

# Neurology & Neurosurgery Associates, P.A.

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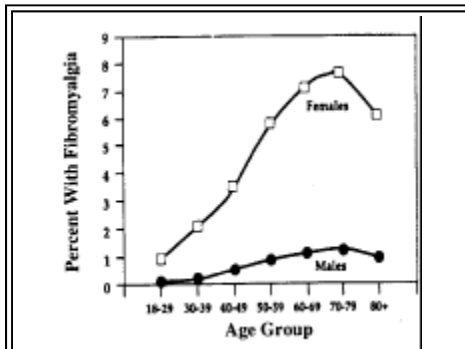
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## *A condition more commonly found in women*

# Fibromyalgia a muscular pain syndrome

Fibromyalgia is a syndrome that is unfortunately a very common condition associated with widespread chronic muscular pain and fatigue. It occurs approximately nine times more commonly in women than men. In the United States its occurrence is approximately 2% of the adult population, with a gender breakdown of 3.5% of woman and 0.5% of men. See figure 1.

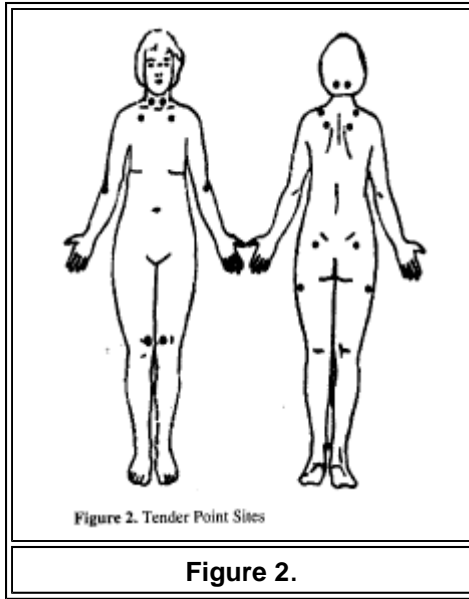


**Figure 1.** Age- and gender-specific prevalence of fibromyalgia in a population-based study. Fibromyalgia was defined according to the 1990 American College of Rheumatology criteria. From Wolfe F, et al. *Arthritis Rheum.* 199 5;38:22.

In 1990 the American College of Rheumatology established criteria for the classification of fibromyalgia: First, patients must have a history of widespread pain that is clearly distributed to at least three quadrants of the body and that persists for at least three months. Secondly, they must have at least 11 of 18 tender point sites painful upon digital palpation. See figure 2.

Fibromyalgia is now recognized as a neurological condition associated with an abnormality in sensory processing. It is noted that ascending neural pathways are activated inappropriately or descending pathways are unable to modulate nociceptive signaling. Patients with fibromyalgia syndrome demonstrate subnormal pain thresholds. The pain amplification is believed to occur as a recruitment in the non-nociceptive neurons to carry what is then perceived as pain signal. Stimuli that would normally be

consider innocuous are amplified in patients with fibromyalgia and become quite unpleasant. Patients with fibromyalgia may also have other arthritic and neurological problems. This may be rheumatoid arthritis, herniated cervical or lumbar disc, spinal stenosis or spondylolisthesis. These conditions cause pain that generates and drives the abnormal sensory processing. These pain generators must be



eliminated or reduced in order to allow pain relief in the patient with fibromyalgia. For example, a patient with a herniated cervical disc and radiculopathy as well as fibromyalgia may find all the conventional treatments for fibromyalgia ineffective. It is not until the pain generator is removed; in this case the treatment of the herniated cervical disc, that one may have more success in treating the fibromyalgia.

Patients with fibromyalgia syndrome often are severely disabled with the associated pain and fatigue. As a consequence of the muscle pain many patients severely limit their activities. This results in becoming physically unfit and deconditioned. This increases fatigue and pain with fibromyalgia as well as depression and sets up a vicious circle of continued deterioration.

