MetroHealth

Fibromyalgia

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DISCLOSURE

None

Objectives

1. Identify differences between the 1990, 2010/2011, and 2016 American College of Rheumatology criteria for fibromyalgia
2. Recognize scenarios that may warrant a specialty referral for fibromyalgia
3. Review nonpharmacologic and pharmacologic treatments utilized in fibromyalgia

Key References

1. Higgs, JB. Fibromyalgia in Primary Care. Prim Care Clin Office Pract 2018;45:325-341.
2. Clauw, DJ. Fibromyalgia: A Clinical Review. JAMA 2014;311(15):1547-1555.
3. Arnold, LM. A Framework for Fibromyalgia Management for Primary Care Providers. Mayo Clin Proc 2012;87(5):488-496.
4. Wolfe F, Hauser W. Fibromyalgia diagnosis and diagnostic criteria. Annals of Medicine 2011;43(7):495-502.
5. Wolfe F, et al. 2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria. Seminars Arthritis Rheum 2016;46:319-329.
6. Macfarlane GJ, et al. EULAR revised recommendations for the management of fibromyalgia. Ann Rheum Dis 2017;76:318-328.

Fibromyalgia (FM)

- Overview
- Criteria
- Management

Fibromyalgia Overview

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Fibromyalgia Overview

- Global prevalence is 2.7% (4.2% female, 1.4% male)[1]
- Up to 1 in 20 patients have FM symptoms in primary care[2]
- Diagnosis may be delayed by 2 years[3]
- Considered a centralized pain state[4]
  - Central nervous system origins or amplification of pain
  - Allodynia - heightened sensitivity to stimuli
  - Hyperalgesia – heightened response to painful stimuli
- Familial predisposition as supported by family and twin studies
- Biologic basis for fibromyalgia as evidenced by functional, chemical, and structural brain neuroimaging and CSF analysis

1. Queiroz LP. Curr Pain Headache 2013.
2. Glennon P. Rep Rheum Dis 2010.
3. Choy E. et al. BMC Health Serv Res 2010.
4. Clauw DJ. JAMA 2014.

Fibromyalgia Criteria

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Fibromyalgia Criteria

1. 1977 – Smythe and Moldofksy – nonrefreshing sleep, tender point count, and “widespread aching pain.”
2. 1981 – Yunus, et al – tender points and “presence of generalized aches and pains involving 3 or more anatomic sites.”
3. 1990 – Wolfe, et al – ACR’s standardized classification criteria
4. 2010/2011 – Wolfe, et al – ACR preliminary diagnostic criteria
5. 2016 – Wolfe, et al – Revisions to 2010/2011 criteria

1. Smythe HA, Moldofsky H. Bull Rheum Dis 1977.
2. Yunus, et al. Semin Arthritis Rheum 1981.
3. Wolfe F, et al. Arthritis Rheum 1990.
4. Wolfe F, et al. Arthritis Care Res 2010.
5. Wolfe F, et al. Seminars in Arthritis Rheum 2016.

1990 ACR criteria for the classification of FM

- 11 of 18 (61%) tender points
- 4kg of force exerted by palpating finger or thumb
- Chronic widespread pain (CWP)
  - 3 months or more
  - 4 quadrant plus axial pain

Official recognition leads to legitimization

- ICD, NIH funding, studies, pt groups

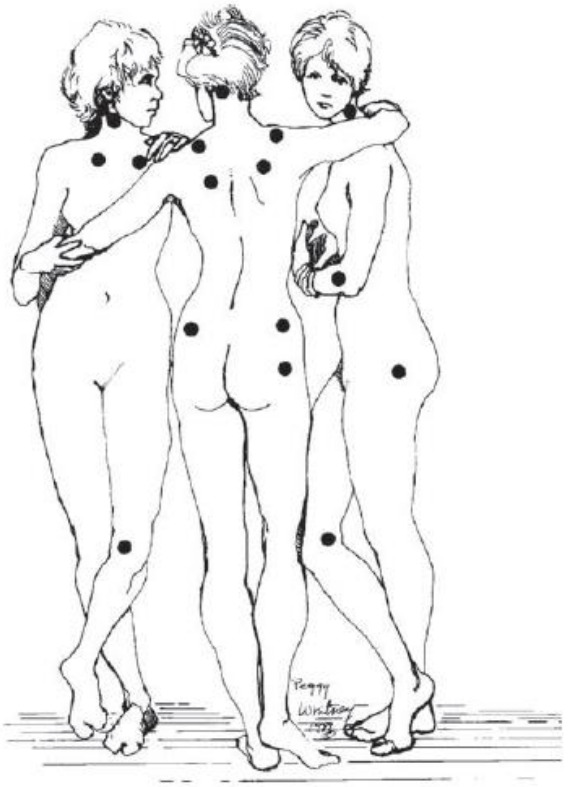


Figure 1. Tender point locations for the American College of Rheumatology 1990 criteria for the classification of fibromyalgia.

