

Initiating, Aggravating and Perpetuating Factors

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Perpetuating factors are any conditions or stressors (physical or otherwise) that cause a myofascial trigger point (TrP) to remain or return in spite of appropriate treatment. Perpetuating factors may occur alone or with others. They may be behavioral, such as posture. They may be biochemical, such as nutritional inadequacy. They also may be mechanical, such as poorly fitting shoes. Some of these perpetuating factors are also aggravating and initiating factors.

The key to functioning better with as minimal a symptom load as possible is to identify as many of your perpetuating factors as possible and control them as thoroughly as possible. Chronic pain is a key perpetuating factor and has its own chapter. Frequently, one factor will initiate or aggravate a TrP and another will perpetuate it. For example, a fall could activate a TrP, and a repetitive action at work could perpetuate it. I have found identifying and addressing perpetuating factors to be appropriate for the treatment of FMS as well. The central sensitization of FMS will amplify the pain and other symptoms of TrPs, and the pain of TrPs will amplify the central sensitization of FMS. This means that if you get control of the TrPs, it will be easier to treat the FMS, and the reverse is also true.

No Quick Fix

I often get mail from people telling me that they have found *THE* cause of FMS and/or *THE* cure. I don't get that so often about CMP, possibly because many of the people now involved in myofascial pain understand that it is *multifactorial*. That means many things can cause it, many things can aggravate it, and many things can improve it. The same is true for FMS. Whenever people tell me that they are no longer improving in spite of appropriate therapy, that usually means that there are one or more perpetuating factors out of control.

You can't change the past. You also can't change your genetic makeup. There are many things that could adversely affecting your quality of life that you *can* control. These changes may make a huge impact on your ability to function, as well as your quality of life. Like a stone in your shoe, you must identify the problem and accept that it is there before you can correct it. There are many possible coexisting conditions. All of these can be perpetuating factors. Cancer and other internal illnesses can produce and perpetuate TrPs. Other common conditions that can act as perpetuating factors include Crohn's Disease, painful menstrual periods, ovulation, and even uncorrected vision problems. It is important to identify and

control these conditions as much as possible, and in doing so you will limit their ability to worsen FMS and CMP.

Help Along the Way

When you seek your perpetuating factors, you need not hunt alone. Provide your medical team with specific data concerning your daily routines, including sleep positions, work conditions and family dynamics. If you have a sleeping partner, consult him or her. Ask your health team for assistance in observing your body. They can tell you what to look for. Your doctor must be knowledgeable in ferreting out perpetuating factors so that the right tests can be ordered.

Paradoxical Breathing: This is one of the most common perpetuating factors of both FMS and CMP. It may itself be perpetuated by FMS and specific TrPs. You can change it without spending anything but attention and effort. Paradoxical breathing occurs when your belly flattens as you breathe in and then expands when you breathe out. This is the reverse of healthy breathing. If you are breathing in this shallow manner, you are probably not getting enough oxygen. Monitor your breathing throughout the day and be attentive until you get in the habit of breathing correctly.

Chiari Malformation: Chiari (pronounced Khee-are-ee) Malformation or Chiari Syndrome, occurs when part of the brain, the cerebellar tonsils, extends downward a few extra millimeters and puts pressure on the brain stem and spinal cord. Cervical spinal stenosis is a narrowing of the cervical canal. The spinal cord rests inside the cervical canal, and a congenital narrowing or bony growth can cause excess pressure on the brain. These conditions are not the *same* as FMS or CFIDS, but they may cause some similar symptoms. The surgery proposed is an incision at the base of the skull to remove some bone and give the brain room. Some doctors believe that patients may have been misdiagnosed as having these conditions, when in fact they have a surgical problem *instead*.

On the night of March 10, 2000, there was a national television show (20/20) on ABC with Barbara Walters, interviewing some of the doctors who perform this surgery. When questioned, one of these doctors stated that FMS had no known treatment! Neurosurgeon Dr. Michael Rosner of Charlotte, NC, mentioned that a trauma, and even heavy coughing, could trigger narrowing of the spinal canal. (So can any procedure that hyperextends the neck, such as some neck surgery. DJS)

