

**When  
Moving  
Hurts**



**Assess  
Understand  
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## **GLOBAL YEAR AGAINST MUSCULOSKELETAL PAIN**

OCTOBER 2009 – OCTOBER 2010

### **Functional Disorders**

#### **Introduction**

The term “functional somatic syndrome” refers to several overlapping syndromes that are characterized mostly by symptoms, suffering, and disability and less by disease-specific abnormalities of structure or function. They include, but are not limited to, irritable bowel syndrome (IBS), fibromyalgia (FM), chronic fatigue syndrome (CFS), post-traumatic stress disorder (PTSD), and restless leg syndrome (RLS). Physicians in many medical specialties are frequently seen by patients who have these often disabling, distressing somatic symptoms and who require diagnostic labels for their illness. Many functional somatic syndromes have major sociocultural and economic implications.

#### **Epidemiology and Economics**

Most patients with functional syndromes are female (75–90%). Whereas IBS and FM occur frequently in the general population (10% and 3%, respectively) [3,8], community-based studies have found a low prevalence of CFS among adults (0.2% to 0.4%) [5]. The rates of CFS are higher in minority groups and in people with lower educational and occupational status.

The prevalence of PTSD is also low in the general population (~0.5%), but it can increase dramatically (to more than 10%) after natural and manmade disasters. U.S. veterans of foreign wars have shown increased rates of PTSD (~3%), often with comorbid CFS (~5%). The prevalence of PTSD increases monotonically with combat-related stress, whereas the prevalence of CFS rises only at the low end of the stress spectrum. Epidemiological studies suggest that 7–10% of the general population in the U.S. and Northern Europe have RLS.

The Centers for Disease Control and Prevention (CDC) estimates that CFS has an economic burden of >\$9 billion per year in the United States due to lost productivity. In contrast, the annual direct cost of IBS is more than \$40 billion per year. Thus, functional disorders cost society enormous sums each year, with more than half related to health care services [4].

#### **Pathophysiology**

Large studies in the general population indicate that functional disorders have overlapping genetic and environmental factors [1]. Multivariate analyses have revealed common pathways of several latent traits—including pain, fatigue, unrefreshing sleep, anxiety, and depression—that are shared by functional disorders.

#### **Clinical Features**

The functional syndromes have a high degree of similarity and co-occurrence [1]. Often the same individual will meet the diagnostic criteria for several functional somatic syndromes. Strong overlap has been reported between FM and CFS, as well as between FM and IBS. The diagnostic label given to a particular patient may not only be strongly influenced by the patient’s symptoms but also by the medical specialty of the physician. Almost all functional syndromes are associated with (1) pain/stiffness, (2) fatigue, (3) nonrestorative sleep, and (4) emotional distress. Widespread hypersensitivity to thermal, mechanical, chemical, and electrical stimuli is often present [6].

#### **Diagnostic Criteria**

For the diagnosis of **CFS**, a patient must satisfy the following Centers for Disease Control and Prevention criteria:

- Fatigue lasts for at least 6 months
- Fatigue is of new or definite onset
- Fatigue is not the result of an organic disease or of continuing exertion
- Fatigue is not alleviated by rest
- Fatigue results in a substantial reduction in previous occupational, educational, social, and personal activities
- Four or more of the following symptoms, concurrently present for >6 months: impaired memory or concentration, sore throat, tender cervical or axillary lymph nodes, muscle pain, pain in several joints, new headaches, nonrefreshing sleep, or increased pain and fatigue after exertion

**PTSD** is characterized by:

- Recollections of a stressful event, either in flashback and/or dreams
- A sense of re-experiencing the stressful event
- Marked avoidance of the situations that trigger recollections of the stressful event
- Marked symptoms of anxiety and increased arousal
- Partial amnesia regarding some aspects of the stressful event
- A feeling of numbness

For the diagnosis of **RLS** the following symptoms must be present:

- A desire to move the limbs, often associated with paresthesia or dysesthesia
- Symptoms exacerbated by rest and relieved by activity
- Motor restlessness
- Nocturnal worsening of symptoms

A diagnosis of **IBS** requires recurrent abdominal pain or discomfort at least 3 days per month in the last 3 months that is associated with two or more of the following:

- Improvement with defecation
- Onset associated with a change in stool frequency
- Onset associated with a change in stool form (appearance)

For diagnostic criteria for **FM**, see the fact sheet on Fibromyalgia.

### Diagnosis and Treatment

Although functional disorders demonstrate a significant overlap of symptoms, their diagnosis mostly depends on patients' predominant complaint and dysfunction. For example, alternating diarrhea and constipation will suggest IBS, chronic widespread pain FM, and disabling fatigue CFS. The shared pathogenesis of most functional disorders results in similar treatment approaches focused on pain, fatigue, nonrestorative sleep, and negative affect [9]. There is good evidence for effective treatments of functional disorders, in particular graded exercise and cognitive-behavioral therapy, which again emphasizes the similarities between functional syndromes. Typically, the therapeutic rationale of these treatments aims to improve overall function and to alleviate illness-specific symptoms. The effect of pharmacological treatments that primarily aim at peripheral or central pain-processing abnormalities in functional disorders is variable across different functional syndromes, with the best effects shown for IBS and FM [2], and less effectiveness in many other functional disorders [7]. In contrast, treatment with antidepressants or antiseizure medications seems to be generally effective for most functional syndromes. Furthermore, dopamine agonists may play an important role in the treatment of RLS.

Taken together, the current state of evidence appears to support a balanced approach to the management of functional disorders, with organ-specific and cognitive-behavioral treatments each having their merits in the treatment of single syndromes. The clinical efficacy of cognitive-behavioral approaches for the treatment of overlapping syndromes has not yet been established.



## References

1. Barsky AJ, Borus JF. Functional somatic syndromes. *Ann Intern Med* 1999;130:910–21.
2. Goldenberg DL. Pharmacological treatment of fibromyalgia and other chronic musculoskeletal pain. *Best Pract Res Clin Rheumatol* 2007;21:499–511.
3. Hungin AP, Chang L, Locke GR, Dennis EH, Barghout V. Irritable bowel syndrome in the United States: prevalence, symptom patterns and impact. *Aliment Pharmacol Ther* 2005;21:1365–75.
4. Kalia M. Assessing the economic impact of stress: the modern day hidden epidemic. *Metabolism* 2002;51:49–53.
5. Prins JB, van der Meer JWM, Bleijenberg G. Chronic fatigue syndrome. *Lancet* 2006;367:346–55.
6. Staud R, Rodriguez ME. Mechanisms of disease: pain in fibromyalgia syndrome. *Nat Clin Pract Rheumatol* 2006;2:90–8.
7. Winkelman JW, Allen RP, Tenzer P, Hening W. Restless legs syndrome: nonpharmacologic and pharmacologic treatments. *Geriatrics* 2007;62:13–6.
8. Wolfe F, Ross K, Anderson J, Russell IJ, Hebert L. The prevalence and characteristics of fibromyalgia in the general population. *Arthritis Rheum* 1995;38:19–28.
9. Yunus MB. Central sensitivity syndromes: a new paradigm and group nosology for fibromyalgia and overlapping conditions, and the related issue of disease versus illness. *Semin Arthritis Rheum* 2008;37:339–52.

