain killers for long term pain management.

Sleep - Establish regular sleeping habits to reduce pain and improve energy and mood.^{39,40,42} Get in the habit of going to bed and waking up at the same time every day, even on weekends and vacations.³⁹ Avoid caffeine and alcohol several hours before bedtime including coffee, tea, soft drinks containing caffeine, and chocolate.³⁹ Although exercise is excellent for relief of fibromyalgia symptoms, it should be done at least 3 hours before bedtime because it can have a stimulating effect.³⁹ If you need to nap during the daytime, do not sleep more than 1 hour.³⁹ Reserve your bed for sleeping. Watching TV or using your laptop in bed can stimulate you and make it harder to sleep.³⁹ Keep your bedroom as dark as possible, quiet, and cool.³⁹ Avoid spicy foods and excessive liquids in the evening to prevent potential heartburn and trips to the bathroom.³⁹ Slow down your pace prior to bedtime. Reduce lighting, avoid using the computer or watching TV, listen to relaxing music, and/or take a warm bath to relax, unwind, de-stress, and relax muscles.³⁹

Some of the medications prescribed for fibromyalgia help induce more restful sleep. In addition, use of melatonin can regulate your body's internal clock to improve the quality of sleep.⁴² Valerian is an herbal supplement that has sedating properties and may help induce sleep.⁴² 5-HTP is a molecule that is easily absorbed by the brain and converted to serotonin.⁴² It should be avoided if you are taking prescription medications that boost serotonin, but if you can take it, it may boost mood and helps some people sleep.⁴²

Diet and supplements - A diet low in animal fat and high in fresh fruits, vegetables, and whole grains goes a long way to enhancing your health and sense of well-being.^{39,41,42} No specific diet has proven to be effective in influencing fibromyalgia.³⁹ To reduce inflammation, exclude polyunsaturated vegetable oils and sources of trans-fatty acids such as margarine and hydrogenated oils. Increase omega-3 fatty acids by eating fish (e.g., 2 to 3 servings per week of high-Omega-3 fish such as salmon), ground flax seed (2-3 tablespoons daily), or pharmaceutical-grade fish oil (2.5 grams of Omega-3 daily: half EPA/half DHA).^{22,39} One small study found that the antioxidants Vitamins E and C reduced symptoms.⁴² Another small study found that 500 mg of Acetyl L-Carnitine taken 3 times daily helped to ease pain and fatigue, though more research is needed to confirm this.⁴²

Boswellia and magnesium may be useful as supplements.⁴¹ Women should take 250 mg of magnesium and 500-700 mg of calcium daily to help relax and maintain muscles and nerves.⁴² Calcium is not recommended for men.⁴² A magnesium/malic acid/B vitamin complex shows potential promise in reducing muscle pain of fibromyalgia patients.⁴² Malic acid is a sugar that is broken down in the muscles to make energy, but it must be in the presence of magnesium and Vitamin B.⁴²

Please read the section on diet in the OA section of this article, above. Following a gluten-free diet may provide some relief from symptoms.^{39,40} Elimination of gluten containing foods for a week should determine if this will be helpful in reducing pain.

Lifestyle and Work Modifications – Most people with fibromyalgia continue to work and carry on a fairly normal lifestyle, however it's possible that changes will need to be made. Cutting down on work hours, switching to a less demanding job, or adapting a current job is quite likely.³⁹ If your current job requires heavy lifting or if you are experiencing pain because of an uncomfortable chair or workstation, changes can be made to accommodate you in the workplace.³⁹

Learn - There are several excellent resources for information on FMS.

- Fibromyalgia Network: Has an excellent website and a newsletter with information on recent research and coping strategies. None of this information is funded by pharmaceutical companies, so recommendations and research is independent and unbiased. (800) 853-2929, <http://www.fmnetnews.com>
- National Institute of Arthritis and Musculoskeletal Diseases, National Institutes of Health: http://www.niams.nih.gov/Health_Info/Fibromyalgia/default.asp
- National Fibromyalgia Association: <http://www.fmaware.org>
- National Fibromyalgia Research Association: <http://www.nfra.net>
- Books listed on our Books product webpage: <https://insider.sri.com/services/ehs/ergo/pbooks.html>
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