

# International Encyclopedia of Rehabilitation

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Center for International Rehabilitation Research Information and Exchange (CIRRIE)  
515 Kimball Tower  
University at Buffalo, The State University of New York  
Buffalo, NY 14214  
E-mail: [ub-cirrie@buffalo.edu](mailto:ub-cirrie@buffalo.edu)  
Web: <http://cirrie.buffalo.edu>

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# **Fibromyalgia**

**Julius Sim**

**Professor of Health Care Research**

**Arthritis Research Campaign National Primary Care Centre**

**Keele University, Staffordshire ST5 5BG, UK**

## **Definition and epidemiology**

Fibromyalgia – also called ‘fibromyalgia syndrome’ – is a clinical presentation characterized by widespread pain, tender points, and various other symptoms, such as fatigue, and unrestorative sleep. Originally, the term ‘fibrositis’ was used to describe this syndrome, but this term dropped out of use when no clear evidence was found of an underlying inflammatory process. Although earlier criteria for its diagnosis exist (Smythe and Moldofsky 1977, Yunus et al 1989), those most commonly used at present to diagnose fibromyalgia were formulated by Wolfe et al (1990) on behalf of the American College of Rheumatology (ARC). These criteria require the presence of pain in the axial skeleton and in at least three out of four body quadrants for a period of three months or more, and tenderness on palpitation at 11 or more of 18 specified symmetrical anatomical sites (tender points). Recently, the American Pain Society has presented modified guidance on the anatomical sites to be used when evaluating fibromyalgia (American Pain Society 2005).

Although the ARC criteria remain the standard diagnostic criteria, especially in clinical research, the diagnosis of fibromyalgia in everyday clinical practice may not adhere strictly to these criteria (Fitzcharles 1999, Goldenberg 1999). Fibromyalgia can be seen as lying at one extreme of a spectrum of chronic painful musculoskeletal disorders, and may not be clearly distinguishable from the more general syndrome of chronic widespread pain (Gran, 2003). Indeed, fuelled by the absence of clear laboratory or other biomedical findings in affected patients, the idea that fibromyalgia constitutes a distinct pathological or clinical entity – and the extent to which the answer to this question should determine clinical management – has been strongly debated (Hart 1988, Cohen and Quintner, 1993, Russell 1999, Hadler and Greenhalgh 2004, Kahn 2007, Croft 2008). Smythe (2009:682) suggests that the clinical usefulness of the term ‘fibromyalgia’ extends beyond the formal diagnostic criteria: ‘The label “fibromyalgia,” strictly defined, accommodates and gives meaning to all of the related symptom complexes, which may be present in patients who do not quite meet the 1990 criteria.’

As already noted, a broader clinical syndrome of chronic widespread pain can also be identified, either in terms of those of the ACR criteria that relate to the distribution of pain, or in terms of more recent criteria – the Manchester criteria (Macfarlane et al 1996) – that are somewhat more stringent.

The prevalence of fibromyalgia is likely to lie somewhere between 1–3% (Gran 2003). A recent Canadian study found a self-reported prevalence of 1.1% across all ages, with a female:male ratio of 6:1 (McNally et al 2006). The prevalence differs across age bands,

with an overall rise in prevalence with age to the late 50s or early 60s (Wolfe et al 1995, White et al 1999). The broader syndrome of chronic widespread pain has a prevalence of approximately 10% using the ACR (1990) criteria (Macfarlane 1999), or approximately 5% using the more conservative Manchester criteria (Hunt et al. 1999).

The underlying aetiology of fibromyalgia is less certain, and no single causative mechanism has been identified with any certainty. Nonetheless, a disorder of both central and peripheral pain processing is likely to be at the root of fibromyalgia (McVeigh et al 2003, McLean and Clauw 2005, Vierck 2006, Staud and Spaeth 2008). Such abnormal processing causes a state of pain to be perpetuated through only minimal nociceptive stimuli (Staud 2006). Accordingly, two key features of fibromyalgia are *hyperalgesia* (a heightened sensitivity to painful stimuli) and *allodynia* (a painful response to stimuli that are not normally painful, such as light touch or mild to moderate changes in temperature) (Nielsen and Henriksson 2007). Particular attention has been paid to the role of the hypothalamic-pituitary-adrenal axis (van West and Maes 2001). Local muscle pathology (Henriksson 1994) and the autonomic nervous system (Martinez-Lavin 2007) have also been implicated. Psychological factors are important in fibromyalgia (Buskila and Cohen 2007), and White et al (2002) report aspects of psychological distress such as anxiety and depression to be both common and severe among a community sample of patients with fibromyalgia; the prevalence and severity are likely to be greater in samples drawn from secondary or tertiary referral centres. In a sample of 115 patients with fibromyalgia, Thieme et al (2004) report that 33% revealed an anxiety disorder and 35% a mood disorder. However, whether psychological disturbance is the cause or the result of fibromyalgia is not clear (McBeth et al 2002). Finally, there is growing interest in the aetiological role in fibromyalgia of social, genetic and environmental factors (Crofford 2007, Bradley 2008 2009). To date, no cure exists for fibromyalgia.