1990 ACR criteria concerns

- Tender point survey often not performed
- Measurement and repeatability of 4kg of force is difficult
- Women overrepresented by tender point survey alone
  - ~ 7:1 F:M ratio[1]
  - Healthy normal females had significantly lower pressure pain thresholds than male counterparts at all FM tender points sites by algometer measurement[2]
- Non-pain symptoms not represented
  - Fatigue reported > 90% and sleep disturbance reported > 80% in international survey[3]
- May only have moderate agreement with clinical diagnoses made in routine clinical practice[4]

1. Robinson RL, et al. Pain Med 2013.
2. Maquet D, et al. Eur J Pain 2004.
3. Choy E, et al. BMC Health Serv Res 2010.
4. Katz RS, et al. Arthritis Rheum 2006.

2010/2011 Preliminary Fibromyalgia Diagnostic Criteria

- CWP, fatigue, sleep and cognitive disturbance, and somatic symptoms
- Patient reported Widespread Pain Index (WPI)
- 2010 – Patient reporting and physician rating combine to provide Symptom Severity Score (SSS)
- 2011 – Patient reporting only for SSS

1. WPI $\geq$ 7 AND SS $\geq$ 5 OR WPI 3-6 AND SS $\geq$ 9
2. Symptoms for at least 3 months
3. Patient does not have a disorder that otherwise explains the pain

Table 4. Fibromyalgia diagnostic criteria

Criteria

A patient satisfies diagnostic criteria for fibromyalgia if the following 3 conditions are met:

1) Widespread pain index (WPI) ≥7 and symptom severity (SS) scale score ≥5 or WPI 3–6 and SS scale score ≥9.
2) Symptoms have been present at a similar level for at least 3 months.
3) The patient does not have a disorder that would otherwise explain the pain.

Ascertainment

1) WPI: note the number areas in which the patient has had pain over the last week. In how many areas has the patient had pain? Score will be between 0 and 19.

Shoulder girdle, left	Hip (buttock, trochanter), left	Jaw, left	Upper back
Shoulder girdle, right	Hip (buttock, trochanter), right	Jaw, right	Lower back
Upper arm, left	Upper leg, left	Chest	Neck
Upper arm, right	Upper leg, right	Abdomen	
Lower arm, left	Lower leg, left		
Lower arm, right	Lower leg, right		

2) SS scale score:

Fatigue
Waking unrefreshed
Cognitive symptoms

For the each of the 3 symptoms above, indicate the level of severity over the past week using the following scale:

0 = no problem
1 = slight or mild problems, generally mild or intermittent
2 = moderate, considerable problems, often present and/or at a moderate level
3 = severe: pervasive, continuous, life-disturbing problems

Considering somatic symptoms in general, indicate whether the patient has:*

0 = no symptoms
1 = few symptoms
2 = a moderate number of symptoms
3 = a great deal of symptoms

The SS scale score is the sum of the severity of the 3 symptoms (fatigue, waking unrefreshed, cognitive symptoms) plus the extent (severity) of somatic symptoms in general. The final score is between 0 and 12.

* Somatic symptoms that might be considered: muscle pain, irritable bowel syndrome, fatigue/tiredness, thinking or remembering problem, muscle weakness, headache, pain/cramps in the abdomen, numbness/tingling, dizziness, insomnia, depression, constipation, pain in the upper abdomen, nausea, nervousness, chest pain, blurred vision, fever, diarrhea, dry mouth, itching, wheezing, Raynaud's phenomenon, hives/welts, ringing in ears, vomiting, heartburn, oral ulcers, loss of/change in taste, seizures, dry eyes, shortness of breath, loss of appetite, rash, sun sensitivity, hearing difficulties, easy bruising, hair loss, frequent urination, painful urination, and bladder spasms.

Wolfe F, et al. Arthritis Care Res 2010.