Tight muscles or abnormal posture may cause functional narrowing of the canal. These may be caused by TrPs. Logic tells me that myofascial release of the dural tube with TrP releases of the scalenes and levator scapulae muscles should be accomplished and other perpetuating factors addressed before surgery is even contemplated. Always seek the least invasive procedures possible first. Of course, if an MRI discloses a big cyst (another condition entirely) or a *large* bony growth causing pressure on the brain, surgery may be required. Medical literature shows that reductions of 1.5 mm or less in the diameter of the spinal canal can come

from simple *changes in posture*, such as a rotation in the pelvis (Harrison, Cailliet, Harrison et al. 1999). What can one expect when there may be several areas of the spine rotated in CMP? I have urged surgeons who are performing this operation to investigate the myofascial possibilities and give noninvasive myofascial techniques and craniosacral techniques a try but have never gotten a reply. Think about it. If a bout of heavy coughing can cause this narrowing, isn't it more likely to be caused by a myofascial TrP than a bony outgrowth? The temptation is to go for the "quick fix". Unless you have been misdiagnosed and don't have FMS or CFIDS, this isn't one.

Adhesions: Adhesion means, simply, stuff stuck together. Adhesions often accompany scars and can initiate TrPs. Scars may be like the tip of an iceberg, with extensive myofascial scarring and adhesions beneath. Adhesions may be caused by surgery, infection, conditions such as endometriosis, or trauma. Organs can adhere to other tissue, and your bowels can become obstructed. Surgical treatment of adhesions often results in the reformation of the adhesions. Some types of bodywork can be very effective in breaking up adhesions but can be very painful and must be done carefully on patients with FMS central sensitization.

Environmental Factors

Pollution: Newspapers and scientific papers are full of accounts on the chemicals now in our environment that are capable of producing illness. Chemical pollutants can be found in everyone. These chemicals resemble or interfere with the hormones, neurotransmitters, growth factors, and other informational substances (Colborn, Smolen and Rolland, 1998) and may affect the immune, neurological, and endocrine systems. We spend increasing amounts of time and effort, as well as finances, to detoxify our bodies, while our environment becomes more polluted. It is vitally important that each of us that each of us does what we can. We must do what we can to heal our environment if we wish to improve our own health.

Allergic Conditions: The neurotransmitter histamine seems implicated as a culprit in FMS and CMP. FMS may worsen during times of high allergic load. "Myofascial TrPs are aggravated by high histamine levels and active allergies" (Simons, Travell and Simons, 1999, p105). FMS allergic response may occur without the typical Immunoglobulin E presence, but other immunoglobins may be involved, and other allergic manifestations such as mast cells and eosinophils may occur. Food allergies are common in FMS, and skin testing is unreliable. In some of us, our muscles seem to be the shock organ for the allergies.

Sensory Change: Sensory changes include the change to and from daylight saving time, weather changes such as barometric pressure and temperature fluctuations, dampness, humidity and drafts. If you are hypersensitive to these types of changes, take precautions. Dress defensively in cool environments and avoid drafts — cold plus wind equals TrPs. When your muscles are cool, they contract to generate heat, and the added tension aggravates TrPs. Heat and high humidity can also be a pain perpetuator, especially if you experience swelling.

Ill-Fitting, Poorly Designed Furniture: Janet Travell taught that chairs were originally designed as thrones to raise a king above his subjects and not for comfort. This is doubly true for those of us with proportionally short upper arms and/or short lower legs. These anatomical features are other perpetuating factors whose affects can be intensified by ill-fitting furniture. Many bathtubs, sinks and cabinetry are not designed for use by human beings. I wonder what the designers look like. I believe that the chair as we know it today symbolizes one of the many triumphs of packaging over substance. Chairs are basically built the same approximate size for everyone, ignoring the fact that people come in all shapes and sizes. The chair is one of the chief regulators of posture, and poor posture is one of the chief perpetuators of TrPs.

Your body is designed for the weight to be distributed through bones, not flesh. Your "sit bones" should be carrying about 60 percent of your weight when seated, with the other 40 percent transferred to your heels (Cranz, 1998). This is why your heels need to be flat on the floor or on a low footrest. Some of the worst chairs are found in automobiles and airplanes. Traveling can stress your body and mind, especially when you are driving. You are relatively immobile, and many of your muscles are in shortened positions. Your lower body circulation is often greatly impaired. It is important to move as much as possible, stretching every 20 minutes during a trip. You can alternately tense and relax separate muscles as well to help keep the blood supply and lymph flowing. It may be helpful to lean one area of your body at a time on a tennis ball. Keep moving the ball around. Working the ball around under your thigh may help circulation in this area. Squatting is a helpful movement as it stretches your spine, opens your hip joints and lower back, and activates and flexes your ankles and feet. Bending at the waist is not a good thing, because your waist was not designed to be a hinge joint. The hip is where you bend.