## **Symptoms and experience of illness**

In addition to the cardinal features of pain, fatigue and sleep disturbance, various other symptoms have been reported as associated with fibromyalgia: sensations of muscle tension and morning stiffness; chronic headaches (tension headache or migraine); sensations of swelling around joints; irritable bowel syndrome and other gastrointestinal symptoms; premenstrual tension; jaw pain; microcirculatory disorders such as Raynaud's syndrome; cognitive dysfunction, such as lack of concentration and poor memory (Adams and Sim 1998, Wallace and Hallegua 2004). The symptoms of fibromyalgia are often very variable and unpredictable, such that patients are subject to a distressing feeling of uncertainty in their illness.

Although pain is generally regarded as the principal feature of fibromyalgia, Wolfe et al (1996) estimate that 76% of patients with fibromyalgia will report fatigue of 'clinically important' severity, and over 90% can be classified as 'problem sleepers' (Bigatti et al. 2008). Many patients find the associated fatigue more debilitating in everyday life (Henriksson 1994, Schaefer 2005, Sturge-Jacobs 2002). Equally, the fear of pain, as opposed to pain itself, may exert a highly disruptive influence on daily functioning (Schaefer 1997).

In everyday life, individuals with fibromyalgia may experience a range of psychosocial problems (Sim and Madden 2008). Disruption in family and social relationships is common. Difficulties are also encountered in the workplace; the nature and extent of such difficulties are influenced by the type of the work tasks to be performed, the individual's ability to control and adapt to work, the physical and psychosocial environment in which work takes place, and competing commitments and responsibilities outside the workplace (Henriksson et al 2005). Problems in the workplace also often relate to others' perceptions of the authenticity of the person's symptoms (Barker 2005, Mengshoel and Heggen 2004, Thorne et al 2004, Wolfe 2009). The perceived legitimacy of symptoms may also mean that encounters with health professionals are seen as unsatisfactory (Paulson et al, 2002, Söderberg and Lundman 2001). Patients with fibromyalgia often complain of not having their symptoms taken seriously. Moreover, the search for a diagnosis may be long and initially conclusive, and when a diagnosis is finally achieved, it may not bring the hoped-for sense of resolution (Madden and Sim 2006). Henriksson et al (1992) reported that 90% of respondents with fibromyalgia thought that the condition markedly influenced their daily life, and 78% had had to change their routines and habits of daily life in order to cope with its effects. The onset of fibromyalgia may seriously affect patients' rating of the quality of multiple aspects of their life (Bernard et al 2000). The impact of fibromyalgia on individuals' quality of life appears to be similar to that of rheumatoid arthritis (Martinez et al 1995, Ofluoglu et al 2005), but greater than that of other types of chronic musculoskeletal pain, such as chronic low back pain and complex regional pain syndrome (Verbunt et al 2008). Moreover, younger women with fibromyalgia report more distress than older women with the disease, even after allowing for duration of symptoms (Burckhardt et al 2001).

Mannerkorpi et al (1999) have developed a useful fourfold typology of different ways in which persons with fibromyalgia respond to its impact on their lives:

- *Struggling*: Managing everyday life by fighting pain and fatigue. Priority is given to work in order to manage conflict between everyday life and disabilities. Efforts made to maintain picture of self as healthy. Limited social life outside of work.
- *Adapting*: Learning to cope with symptoms, planning activities around limitations.
- *In despair*: No longer able to cope with pain or life situation. Loss of former active self, hard to accept.
- *Giving up*: Had given up many activities, spending most of the time in bed, and unable to control their situation or symptoms.