Fibromyalgia syndrome results in a decreased sense of energy, varying degrees of anxiety and depression related to changes in physical status, and disturbances in sleep. In addition, fibromyalgia is often associated with other medical conditions such as tension headache, migraine, irritable bowel syndrome, irritable bladder syndrome, premenstrual tension syndrome, cold intolerance, and restless leg syndrome.

Approximately 20% to 30% of patients with fibromyalgia develop major depression and some develop anxiety disorders. Many have trouble with attention span, concentration, and impaired short-term memory. Approximately 20% of patients with fibromyalgia syndrome have an abnormality known as Arnold-Chiari malformation. This is a developmental abnormality where the brain stem and cerebellum are pushed down below the confines of the skull into the upper portion of the cervical spinal canal. Also, it has been shown by several studies that patients with fibromyalgia have a strong genetic predilection. An Israeli study noted high incidence of fibromyalgia in family members, particularly first degree relatives. Approximately 80% of patient's mothers, 60% of their sisters, and 30% of their daughters had fibromyalgia, whereas interestingly, none of their sons were affected.

Patients with fibromyalgia are found to have elevated levels of substance-P in their spinal fluid compared to normal controls. Substance-P is a neurotransmitter involved in pain transmission. It was noted that the level of substance-P was two to three times higher in patients with fibromyalgia when compared to normal subjects. This results or facilitates a major increase in pain perception. In patients followed experimentally with sampling of the spinal fluid looking at substance-P, it was found that when they were experiencing more pain, generally the substance-P was higher than compared to other times when they were experiencing less pain.

Serotonin is an important neurotransmitter found in the brain and spinal fluid. It is known to be involved with regulation of pain processes as well as deep sleep. In patients with fibromyalgia the serotonin levels in CSF were also found to be lower than normal controls. It is a known that fibromyalgia is nine times as prevalent in women as compared to men. Women synthesize approximately seven times less serotonin in their brains than men. It has been hypothesized that one of the reasons women are at greater risk for development of chronic pain syndromes is the lower level of serotonin.

Patients with fibromyalgia have musculoskeletal pain and fatigue that is chronic in nature. The pain waxes and wanes in intensity depending on external stresses in their life, temperature changes, associated disease, lack of sleep, and fatigue. In most patients it is a life-long ailment. Fatigue is a major problem for many patients. It often is accompanied by significant depression. Fibromyalgia may be seen also with chronic fatigue syndrome and some people feel that they are variants, one more associated with fatigue and

the other more with pain; we certainly see combinations of both.

Education is important in the care of patients with fibromyalgia. They need to understand the symptoms and pain generators, and also to know they are not unique, that others have similar problems and that this is a disease. It is a neurological disorder, not necessarily an imagined problem that often they have been told in the past. Many patients have been frustrated in the past by being told that they do not have any medical problems and they need to just toughen up and get on with their lives. Often it is quite a relief to realize that, yes, they do have a medical condition and that there is validity to their complaints.

Essential in the treatment with fibromyalgia is an exercise program to help increase conditioning. Gentle aerobics can help improve endurance and eliminate fatigue and help with the depression. This also helps loosen muscles. As noted previously, deconditioning often results in an increase in pain, fatigue, and depression in patients.

Also, it is important to recognize and work up possible pain generators. For example, associated rheumatoid arthritis, lupus, spinal disorders such as herniated discs, stenosis, etc., that may contribute pain and increase the symptoms of the myofascial syndrome. Again, these need to be identified and treated to allow for a better chance in controlling the fibromyalgia.

Physical therapy with massage therapy helps relieve many of the muscle aches and trigger points. Often patients need to be on a program of massage therapy intermittently for the rest of their lives. Some patients also benefit from pain management with injections into the trigger points.