Prolonged Sitting: If your work keeps you relatively immobile or in one position for a long period of time, you may develop TrPs. Find a way to vary your position. Move. Raise your hands. Wiggle. Stretch your feet and flex them up and down. Take microbreaks. Be sure that your workspace is ergonomic.

Your work surface must be at the proper level for *you* to function in a healthy manner. Changes in the workstation alone may not be adequate. Your own body shape and ways of moving must be recognized, addressed and corrected by a combination of physical therapy, conditioning, technique retraining, education, and counseling (Pascarelli and Kella, 1993).

Long fingernails can perpetuate TrPs when you use a computer keyboard, so keep your nails trimmed. You should strike the keyboard with the point of your fingers. Otherwise, there will be too much stress on too many muscle groups. Improper lighting and awkward areas in your workspace can also perpetuate TrPs. Your reading material or copying material should be placed at eye height, not lying flat to one side of your computer. Crossing your legs when you sit constricts blood flow. This can be a problem for people with TrPs who often cross their legs to

achieve better balance and support. The use of a gently sloping triangular footrest helps to keep the foot in an ankle-down and toes-high position.

Immobility: Both FMS and CMP stiffness is most apparent after immobility. Casts, even walking casts, can produce TrPs. Prolonged bed rest adversely affects people with FMS and CMP. Make sure your bed is a healthy one for *you*. We all have different requirements, and many of us need a large number of support pillows of different sizes and designs to get us through the night. How do you feel when you get up after sleeping? Which muscles are stressed the most? How were they positioned while you slept?

Lifestyle Choices

Certain behaviors, whether voluntarily or involuntarily, can be perpetuating factors. For example, grinding your teeth, clenching your jaw, late thumb sucking, chewing gum, the loss of your back teeth, and mouth breathing are some possible perpetuating factors in facial TrPs. The muscles you use for these activities are also the first to contract in situations of emotional tension, desperation, and/or determination. If you are in the habit of frowning or squinting, perhaps you have astigmatism or light sensitivity, which can be corrected. Be attentive.

Compression: Using a heavy shoulder bag can aggravate TrPs and start a TrP cascade. Notice if you are compressing your body with a tight collar, necktie, bra, belt or socks, or by habitually leaning in a certain way. This can be compounded if you tend to swell. Tight clothing can cause constriction of blood vessels, which can be worsened by the amplifying affect of FMS. If you have large, pendulous breasts and they cause TrPs that cannot be relieved in any way, breast reduction surgery may be necessary. Obesity may be a contributing factor in body compression.

The Good Sport Syndrome: Perhaps it's a family outing, or relatives are coming and the house needs a super cleaning. Or your sister is moving and needs help. You don't want to be thought of as a hypochondriac. You look fine. So you pretend you *are* fine and are a "good sport." Then you pay. And pay. Pacing is hard to learn, and it is important that you learn, and teach others, to respect your limits. The good sport syndrome may be coupled with the *yo-yo effect*.

If you overdo and pain worsens, you can be tempted to rest until you feel better again (and your TrPs become latent). Then you feel better and overdo, reactivating the TrPs. It's good that you felt good enough to overdo, but it's time to concentrate on pacing yourself. Alternating periods of disabling pain and relative relief, the *yo-yo effect*, are a sign you are out of control.

Poor Posture: Sleeping on two pillows, sleeping without adequate neck support (such as a well-fitting cervical pillow), protracted neck extension (watching tennis or bird-watching), reading in bed with a light to one side, or rolling over in bed by lifting your head and leading with it can be perpetuating factors. Modify your actions. Lie down on your bed. Now roll over, paying attention to which muscles

you use and how you use them. Do you lift your head? Your head should remain flat when you turn. Otherwise you are placing stress on any TrPs in your neck.

Poor posture can result from poorly adjusted reading glasses and improper focal length or any such disability that continuously influences posture. This includes deafness in one ear or an injury that restricts your range of motion. Anything that encourages you to tilt your body to one side can be a perpetuating factor. Avoid a round-shouldered posture, which happens when you roll your shoulders inward. This shortens the muscles in your chest and neck, perpetuating the TrP cascade. This may start by leaning on a table or desk and may begin in school. Your finger posture is also important when you write. Hold the pen flatter, not vertical, and this may make it easier to write.