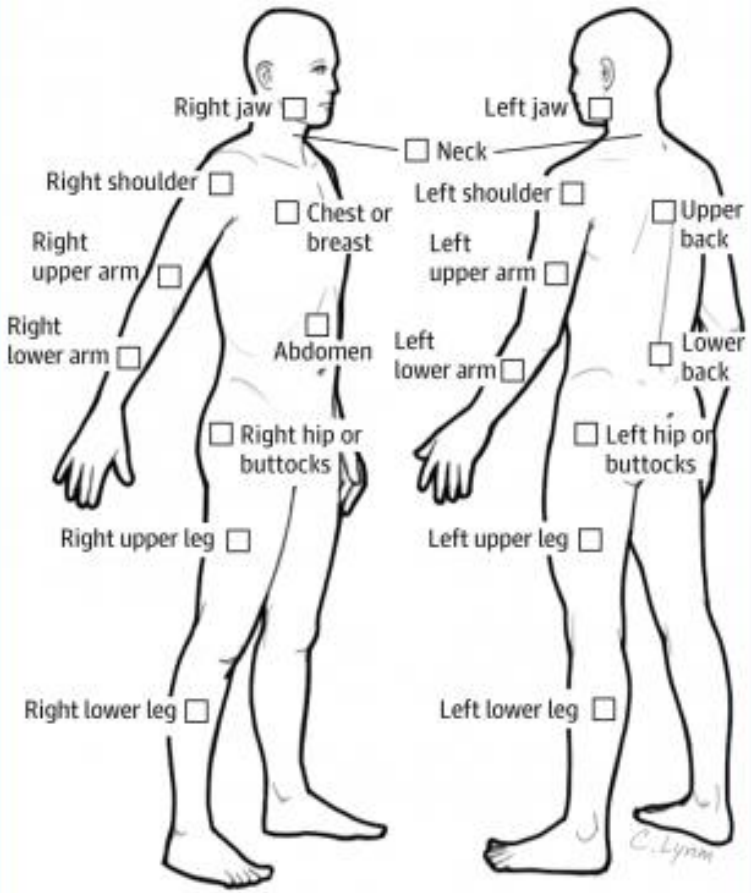
Physician rated somatic symptoms (0-3)

Somatic symptoms that might be considered: Muscle pain, irritable bowel syndrome, fatigue/tiredness, thinking or remembering problem, muscle weakness, headache, pain/cramps in abdomen, numbness/tingling, dizziness, insomnia, depression, constipation, pain in upper abdomen, nausea, nervousness, chest pain, blurred vision, fever, diarrhea, dry mouth, itching, wheezing, Raynaud's phenomenon, hives/welts, ringing in ears, vomiting, heartburn, oral ulcers, loss of/change in taste, seizures, dry eyes, shortness of breath, loss of appetite, rash, sun sensitivity, hearing difficulties, easy bruising, hair loss, frequent urination, painful urination, and bladder spasms

Widespread Pain Index
(1 point per check box; score range: 0-19 points)

(1) Please indicate if you have had pain or tenderness **during the past 7 days** in the areas shown below.

Check the boxes in the diagram for each area in which you have had pain or tenderness.



Symptom Severity
(score range: 0-12 points)

(2) For each symptom listed below, use the following scale to indicate the severity of the symptom **during the past 7 days**.

- **No problem**
- **Slight or mild problem**: generally mild or intermittent
- **Moderate problem**: considerable problems; often present and/or at a moderate level
- **Severe problem**: continuous, life-disturbing problems

	No problem	Slight or mild problem	Moderate problem	Severe problem
Points	0	1	2	3
A. Fatigue	☐	☐	☐	☐
B. Trouble thinking or remembering	☐	☐	☐	☐
C. Waking up tired (unrefreshed)	☐	☐	☐	☐

(3) During the **past 6 months** have you had any of the following symptoms?

	Points	0	1
A. Pain or cramps in lower abdomen		☐ No	☐ Yes
B. Depression		☐ No	☐ Yes
C. Headache		☐ No	☐ Yes

Additional criteria (no score)

(4) Have the symptoms in questions 2 and 3 and widespread pain been present at a similar level for at **least 3 months**?

☐ No ☐ Yes

(5) Do you have a disorder that would otherwise explain the pain?

☐ No ☐ Yes

2016 Revisions to the 2010/2011 criteria

- Adds Generalized pain via regions to eliminate Regional Pain Syndromes as a confounder
  - Left upper (region 1)
  - Right upper (region 2)
  - Left lower (region 3)
  - Right lower (region 4)
  - Axial (region 5)
- Adds that other conditions do not invalidate fibromyalgia

1. Generalized pain – present in at least 4 or 5 regions
2. Symptoms for at least 3 months
3. WPI $\geq$ 7 AND SS $\geq$ 5 OR WPI 3-6 AND SS $\geq$ 9
4. A diagnosis of fibromyalgia is valid irrespective of other diagnoses. A diagnosis of fibromyalgia does not exclude the presence of other clinically important illnesses

