



2010 American College of Rheumatology Adult Fibromyalgia Criteria for Use in an Adolescent Female Population with Juvenile Fibromyalgia

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Objectives To evaluate the utility of the 2010 American College of Rheumatology (ACR) adult fibromyalgia criteria for use in adolescents with juvenile fibromyalgia (JFM).

Study design Participants included 47 adolescent girls diagnosed with JFM (mean age = 15.3 years) and 48 age- and sex-matched adolescents (mean age = 15.0 years) with localized chronic pain (eg, headaches or abdominal pain). A trained examiner administered the Widespread Pain Index and Symptom Severity measures and also completed a manual tender point exam. Clinicians completed a form indicating the presence of active JFM per Yunus and Masi (1985) criteria, the only available and most commonly used measure for JFM. Criterion validity analysis was performed as well as *t* tests comparing symptoms between JFM and controls.

Results With the Yunus and Masi criteria used as the gold standard, the 2010 ACR fibromyalgia criteria showed a sensitivity of 89.4% and specificity of 87.5%.

Conclusion The 2010 ACR measure appears to be a valuable tool for the identification of JFM. However, a slight modification to the 2010 ACR measure and inclusion of a clinical exam is recommended. (*J Pediatr* 2016;169:181-7).

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At present, 2%-6% of school-age children are estimated to suffer from juvenile fibromyalgia (JFM),¹⁻³ a chronic condition of widespread musculoskeletal pain, fatigue, and poor sleep. Unfortunately, there is significant morbidity among patients with JFM, with associated poor school attendance, difficulties in physical functioning,⁴ poor social acceptance,⁵ and comorbid mood disorders.⁶ Patients often go undiagnosed for years; are referred frequently to subspecialists for symptoms of chronic headaches, chest, or abdominal pain; and undergo costly evaluations that typically reveal normal findings. Reports in adult fibromyalgia (FM) indicate annual costs to be around \$4533-\$11 049 per patient,^{7,8} which is a considerable economic burden to the health care system. Emerging evidence suggests that JFM is a condition that frequently continues into adulthood with chronic physical and psychological symptoms,^{4,9} making it important to correctly identify and treat this condition in adolescence. Yet, JFM is often underdiagnosed from a lack of awareness and lack of agreed-on criteria.

Traditionally, the diagnosis of FM in adults has been based on the 1990 American College of Rheumatology (ACR) Classification Criteria,¹⁰ which includes at least a 3-month history of widespread musculoskeletal pain and the presence of 11 of 18 tender point locations. These criteria have been criticized on the basis of 2 major points, including the controversial tender point examination and the limited acknowledgement of associated symptoms that are characteristic of FM (eg, fatigue, irritable bowel syndrome, headaches, and insomnia). In the pediatric population, criteria proposed by Yunus and Masi¹¹ nearly 3 decades ago are the only available criteria to help diagnose FM in children. Although the Yunus and Masi criterion includes assessment of associated symptoms, it also relies on the presence of 5 of 18 tender points.

The manual tender point examination is controversial, given that it is often performed incorrectly or not performed at all in clinical practice.¹² Further controversy surrounds the utility of the tender point examination because it is thought to incorporate a degree of subjectivity as well as apprehension or anxiety on the part of the patient.¹² There also has been concern that tender points appear to be somewhat arbitrary, do not discriminate types of pain, and can be exclusive such that patients who would otherwise fit the diagnosis of FM but do not suffer from enough tender points are excluded (ie, male patients). The utility of the tender point examination to examine pain sensitivity also has been diminished by newer, more sophisticated techniques that incorporate quantitative sensory testing to quantify

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ACR	American College of Rheumatology
FM	Fibromyalgia
JFM	Juvenile fibromyalgia
SS	Symptom Severity
WPI	Widespread Pain Index

pain thresholds, pain tolerance, and conditioned pain modulation in patients with FM.^{13,14}

In 2010, Wolfe et al¹⁵ proposed new criteria for the clinical diagnosis of FM in adults. These criteria include a clinician-administered tool for the Widespread Pain Index (WPI) and a Symptom Severity (SS) Scale of key characteristic symptoms as well as associated symptoms of FM (Figure). In a multicenter study, the new criteria recognized 88.1% of the 256 cases with FM defined by the original 1990 ACR classification criteria, thus proving to be an effective tool for classifying FM. Unlike previous criteria, this tool is more comprehensive by including cardinal and additional

somatic symptoms of FM, providing a quantifiable cut-off point and severity scores and eliminating the tender point examination. Two other studies have since cross-validated the 2010 ACR criteria in adults with FM.^{16,17}

Currently, there are no such studies for the classification of JFM. Hence, it is a priority to validate the adult FM ACR criteria using a similar, rapidly delivered and scored measure for general and subspecialty clinicians to help make a diagnosis of JFM more efficiently. This could further minimize costs and anxiety with unnecessary referrals and tests. A validated set of criteria for JFM also could accelerate research into this poorly understood condition. Finally, quantifying

WIDESPREAD PAIN INDEX (WPI)

A. Have you had pain in the following location(s) in the last week?

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

Part A Score = Total number of areas marked yes

SYMPTOM SEVERITY (SS)

B. How much of a problem have the following been for you during the past week?

	No problem	Slight/Mild problem, generally mild or intermittent	Moderate, Considerable problem, often present	Severe, pervasive, continuous, life-disturbing problem
Fatigue	0	1	2	3
Waking Still Feeling Tired	0	1	2	3
Concentration or Memory Problems	0	1	2	3

Part B Score: Total of all domains

C. Have you had problems with any of the following during the past three months?

Muscle pain	Headache	Sun sensitivity	Chest pain
Muscle weakness	Dizziness	Blurred vision	Hair loss
Numbness/tingling	Shortness of breath	Loss/changes in taste	Fever
IBS	Nervousness	Hearing difficulties	Thinking problem
Abdominal pain/cramps	Depression	ringing in ears	Dry mouth
Diarrhea	Fatigue/tiredness	Easy bruising	Dry eyes
Constipation	Insomnia	Frequent urination	Itching
Heartburn	Loss of appetite	Bladder spasms	Wheezing
Vomiting	Rash	Painful urination	Oral ulcers
Nausea	Hives/welts	Seizures	Raynaud's

Part C Score: 0 = No symptoms, 1= Few symptoms, 2= Moderate number of symptoms, 3= A great deal of symptoms

WPI = A Score

SS = B Score + C Score

Fibromyalgia if: WPI ≥ 7 and SS ≥ 5 OR WPI 3-6 and SS ≥ 9

Figure. 2010 ACR Criteria for FM questionnaires. IBS, irritable bowel syndrome. Adapted from Wolfe et al.¹⁵

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