Muscle Abuse: Do you abuse your muscles? Perhaps you overuse them by pushing yourself too hard, or your boss pushes you too hard by requiring mandatory overtime, or you use muscles that you haven't warmed up properly. The failure to listen to your body is a form of abuse. Pain, fatigue, weakness, tingling, numbness, heaviness, clumsiness, stiffness, and lack of control are all signs that something is wrong.

Repetitive Motion: Repetitive motion is a common perpetuator of TrPs. For example, if you start an exercise program such as weight training or work hardening and you have TrPs, the TrPs can worsen and cascade. TrPs in the neck and shoulder muscles may restrict the movements of your arm at shoulder level. Hanging curtains, folding sheets, throwing a ball overhand, keeping an arm raised at school, ironing, or almost any repetitive motion in this area will perpetuate these TrPs and may activate others. Quick and jerky movements, pushing cold, tired muscles to overwork, working under a draft, or rushing through movements may perpetuate TrPs.

Smoking and Alcohol: Smoking is especially bad for people with FMS and CMP. Nicotine is a great stimulant. When you light a cigarette you light up your autonomic nervous system (Gershon, 1998). It is already hyperstimulated in FMS. Nicotine constricts blood vessels and decreases blood flow. This adds to any existing microcirculation problems. Carbon monoxide in a smokers' blood binds to hemoglobin, which is the oxygen-carrying workhorse of the body. This then blocks oxygen availability to the muscles. Some CMP patients have an idiosyncratic reaction to alcohol, experiencing myofascial pain soon after or the day after drinking (Simons, Travell and Simons, 1999, p 226). Alcohol stresses the body, using your valuable detox resources. Absorption of any toxic product makes the development of active TrPs more likely.

Inappropriate Care

Proper acute care may decrease sick leave and prevent chronic problems, saving considerable resources. The content and timing of treatment for pain appear to be crucial (Linton, Hellsing and Andersson, 1993). Early diagnosis of myofascial pain

syndrome and proper treatment often results in successful outcomes (Bruce, 1995). When patients are misdiagnosed or their complaints are dismissed, the lack of adequate appropriate care and support can further worsen symptoms as TrPs spread and the central nervous system is further sensitized. If TrPs are not recognized, patients may be subjected to inappropriate strengthening regimens such as work hardening and weight training, and this may, of itself, cause disability. One common failing is stretching or otherwise treating one side of your body and not the other. Often, the non-symptomatic side, if there is one, is full of latent TrPs. Swinging or rotating your head around, the head rolling exercise, can seriously overload the muscles and worsen TrPs (Simons, Travell and Simons, 1999, p 443).

Infections and Infestations

The activity of TrPs tends to increase during any systemic viral, bacterial, yeast, or protozoal illness. Vulnerability to TrPs may start a few days before symptoms from infection worsen and may last for several weeks after the infection. Increased muscle soreness and stiffness may last several weeks following an acute viral infection such as the flu. Many of the tender spots formed in intercostal muscles after herpes zoster are TrPs that respond to injection with local anesthetic (Chen, Chen, Kuan et al. 1998).

Viral disease is a common perpetuator, especially herpes simplex type 1. This virus may cause cold sores, canker sores and mouth ulcers, or may appear on the skin as areas of isolated vesicles filled with clear fluid (Simons, Travell and Simons, 1999, p 223). Zovirax 5% ointment may ease this. A dosage of 333-500 mg niacinamide per day helps combat oral herpes, but be sure to consult with your doctor and correct any folic acid deficiency first.

Any bacterial infection, from an abscessed tooth, blocked sinuses, pelvic area or urinary tract, can affect the severity of FMS and CMP. An impacted wisdom tooth can perpetuate TrPs even when local infection is not present. Check for the possibility of yeast infection in resistant sinus congestion. It may feel like you still have an infection until you eradicate the TrPs, because they will perpetuate the symptoms after the infection is over until the TrPs are treated. Specific TrP therapy won't produce a lasting effect while a chronic infection, such as an upper respiratory infection, vaginal infection, or a parasitic infection such as tapeworm, is present. Some infections, such as Lyme Disease and hepatitis C, may initiate some cases of FMS (Rivera, de Diego, Trinchet et al. 1997).