Table 3
Fibromyalgia criteria—2016 revision

Criteria

A patient satisfies modified 2016 fibromyalgia criteria if the following 3 conditions are met:
(1) Widespread pain index (WPI) ≥ 7 and symptom severity scale (SSS) score ≥ 5 OR WPI of 4–6 and SSS score ≥ 9.
(2) Generalized pain, defined as pain in at least 4 of 5 regions, must be present. Jaw, chest, and abdominal pain are not included in generalized pain definition.
(3) Symptoms have been generally present for at least 3 months.
(4) A diagnosis of fibromyalgia is valid irrespective of other diagnoses. A diagnosis of fibromyalgia does not exclude the presence of other clinically important illnesses.

Ascertainment

(1) WPI: note the number of areas in which the patient has had pain over the last week. In how many areas has the patient had pain? Score will be between 0 and 19

Left upper region (Region 1)	*Right upper region (Region 2)*	*Axial region (Region 5)*
Jaw, left[a]	Jaw, right[a]	Neck
Shoulder girdle, left	Shoulder girdle, right	Upper back
Upper arm, left	Upper arm, right	Lower back
Lower arm, left	Lower arm, right	Chest[a]
		Abdomen[a]
Left lower region (region 3)	*Right lower region (Region 4)*	
Hip (buttock, trochanter), left	Hip (buttock, trochanter), right	
Upper leg, left	Upper leg, right	
Lower leg, left	Lower leg, right	

(2) Symptom severity scale (SSS) score
Fatigue
Waking unrefreshed
Cognitive symptoms
For the each of the 3 symptoms above, indicate the level of severity over the past week using the following scale:
0 = No problem
1 = Slight or mild problems, generally mild or intermittent
2 = Moderate, considerable problems, often present and/or at a moderate level
3 = Severe: pervasive, continuous, life-disturbing problems
The symptom severity scale (SSS) score: is the sum of the severity scores of the 3 symptoms (fatigue, waking unrefreshed, and cognitive symptoms) (0–9) plus the sum (0–3) of the number of the following symptoms the patient has been bothered by that occurred during the previous 6 months:
(1) Headaches (0–1)
(2) Pain or cramps in lower abdomen (0–1)
(3) And depression (0–1)

The final symptom severity score is between 0 and 12
The fibromyalgia severity (FS) scale is the sum of the WPI and SSS

Wolfe F, et al. Seminars in Arthritis Rheum 2016

Use of the Fibromyalgia Severity Scale (FS)

- WPI + SSS
- 0 (no symptoms) – 31 (most severe)
- FS < 12 cannot satisfy FM criteria
- Can be approximate guide to FM diagnosis
  - In populations 92-96% of those with FS score ≥ 12 satisfy FM criteria
- Can provide approximate measure of severity
- For those with previous FM diagnosis, FS score < 12 may suggest improvement

Practical assessment in the clinic

History

- Multifocal, chronic pain not fully explained by injury or inflammation

Exam

- Tender point survey
- Firm pressure over several IP joints, phalanges, and forearms
  - Pain all over or only forearms may suggest low central pain threshold
- Tenderness at small joints only with swelling may suggest inflammatory arthritis or autoimmune disorder

Questionnaire

- 1 page 2016 questionnaire to assess WPI, SS, and FS

Practical assessment in the clinic

Lab

- No diagnostic lab
- CBC (clue for other chronic disease)
- Creatinine, calcium, AST, ALT (renal function and liver enzymes to ensure candidacy for medications, liver enzymes to clue for viral hepatitis, calcium to rule out hyperparathyroidism)
- TSH (rule out thyroid abnormality as cause of pain or somatic symptoms)
- 25-OH vitamin D (significant deficiency may be associated with osteomalacia)
- ? ESR and CRP
- ? CPK if on statin
- ANA and RF not recommended unless suspicion of Rheumatoid Arthritis or ANA-associated connective tissue disease

Specialty referral indications

- Suspected inflammatory arthritis, autoinflammatory condition, or immune-mediated defined rheumatic connective tissue disease (Rheumatology)
- Refractory to therapy (multi-disciplinary pain clinic, eg Pain and Healing Center)
- Significant comorbid psychiatric issues (Psychiatry or psychology)
- Suspected physiologic sleep disorder (Sleep Medicine)
- Neuromuscular disorder (Neurology)