Pharmacologic considerations in the treatment of fibromyalgia must take into account depression, pain, and sleep problems. Depression is often treated with selective serotonin reuptake inhibitor and tricyclic antidepressants. Examples of tricyclic antidepressants can be Elavil, Desyrel, Sinequan, and Pamelor. Examples of serotonin boosting medications are Prozac, Paxil, Zoloft, Serzone, and Effexor. Patients are often treated with non-steroidal antiinflammatories such as Naprosyn, Motrin, etc. This does not help significantly with fibromyalgia, but may help with some of the pain generators such as osteoarthritis. Opioid analgesics are the most effective in managing chronic pain states, however, the concern here is addiction, physical dependence, and tolerance that may develop. Great care must be taken in using narcotic analgesics in the treatment of fibromyalgia with a good understanding between the patient and the physician looking for problems such as addiction and tolerance. Often medications can be switched to basically give the body a rest from different narcotics such as using Darvocet for a period of time and then switching to Codeine or Vicodin for a period of time.

In conclusion, fibromyalgia is a neurological disease that is associated with abnormal sensory processing. There appears to be elevation in substance-P in the spinal fluid and a decrease in serotonin. Fibromyalgia is found in women at nine times greater frequency than in men. There appears to be a genetic predisposition. Fibromyalgia results in chronic pain, fatigue, sleep disturbances, and depression. It is often associated with other problems, particularly irritable bowel syndrome, fatigue syndrome, restless leg syndrome, tension headaches, and irritable bladder syndrome. Strategy of treatment involves physical conditioning, education, therapy, and pharmacological assistance. This may involve the use of tricyclic antidepressants, serotonin boosting medications, nonsteroidal antiinflammatories, and narcotic medications. Also, it is important to recognize other factors associated with fibromyalgia that may trigger the pain such as rheumatoid arthritis, lupus, herniated disc or stenosis. Again, it is important to address these issues to help better control and treat the fibromyalgia syndrome.

**James L. Sanders, M.D.**

*Neurosurgeon*

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# Dr. Rajguru joins Neurology and Neurosurgery Associates

Please let me introduce myself: I am Dr. Shailesh Rajguru. I am a neurologist who will be joining Neurology and Neurosurgery Associates in July 1999. My family and I are excited and looking forward to our move to Winter Haven.

I am originally from Maryland, and a former Terrapin (from the University of Maryland) with a major in kinesiology. What is that you say? Kinesiology involves the study of human biomechanics and exercise physiology. I believe it has guided my training in neurology, and has sparked my interest in a new area for neurologists: sports neurology.

With the creation and implementation of many methods and treatments for physically limited people to participate in athletic activities, it has become very important to monitor for neurologic deterioration in these individuals. In addition, new medications have returned the life and precious functioning that was once abducted by a neurologic disease. We no longer have to submit to the symptoms of a disease process, and are able to offer better management of problems that will not impair our patients. The period of 1990 to 2000 is labeled as the Decade of the Brain, and in my opinion, very appropriately so. The treatment for acute stroke has, of course, received much attention in the media, but there are many advances in the care of Parkinson's Disease, epilepsy, multiple sclerosis, migraine headache (to name a few) that are remarkable, but have not attracted that same magnitude. It is definitely and exciting time for neurology.

I completed medical school at the University of Health Sciences, College of Osteopathic Medicine in Kansas City, and completed my residency at the University of South Florida in Tampa. One of my strongest beliefs, and also asset, is teaching. Whether it is residents or patients, this quality earned me the Teaching Resident of the Year distinction in 1998. Patient education is an essential tool in care, and I value that the first step to success is truly the willingness to listen.

Although I plan to promote and teach on the neurologic care of athletes of all ages and athletic injuries, I am also a skilled electromyographer and electroencephalographer, and am prepared and trained to treat the many variety of neurologic diseases, from peripheral neuropathy, to sleep disorders to stroke.

I am very much looking forward to beginning practice with my group, and enthusiastically await meeting my new community.