Some people feel that FMS is caused by mycoplasmas. There are people with mycoplasma infections who don't have FMS, and there are people with FMS who don't have mycoplasma infections. Any infection can contribute to the stressors that may cause FMS and CMP. There are dangers inherent in interpreting research. There is no one cause of FMS.

Mechanical Factors

Mechanical skeletal asymmetry and disproportion are like land mines waiting to go off. Your body compensates for inequality to provide balance. Often that compensation is viewed as the problem, rather than the body's attempt at a solution. Sometimes body asymmetry is revealed by facial asymmetry. If you put a small mirror in the middle of your face and check each side, how different are they? TrPs may cause some of this difference on one side. Any long-standing loss of range of motion on one side of your body usually means the other side is overworked.

It is important that apparent unequal leg length not be automatically treated with a heel lift. Legs apparently of unequal length may be unequal due to TrPs causing muscle torsion. Children need to be checked before the inequality results in imbalance of gait and other compensation.

Visualize your pelvis as two sets of two bowls, one sitting atop the other. The upper ones are much bigger and partially formed by your hip bones and upper buttocks. The lower bones, the hemipelvis, can be asymmetrical. An asymmetrical hemipelvis is a common perpetuating factor (Simons, Travell, Simons 1999). If the hemipelvis is smaller on one side, it tilts the bowl of the pelvis, resulting in compensating scoliosis (Egoscue and Gittines, 2000). Bones do what muscles tell them to do. This perpetuating factor can be relieved by the use of a butt lift — a small book of the right size that fits under the buttock that needs the extra lift. Often the resulting scoliosis is treated as the problem and the doctor never looks for the cause. The body is only trying to compensate for the asymmetry. When a doctor sees developing scoliosis in children or young adults, s/he should look for the reason. For more details on body asymmetry, check the book.

Head Forward Posture: Any assessment must screen for head-forward posture. This posture is indicated by a measurement of less than 6 cm curvature of the neck (Simons, Travell and Simons, 1999 p 262). Your head should be balanced on the top of your spine. If it juts forward, it creates excessive strain on the neck muscles, which in turn create excessive strain on other muscles. It throws the whole body out of alignment trying to compensate for the weight of your head — which is considerable. This posture affects your lung capacity, causes pressure on your discs and affects the blood supply to your head. Whiplash injuries and broken necks are more common due to the head forward posture. If your head is already forward at the time of injury, your neck has lost much of its ability to absorb the shock of impact (Egoscue and Gittines, 1998).

Short Extremities: Proportionally short upper arms often cause you to lean one way or the other to reach arm supports. Your elbows can't reach most armrests, so you lean sideways. This causes stress to shoulder elevator muscles and contracts muscles along one side. This condition seems prevalent in Native Americans, although it is not uncommon in some other ethnic groups.

Proportionally short lower legs is a perpetuating factor. You may seem tall when you sit down, but your lower legs are short. When you sit, you need a footrest to ensure that the circulation isn't cut off from your hamstrings. Short people also need to make this correction.

Ill-Fitting Shoes and Socks: A shoe with a tight upper layer and little room between shoe and foot can cause TrPs. If you use shoe inserts, take them to the store when you buy shoes. The need is for soft cushioning, not hard orthotics that may perpetuate TrPs (Travell and Simons, 1992). Shoes with heavy wear on heels and soles may perpetuate TrPs. Shoes with rigid soles that allow only ankle and no toe movement can perpetuate TrPs in the legs and feet. **We need shoes with flexible soles.** Wearing shoes with smooth soles on a hard slippery surface can perpetuate TrPs because the muscles must be constantly on guard against falling. Chilling of any muscle can activate or perpetuate TrPs.

Foot Structure: Some common varieties of foot structure create additional hazards for the person with CMP. People with fallen arches often try specially made shoe orthotics without success. The undersurface of the foot near the middle continues to be painful, and the expensive inserts lie in the closet unused. The TrPs perpetuating the flat feet need to be treated and the foot problems corrected, often with properly applied mole foam and flexible arch supports.

