

**DEFINITION**

1. Fibromyalgia syndrome (FMS) is a chronic, non-progressive disorder, one of an array of syndromes characterised by persistent and disabling symptoms which are medically unexplained. Such syndromes appear to overlap, and include irritable bowel syndrome (IBS) and chronic fatigue syndrome (CFS).
2. Patients with FMS complain of a wide variety of symptoms, including a decreased ability to sustain repetitive activity or other form of sustained work load as a result of widespread pain, fatigue, global debility, along with loss of concentration and diminished attention span. Typically, symptoms wax and wane.
3. A standardised case definition for this disorder was developed and published by the American College of Rheumatology (ACR) in 1990. Their criteria include widespread pain that persists for at least 3 months and tenderness in at least 11 of 18 specific anatomical sites. However it is widely acknowledged that many individuals with the clinical diagnosis of FMS do not precisely conform to the ACR definition.
4. FMS may coexist with a wide variety of conditions and is not a diagnosis of exclusion. Successful management of a treatable concomitant disease does not substantially improve the symptoms of FMS.
5. FMS most frequently affects people between the ages of 18 and 55 and prevalence, which is fairly consistent among westernised countries, ranges from 1 to 4 percent in the general population. There is a strong female preponderance with a female:male ratio of about 7:1.

**CLINICAL MANIFESTATIONS**

6. The affected individual usually describes diffuse, chronic musculoskeletal pain, stiffness, and fatigue. The pain tends to be constant, aching, and concentrated in axial regions (neck, shoulders, back, and pelvis), although many patients complain of "pain all over". Pain is often worse in the morning and is exacerbated by changes in the weather, by cold, and stress.
7. In a proportion of patients there are multiple, reproducible points of tenderness on palpation as described in the ACR case definition, but this feature is more clearly defined in some cases than in others. The tender points tend to be symmetrical and located in the occiput, neck, shoulder, ribs, elbows, buttocks, and knees. However it is now recognised that most patients with the condition display increased sensitivity to pain throughout the body.
8. Many other symptoms are reported, including non-restorative, unrefreshing sleep, migraine and tension headaches, irregular bowel action, dysmenorrhoea and urinary frequency. A variety of other musculoskeletal symptoms are not uncommon, including morning stiffness and a subjective, but not demonstrable, sensation of swelling of peripheral joints.

9. Characteristically, clinical examination is normal and although certain isolated anomalies have been reported, a wide spectrum of laboratory investigations fail to reveal any characteristic abnormality.
10. No treatment has been found to be consistently helpful in this condition. Analgesics, non-steroidal anti-inflammatory drugs and local physical treatments are ineffective and may even worsen symptoms. However controlled trials have demonstrated that cognitive behavioural therapy allied to a careful, structured exercise program that emphasises aerobic fitness training is the strategy most likely to produce sustained improvement.

## AETIOLOGY

11. No single specific cause of FMS has yet been identified. The absence of any peripheral pathology and the presence of widespread tissue hyperalgesia suggest a central mechanism for the syndrome rather than some pathological process in the muscles themselves. A wide variety of different causes have been proposed and researched and the list which follows indicates the main lines of investigation.
12. **Abnormalities in sensory processing** A number of investigators have found that while patients with FMS are not able to detect nociceptive stimuli at lower levels than normal subjects, (e.g. heat, electrical current, pressure), the threshold at which these stimuli induce a sensation of pain is lower than normal.
13. This observation is interpreted by some as being attributable to an abnormality in the normal pain-suppressing neural pathways between brain and spinal cord.
14. **Neuroendocrine aberrations** Several studies have identified an abnormality of the hypothalamic-pituitary-adrenal axis along with a loss of the normal rhythmic diurnal fluctuation in blood cortisol levels. Other evidence emerging from this line of enquiry includes low blood levels of serotonin relative to healthy controls, and unusually high levels of substance P (a peptide involved in the transmission of pain impulses) in the cerebrospinal fluid. Changes have also been noted in the growth hormone axis that suggest abnormal hypothalamic function. However these and other related anomalies have not led to greater understanding of the condition and their significance is not yet clear.
15. **Psychological factors** Although the symptoms suggest a psychological cause, careful studies have revealed no consistent relationship between the condition and psychological status. However in a significant proportion of patients who develop the condition there is chronic non-specific anxiety and poor coping skills. Mood disorder is not uncommon, and a preoccupation with illness, or hypochondria. Most patients however are not depressed and any subsequent onset of depression does not correlate with an alteration in the level of pain.
16. **Genetic factors** A number of studies have suggested familial aggregation and therefore an as yet unidentified genetic link.
17. **Sleep abnormalities** One of the original proposals with regard to causation was that patients suffering from the syndrome exhibited abnormal alpha-wave activity on electro-encephalography during certain phases of sleep. However the specificity of

this observation has been queried and its reproducibility and causal significance challenged.

18. Other investigators have proposed that there may be impairment of the normal 24-hour variability of heart rate, and postulate that excessive nocturnal sympathetic activity may result in non-restorative sleep and ensuing fatigue.
19. However, although sleep abnormalities and morning fatigue are common in FMS, there is at present ample evidence to suggest that disrupted sleep, of whatever variety, and of whatever origin may result in muscle pain, fatigue and poor concentration.
20. **Peripheral mechanisms** A large number of investigators have attempted to identify abnormalities in the muscle tissue in FMS. However despite isolated abnormal findings no consistent relationships have been found.
21. **Viral infections** The condition may arise insidiously and unheralded in an otherwise healthy individual, but in a proportion of cases it is reported that there has been a preceding influenza-like illness in which a viral cause may or may not have been identified. However immunological investigation in such patients has produced inconclusive or inconsistent results.
22. **Trauma** Although a number of reports have linked the onset of FMS to some preceding physical injury, there is at present no evidence that there is any causative association with trauma.

## CONCLUSION

23. Fibromyalgia syndrome is a chronic condition. Symptoms tend to wax and wane and include widespread musculoskeletal pain, fatigue and sleep disturbance. It appears to overlap with such conditions as chronic fatigue syndrome and irritable bowel syndrome.
24. The aetiology is unknown, although there appears to be a familial predisposition to the disorder.

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