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## Neurologic Injuries in Athletics and Exercise

Sports related neurologic injuries are thankfully infrequent, but can potentially be the most impairing for an athlete. Exercise has great physiologic benefits from psychologic, cardiovascular and musculoskeletal aspects. With the better management of many neurologic conditions today (through early detection, neuroimaging, and medications), many particular individuals have good functional capacities are wanting to participate in not only exercise, but competitive athletics. In our culture where exercise and competition is so

greatly promoted, it becomes important to determine an individual's status for sports participation, and to assess and monitor the neurologic disease. Concussions and post concussion syndrome, spine injuries, headache all can limit a person's best capabilities. Exercise with disorders such as peripheral neuropathy, epilepsy and multiple sclerosis can be successful under careful guidance and management. This article will address the more common sports related neurologic injuries and their management.

## **CONCUSSION**

Head trauma in sports is not uncommon. Although subdural and epidural hematomas, posttraumatic hydrocephalus, intracerebral hemorrhages have all been reported with sports injuries, the far most common sports injury affecting the brain is concussion. Concussion is a transient alteration in brain function without associated pathologic changes in brain structure. There are about 1.5 million participants in contact football annually, of whom approximately 15 percent sustain minor head injuries. The National Football League has reported in the range of 76 to 113 game-related concussions per season from 1985 to 1994. Surprisingly, the number has increased each year from 1991 to 1994, even with the use of better protective gear.

*Early symptoms of a concussion (minutes to hours)* Confusion, Headache, Dizziness, Vertigo, Decreased awareness of surroundings, Difficulty focusing vision, Dazed appearance or blank stare.

*Immediate assessment for concussion*

**Orientation**-check awareness for person, time and place.

**Memory**-check for repetition of digits backwards, months of year backwards, recollection of previous plays or events before injury, recollection of 3 objects immediately and after 5 minutes.

**Appearance**-Blank stare, incoherent speech.

*American Academy of Neurology definitions and guidelines for management of sports related concussions*

### **Grade of concussion**

- I. Transient confusion, No loss of consciousness, Symptoms resolve in 15 minutes or less.
- II. Transient confusion, No loss of consciousness, Symptoms remain for longer than 15 minutes.
- III. Any period of loss of consciousness (seconds or minutes, or longer).

*Recommendations for grades of concussions*

I. Remove from play that day. May return to play same day if symptoms clear in 15 minutes or less. A second grade I concussion in the same contest removes player from the game, and guidelines for grade II concussion are followed.

II. Remove from play that day without return. May return to competition after 1 week without symptoms at rest and with exertion, and after neurologic examination clearance. Head CT or MRI is recommended if headache lasts longer than one week. A second grade II concussion in the same contest follows the above recommendations, and return to play is considered after 2 weeks without symptoms at rest and with exertion, and after neurologic examination clearance.

III. Acute care and evaluation at nearest hospital. May return to competition after 1 week (seconds loss of consciousness) or 2 weeks (minutes loss of consciousness) without symptoms at rest and with exertion.

Any neuroimaging abnormality (edema, contusion or other intracranial pathology) mandates termination of the season for the player. Concussion should not be taken lightly. Due to the pressure of losing playing time or the starting position in the game, the athlete often will not complain of the hit he or she sustained, or may

report complete resolution of symptoms prematurely. The neurologic examination in an immediate concussion injury is often without focality, or even normal. It is very important for coaches, athletic trainers and physicians to be cognizant of the subtleties of each situation because the second impact can be potentially devastating if the initial injury was not noted.

**Dr. Shailesh Rajguru**

*Neurologist*

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● **Neurology and Neurosurgery Associates, PA.**

**50 2nd Street S.E.**

**Winter Haven, FL 33880**

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*Additional offices available to patients of Neurology and Neurosurgery Associates P.A. located at:*

● **Cypress Medical Building**

**1705 US Hwy 27 North, Suite 201**

**Davenport, FL 33837**

● **\*Sebring Office**

**Rehabilitation Center**

**6325 US Hwy 27 North, Suite 201**

**Sebring, FL 33870**

● **\*Lakeland Office**

**519 Buena Vista**

**Lakeland, FL 33805**

**\*New Locations**

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