One type of Morton's Foot is hypermobility of the first *metatarsal*. The metatarsals are the joints between the arch of the foot and the toes, not the toes themselves. The second variation is the foot with a short big toe metatarsal and longer second toe metatarsal. It often has a wide web between the second and third toes. This puts proportionately more stress on the second toe because it hits the ground first. The foot rolls from the outside of the heel around the outside of the foot and toe off in an arc pattern. The outside heel of your shoe and inside of the sole above the great toe shows greater wear. Your foot may toe outward slightly and/or your knees may tend to pull, rotate or collapse inward. Morton's Foot can result in a muscle imbalance stress situation of the whole leg. The calf and foot muscles are directly affected. Other TrPs are perpetuated as other muscles attempt to compensate for the calf and foot dysfunction. There is a common callus pattern with this condition that aids diagnosis.

Morton's foot can cause pain in your low back, thigh, knee, leg and the top of your foot, and may include numbness and tingling. It may cause weak ankles, frequently turned or sprained, and difficulty ice-skating, roller blading or skiing, due to stiff, unbending soles. Morton's Foot can produce asymmetry in the lower limb by muscular torsion, causing the upper body posture to compensate, resulting in an upper body cascade as well. Morton's foot becomes evident when you bend the toes upwards. Check the sole of the foot to see if the second metatarsal is longer. A shoe that is too small, or has a tight cap, or has high heels, aggravates Morton's foot problems.

There appears to be no technical term for what I call the FMS/CMP foot (previously FMS/MPS foot when myofascial pain was still a 'syndrome'). This foot has a broad

front, a narrow heel ("duck foot"), and a high arch. The arch can fall suddenly, resulting in a functional flat foot that may be reversed if treated promptly with appropriate TrP work and foot inserts. There is usually a large space between the big toe and the second toe. There is also a typical callus pattern. This callus may wear a hole in your socks about the size of a dime right under the second metatarsal, in the middle of the ball of your foot. The big toe is often slanted towards the little toe.

Janet Travell researched shoes because they were damaging her patients. Pointed toes and any kind of heel are not good. The sole should be flat, and flexible at the metatarsal bend. There must be adequate room for the toes, and the heels must fit snugly. The shoe heel should be firm and fit well, to avoid sliding. Sliding irritates the Achilles tendon and can cause calluses on the sides and back of the heels. A thick foam or felt pad inside the shoe can prevent the rolling and the calluses and subsequent Achilles tendon irritation. The arch of your foot needs good support as well. For instruction on making a shoe insert that fits your needs, see the book.

Metabolic Factors

Many possible co-existing conditions such as Sickle cell trait or anemia may be perpetuating factors because they cause your muscles to get less oxygen, and anything that interferes with the supply of oxygen to your muscles will perpetuate TrPs and add to FMS woes. Imbalance of estrogens or testosterone may also perpetuate FMS and CMP. For more on this, see the chapter on Gender issues. Vitamin and mineral inadequacy, insulin resistance and other nutritional factors are common perpetuating factors of FMS and CMP. It is important for your medical team to know what foods you avoid, as well as what you do eat, and how your food is prepared. Obesity puts stress, both physical and emotional, on anybody. Unfortunately, as with many problems associated with FMS and CMP, there are built-in self-perpetuators, such as altered carbohydrate metabolism and chocolate craving. For more on this, see the chapter on nutrition. "Some individuals have an unusually high requirement for specific vitamins" (Simons, Travell and Simons, 1999, p107). In FMS there may be low blood serum levels of essential amino acids, including tryptophan, which contribute to sleep regulation, pain control, and immune system function. The result can be lack of sleep, pain, or frequent infection. These are all perpetuating factors.

Patients with hypometabolism or hypothyroidism are more susceptible to TrPs. They often get only temporary relief from therapy (Simons, Travell and Simons, 1999, p 213). FMS patients often have need for thyroid supplementation. Meaningful TSH values require a functioning HPA-axis, which is often not the case in FMS. Intolerance to low-dose thyroid supplementation may be due to B1 deficiency. Supplement with thiamine, and then try again. Always ensure adequate thiamine (B1) levels before starting thyroid supplementation. Smoking impairs the action of thyroid hormone and will accentuate the symptoms of

hypothyroidism (Simons, Travell and Simons, 1999, p 218). Lack of restorative sleep perpetuates both FMS and CMP. For more on this, see the chapter on sleep.