Selected Indications for specialty referral of the fibromyalgia patient

Table 7
Selected indications for specialty referral of the fibromyalgia patient

Indication for Referral	Suggested Specialty
Patient or provider concerned about systemic rheumatic disease	Rheumatology consult more effective than broad serologic testing
Suspected bipolar disorder suicidal ideation, or psychiatric condition other than anxiety and depression	Psychiatry referral before medical therapy
Ongoing psychiatric care	Coordinate all medication therapy with psychiatrist
Narcotic-dependent pain	Pain specialist
Suspected statin myalgia in patient with known cardiovascular disease	Consultation with the specialty treating vascular problem to consider drug holiday or alternate therapy
Prominent neurologic symptoms or suspicion of primary muscle disorder	Neurology referral
Administrative disability claim	Referral to physician with training in disability evaluations
Inability to do even limited exercise	Physiatry and/or physical therapy
Provider or patient concern about chronic infection	Referral to Infectious Diseases

HIggs JB. Primary Care: Clinics in Office Practice. 2018

Fibromyalgia Management

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Assert the diagnosis

- Establishing diagnosis can provide substantial relief to patients[1]
- Decreased healthcare costs with fewer referrals and diagnostic testing after diagnosis of FM made[2]
- Not just a diagnosis of exclusion

1. White KP, et al. Arthritis Rheum 2002.
2. Annemans L, et al. Arthritis Rheum 2008.

Start with nonpharmacologic management

- Best studied non-pharmacologic interventions (1A level of evidence)
  - Education
  - Cognitive behavioral therapy
  - Exercise
- Magnitude of treatment response often exceeds pharmaceuticals
- Greatest benefit observed is in domain of improved function[1,2]
- Population survey suggests patients feel non-pharmacologic treatments most effective for relief of FM symptoms[3]

1. Williams DA, et al. J Rheumatol 2002
2. Goldenberg DL, et al. JAMA 2004.
3. Häuser W, et al. BMC Musculskel Disorder 2012.

Education

- Central pain, decreased pain threshold
- Not a destructive arthritis
- Multiple education visits or goal-setting visits
  - Condition, sleep, exercise, mood

- External education
  - Support groups, Arthritis Foundation
  - University of Michigan FibroGuide
    - https://fibroguide.med.umich.edu/

Pharmacologic management

- Trial of TCA compound (eg, cyclobenzaprine, amitriptyline, nortriptyline)
- Comorbid depression, consider SNRI
- Comorbid anxiety or sleep issue, consider gabapentoid
- Use of opioids discouraged
  - Endogenous opioid system is hyperactive[1]
  - May worsen FM-related hyperalgesia and increase risk of opioid-induced hyperalgesia[2]
- NSAIDs and acetaminophen may be used for peripheral nociceptive pain

1. Harris RE, et al. J Neurosci 2007.
2. Brummett CM, et al. Anesthesiology 2013.

Recommendation	Level of evidence	Grade	Strength of recommendation	Agreement (%)*
Overarching principles				
Optimal management requires prompt diagnosis. Full understanding of fibromyalgia requires comprehensive assessment of pain, function and psychosocial context. It should be recognised as a complex and heterogeneous condition where there is abnormal pain processing and other secondary features. In general, the management of FM should take the form of a graduated approach.	IV	D		100
Management of fibromyalgia should aim at improving health-related quality of life balancing benefit and risk of treatment that often requires a multidisciplinary approach with a combination of non-pharmacological and pharmacological treatment modalities tailored according to pain intensity, function, associated features (such as depression), fatigue, sleep disturbance and patient preferences and comorbidities; by shared decision-making with the patient. Initial management should focus on non-pharmacological therapies.	IV	D		100
Specific recommendations				
Non-pharmacological management				
Aerobic and strengthening exercise	Ia	A	Strong for	100
Cognitive behavioural therapies	Ia	A	Weak for	100
Multicomponent therapies	Ia	A	Weak for	93
Defined physical therapies: acupuncture or hydrotherapy	Ia	A	Weak for	93
Meditative movement therapies (qigong, yoga, tai chi) and mindfulness-based stress reduction	Ia	A	Weak for	71–73
Pharmacological management				
Amitriptyline (at low dose)	Ia	A	Weak for	100
Duloxetine or milnacipran	Ia	A	Weak for	100
Tramadol	Ib	A	Weak for	100
Pregabalin	Ia	A	Weak for	94
Cyclobenzaprine	Ia	A	Weak for	75

*Percentage of working group scoring at least 7 on 0–10 numerical rating scale assessing agreement.

Macfarlane GJ, et al. EULAR revised recommendations for the management of fibromyalgia. Ann Rheum Dis 2017

Key References

1. Higgs, JB. Fibromyalgia in Primary Care. Prim Care Clin Office Pract 2018;45:325-341.
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Thank you

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