## **Treatment and management of fibromyalgia**

Broadly, the management of fibromyalgia can be divided into pharmacological and non-pharmacological approaches, of which the latter are the particular province of the rehabilitation practitioner. The effectiveness of specific treatment modalities and approaches has been studied in a rapidly growing number of reviews, and only very brief

comments on some of the conclusions of these reviews will be made here; the original reviews should be consulted for fuller information.

### **Pharmacological strategies**

The mainstays of pharmacological management are antidepressants, non-steroidal anti-inflammatory drugs, anti-epileptic drugs, sedative-hypnotics, muscle relaxants, and opiates (Rao and Bennett 2003). The efficacy of any such drug must be considered in strict relation to specific symptoms within fibromyalgia, and must be weighed against its tolerability. Hence, Rao and Bennett (2003) urge that pharmacological management should be tailored to the presenting symptoms of the individual patient, rather than in relation to more general pharmacological prescriptions.

A meta-analysis of a range of antidepressant medications supports their effectiveness in relation to a range of symptoms in fibromyalgia, with a large effect size for tricyclic antidepressants (Häuser et al. 2009a). In contrast, the evidence for nonsteroidal anti-inflammatory drugs and pure analgesics (such as opiates) is less encouraging, though with some support for the use of tramadol (Abeles et al 2008). Goldenberg (2007) cites evidence favouring the use of tricyclic antidepressants, serotonin reuptake inhibitors and dual serotonin–norepinephrine reuptake inhibitors, and antiseizure drugs such as pregabalin and gabapentin; among analgesics only tramadol was recommended. Recommendations from the European League against Rheumatism (EULAR) support the use of tramadol, antidepressants, and drugs such as tropisetron, pramipexole and pregabalin; a lesser level of support was given to simple analgesics (Carville et al. 2008). Steroidal medication does not appear to have a role in fibromyalgia.

### **Rehabilitation strategies**

Two UK studies have described clinical practice among rehabilitation practitioners in relation to fibromyalgia (Sim and Adams 2003, McVeigh et al. 2004). Sim and Adams (2003) sought the views of physical therapists and occupational therapists specializing in rheumatology on management objectives and treatment preferences in fibromyalgia. Among occupational therapists, the most commonly identified objectives were: increasing functional activities, pain management, and fatigue management. The corresponding objectives nominated by physical therapists were: increasing exercise tolerance and fitness, reduction of pain, and improving functional ability. The most frequently employed interventions, across both physical and occupational therapists, were fatigue management, endurance exercise, functional activity re-education, postural education, relaxation, strengthening exercise, and hydrotherapy. McVeigh et al's (2004) study was restricted to physical therapists in Northern Ireland and did not target specialist practitioners. The most frequently nominated treatment goals were: increasing daily function, improving patient education, and reducing pain. Treatment interventions most frequently nominated were: exercise, hydrotherapy, pain management programme, and electrotherapy.

In recent years, a large number of reviews of nonpharmacological treatments have been published, including systematic reviews and meta-analyses. The principal modalities or treatment approaches that have been included in these reviews are indicated in Figure 1.

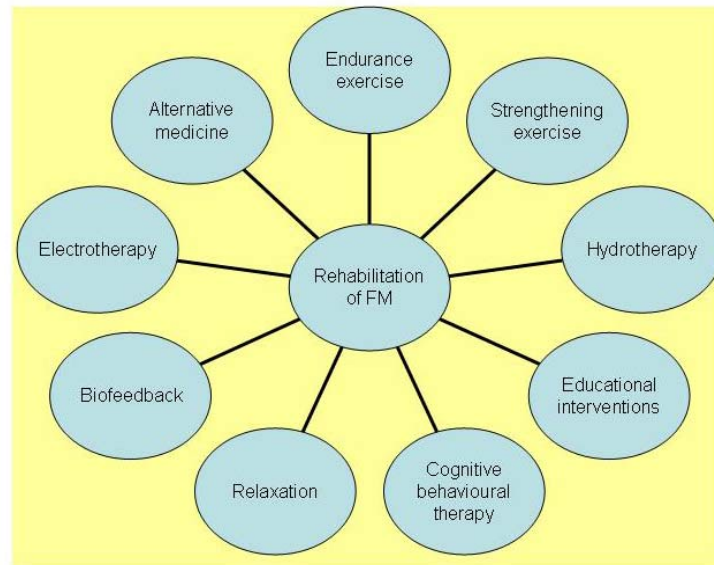


Figure 1. Nonpharmacological strategies used in the management of fibromyalgia

The use of exercise regimens has received broad support, of varying strength, in recent reviews (Sim and Adams 1999, 2002, Mannerkorpi and Iverson 2003, Goldenberg et al 2004, Adams and Sim 2005, Arnold 2006, Jones et al 2006, Busch et al 2007, Carville et al 2008). Recent clinical guidelines from the Ottawa panel found ‘emerging’ evidence for both strengthening and aerobic fitness exercises (Brosseau et al. 2008a, 2008b). Specific clinical recommendations have been made with regard to exercise therapy in fibromyalgia (Offenbächer and Stucki 2000, Gowans and deHueck 2004, Brosseau 2008a 2008b, McVeigh and O’Brien 2009):