Reactive Hypoglycemia (RHG) and Insulin Resistance (IR): There is a certain type of hypoglycemia, or low blood sugar, which accompanies many cases of FMS and CMP. This is not the same as the fasting hypoglycemia that shows up on the glucose tolerance test. Reactive hypoglycemia usually occurs two to three hours after a high carbohydrate meal, overstimulating insulin release that triggers an adrenalin response. This can cause symptoms such as tremors, rapid heart rate and sweating. Anxiety also stimulates adrenalin, as do caffeine and nicotine. Reactive hypoglycemia may lead to IR. People with IR often display clinical abnormalities other than impaired glucose tolerance, including central obesity, hypertension and abnormal coagulation (Sowers and Draznin, 1998). Reactive hypoglycemia and IR not only can perpetuate FMS and CMP, they can institute a metabolic cascade on their own, leading to, among other things, type II diabetes. These conditions, until fairly recently, were not taken as seriously as they should be by some in the medical community. This is changing. For more on these perpetuating factors, see the book.

Microcirculation: Disturbed microcirculation in combination with muscle activity can cause localized muscle pain. One study found indications that in chronic localized pain, and in FMS patients who started with localized pain, muscle changes may initiate and maintain the sensitization of pain receptors, which is a key finding in both chronic regional muscle pain and in FMS (Henriksson, 1999).

Psychological Issues

Recurrent or chronic pain, especially pain caused by an undiagnosed or invisible cause, has a destructive effect on your sense of self. With FMS and CMP, visit after visit to doctor after doctor may provide little or no relief. Every doctor may give you a different diagnosis. Because some of the symptoms of FMS may also be symptoms of depression, some doctors may believe that your condition is psychiatric. Your frustration mounts, and true depression and progressive disability may follow. It is harmful when others, especially physicians and other health care professionals, imply that you are somehow to blame for your afflictions. It is stressful when friends, relatives and even your medical team consider your symptoms trivial.

Patients often restrict their activity when they are told that they must learn to live with their pain. It hurts to move. This immobility perpetuates TrPs as the muscles shorten even more with disuse. Patients are often put on heavy doses of aspirin, steroids, and other anti-inflammatory medications that frequently add a whole new layer of symptoms and further stress.

The Depression Factor: It is unlikely that a doctor would tell a patient in agony with a severe rheumatoid arthritis flare to put on a happy face, ignore the pain and get on with life, yet such words are said to FMS and CMP patients every day, and

these statements have enormous negative effects. There is nothing you can do about poor treatment and cruel comments of the past. You need to educate others, but you must learn not to take negative talk personally. Help yourself by learning positive, life-affirming, peaceful ways to cope with your illness and with the lack of education and disbelief of others. Focus on the present. Work on enhancing your health. Take control of the management of your health care. You can't change other people. You can change your reactions to them. Avoid generating negativity. Guilt, blame, hurt, anger, fear and frustration are negative emotions. You shouldn't take abuse from anyone. The world directs more than enough negativity your way. Don't take it from yourself. Don't generate more.

Psychological symptoms are often secondary to chronic pain, but they still need to be treated. The longer the duration and the greater the intensity of unrelieved pain, the greater the depression is likely to be. Relief of the depression permits you to take more responsibility for putting into action the processes you need to improve your life. Anxiety and tension tighten your muscles. One study showed that patients with myofascial disorders reported significantly worse pain, higher depression scores, more interpersonal conflict, and less support from others than patients with arthritis, yet they did not differ from the arthritis patients on personality traits (Faucett and Levine,1991). This indicates that the pain and the nature of the pain cause depression and conflict. A psychologically healthy person finds the functional restrictions imposed by FMS and CMP frustrating.

There is a subset of FMS patients with a history of sexual/physical abuse (Alexander, Bradley, Alarcon et al. 1998). Researchers have found that childhood traumatic events are significantly related to chronic pain states (Goldberg, Pachas and Keith, 1999). Any kind of psychological stressor can be a perpetuating factor, and sustained or severe psychological trauma can be initiating factors. Even working under pressure or frustration can cause you to tense your muscles and develop TrPs. The MMPI I and II are still the best tests we have presently for assessing personality, but they don't take into consideration that many answers may be determined by physical illness. There is no chance to explain the "why" of the answer. Computers score most of the tests. You need to get raw data scores and check out the "indicative" questions. If you check these and make allowances for what answers were affected by your physical symptoms, your personality profile may be entirely different. For example, you may avoid parties. This may reflect fatigue level or sensory overload rather than lack of sociability. Your mental health counselor must be made aware of this, and you may want to schedule a session specifically to talk about the answers before the profile is drawn up. This will provide your counselor, and you, with a more accurate result.

Overwork: The personal vulnerabilities of competent individuals often cause them to extend themselves beyond reasonable bounds (Davidhizar, 1991). Special talents need to be conserved for best utilization. This is very true in the fields of FMS and CMP, where it often seems that there are often too few knowledgeable people to handle the urgent needs of a great many. There is also a message here

for those managers who, when they want something done, give it to someone who is already doing the most. That burns out your best people. Supervisors should intervene to assist these workers in taking steps to protect themselves from a lifestyle that decreases career longevity and promotes psychological discontent.

Trauma: Any assessment following whiplash injury must include examination for TrPs. Myofascial pain from TrPs is present in a hundred percent of cases of chronic whiplash pain, including those with facet joint injury and discogenic pain (Gerwin and Dommerholt, unpublished data). Generalized central hyperexcitability is common in patients suffering from chronic whiplash syndrome (Koelback Johnson, Graven Nielsen, Schou Olesen et al. 1999). There are increased rates of FMS following cervical spine injury (Buskila, Neumann, Vaisberg et al. 1997). Concussion may go unrecognized, because when cortical activity is interrupted as it is during a concussion, you may not remember the head impact and may not remember loss of consciousness. What does it take to injure the central nervous system? We don't know. We do know that it doesn't take a motor vehicle accident to cause a whiplash effect. If you have been involved in an automobile accident, make sure you have both FMS and CMP assessed by competent practitioners. From what we know, early intervention will prevent an injury-induced metabolic cascade, and treatment with agents that activate cerebral metabolism may mitigate chronic symptoms (Mamelak M. 2000). For more on this, see the book.

Repetitive motion is a specific type of trauma. It is important to vary your motions as much as possible. You may even need to relearn how to move. Often we need to go through an unlearning of bad habits, and then a mental as well as physical retraining effort.

Surgery is a carefully orchestrated and planned trauma. Surgeons may often be untrained in FMS and CMP, although anesthesiologists are becoming increasingly more aware. During prolonged surgeries while being kept in static and sometimes odd postures, muscles may undergo passive overstretch. Muscles develop TrPs that, if untreated, will persist as chronic pains. Myofascial pain should be considered in any patient who develops pain in one or more muscles following surgery with general anesthesia (Prasanna, 1993). For more information, see *The Fibromyalgia Advocate*, "What Your Surgeon Should Know."

I have heard of countless cases where vertebrae have been surgically fused because of degeneration, only to have the discs above and/or below degenerate, requiring more spinal fusion. If muscles are contracted and TrPs are pulling the bones out of alignment, the misalignment of bones can cause eventual disc degeneration. The misalignment of bones is the symptom in this case, not the problem. The TrPs must be treated. Dealing with the disc or the vertebrae does nothing to reduce the strain from the muscles. We know that TrPs are more likely to occur in certain muscles in the presence of cervical disc lesions at specific levels (Hsueh, Yu, Kuan et al. 1998). You must deal with the TrPs, or the surgery will simply cause more strain, resulting in more contracture and future problems.

There are many other kinds of trauma. Some may seem small, but they can also be devastating. For every trauma, there is a way to mitigate the impact. For example, injection of irritating substances into a latent TrP site can activate it. This includes tetanus toxoid, flu shots, B vitamins and penicillin. But this can be avoided if the site is treated with procaine immediately after the original injection (Simons, Travell and Simons, 1999, p 692).

What You, the Patient, Can Do

In the second edition of "Fibromyalgia and Chronic Myofascial Pain: A Survival Manual," there are methods to identify and eliminate or control the effects of many perpetuating factors. Because TrPs are common pain generators and fibromyalgia amplifies pain, it's important to prevent TrPs from developing. You can do so in the following ways:

Become attentive to how you use your body and how your body reacts to that use.

Treat injuries aggressively.

Seek crisis intervention when appropriate.

Build proper and sufficient exercise and sleep into your program.

Use your body properly.

Control psychological trauma and stress load.

Make lifestyle modifications.

Identification and control of perpetuating factors may seem overwhelming, and this list does not include all possible perpetuating factors. How do you handle them? One at a time. Think of each one you identify as an opportunity to improve your health. Make a list of your possible perpetuating factors and talk with your medical care team about their control.