- Exercise prescription should be individualized, on the basis of a careful assessment of the patient, including baseline levels of physical conditioning;
- Exercises should start just below the patient’s capacity, increasing gradually and cautiously, within the limits of pain, until it is at the lower end of moderate intensity;
- The patient should be advised against unrealistically high expectations of short-term progress;
- The patient should be warned of a short-term increase in pain and fatigue, but should be reassured that these will return to baseline levels within a few weeks;
- The patient should be encouraged to incorporate exercise within his or her usual lifestyle.

A number of studies have evaluated exercises in water (hydrotherapy); reviewing ten such studies, of which three were deemed to be methodologically strong, McVeigh et al.

(2008) conclude that the evidence for hydrotherapy in fibromyalgia is strong, concurring with the conclusions of an earlier review (Gowans and deHueck 2007).

The other category of intervention that has received considerable scrutiny, and a fair degree of subsequent support, is that of psychological and educational interventions (Adams 2004). Burckhardt (2005) argues that such interventions can assist the symptoms of fibromyalgia through increased sense of self-efficacy, and Goldenberg et al. (2004) rate as 'strong' the evidence for cognitive behavioural therapy, patient education and similar psychological approaches in fibromyalgia. Williams (2003) states that psychological approaches produce tangible but modest outcomes, but suggests that these outcomes are enhanced when the therapy is well targeted and exercise is also included in the treatment programme. Conversely, poor adherence to the programme may produce poorer outcomes (Arnold 2006).

The use of various types of electrotherapy in the rehabilitation of fibromyalgia has little empirical support to date (Gur 2006). Equally, more work in relation to the roles of biofeedback and relaxation therapy is needed.

There is growing interest in the use of complementary and alternative therapies in fibromyalgia (Holdcraft et al. 2003, Hardy-Pickering et al 2007). There is, however, insufficient evidence to draw firm conclusions about most individual modalities in this category, though acupuncture or electro-acupuncture seems to emerge as the most promising; Schneider et al (2009) consider that it is supported by 'moderate' evidence.

### **A combined therapeutic strategy**

Given that fibromyalgia is considered to be aetiologically complex, and probably multifactorial, and that it is characterized by a range of symptoms, both physical and psychological, it is not surprising that multidimensional assessment has been advocated (Mease 2008) and multimodal/multidisciplinary treatment approaches have received much support (Oliver et al 2001, Patkar et al. 2003, Perrot et al 2008, Häuser et al. 2009b). Rossy et al. (1999) propose, on the basis of their meta-analysis of 49 studies, that nonpharmacological treatment is more effective than pharmacological treatment alone in relation to symptoms of fibromyalgia, and argue that treatment of fibromyalgia should ideally include nonpharmacological treatment – in particular, exercise and cognitive-behavioral therapy – in addition to appropriate medication management for sleep and pain symptoms. Clauw (2008) similarly encourages pharmacological treatment to be combined with at least one nonpharmacological intervention. Brosseau et al (2008b) point to the large variability in fibromyalgia symptoms, and argue that patients would profit most from a highly individualized program that incorporates multiple treatment regimens. Masi et al (2002) believe that such multimodal treatment regimens should be set in a person-centred approach to care that both responds to the individuality of the patient's problems and seeks to create a positive outlook and a sense of empowerment in the patient.

The optimum management of fibromyalgia almost certainly does not consist simply of a particular combination of individual therapeutic interventions. The growing psychosocial

literature suggests that an informed and sensitive response to the patient's subjective experience of his or her illness, an awareness of the social and psychological problems posed by 'invisible' illnesses, a careful handling of the process in which a diagnosis is delivered, and an acknowledgement of the powerful repercussions of the illness, and of the diagnostic label 'fibromyalgia', on the patient's social networks and workplace environment, are all important additional ingredients of a fruitful therapeutic relationship.

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