



# Integration of cognitive behavior therapy plus group exercise, and its effect on juvenile fibromyalgia functional status as compared to single therapy approaches



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## BACKGROUND

- Juvenile fibromyalgia (JFM) is a poorly understood chronic pain condition, occurring more in girls
- Pain related impairment is influenced by genetics, neurobiology, and psychosocial factors
- Thought to resolve over time; new research suggest symptoms persist with no cure
- Often misdiagnosed because of overlapping features & comorbid symptoms: fatigue, nonrestorative sleep, headache, irritable bowel symptoms, dysautonomia and mood disorders
- Adult fibromyalgia mgmt. focus on cognitive behavior therapy (CBT) & pharmacotherapy (PT)
- No clinical guidelines or FDA approved medicine in adolescents
- JFM impacts psychosocial capacity & decreases quality of life

## OBJECTIVE

- In the setting of adolescents, present findings on single therapy approaches that are normally utilized in the more well-studied adult fibromyalgia population.
- Compare single therapy (CBT & PT) approaches to integrative psychosocial/CBT and physical programs.
- Evaluate efficacy in reducing JFM impact & improving functional status
- Summarize evidenced based and current best practices for JFM mgmt.

## PICO

- P** Adolescents with JFM  
**I** CBT plus group exercises  
**C** Single therapy (CBT or PT)  
**O** Improved functional status and decrease in pain amplification phenomenon

## SEARCH

**Search term**  
(juvenile fibromyalgia) AND cbt) AND exercise  
(juvenile fibromyalgia) AND cbt) AND physical  
(juvenile fibromyalgia) AND therapy) and exercise

**Database**  
Cochrane  
Ovid Medline  
PubMed

## CONCLUSION / FUTURE RESEARCH

- Structured multimodal therapy involving CBT and group exercise is more effective than the more commonly used CBT and/or medicine
- CBT while helpful in improving coping and daily functioning, it does little to reduce pain
- Group setting exercises reduced pain
- Contrary to previous thought that aerobic and isometric exercise increase immediate pain sensitivity, having gradual increase in challenge of such exercises proved to reduce pain and increase baseline strength
- Invested interest in adult fibromyalgia is paving the way for JFM work
- More needs to be done to improve recognition of JFM by peds primary care providers
- Research is interested in quantifying measures of improvement and establishing official clinical guidelines, which are not available at this time

## RESULTS

Author	Study Type	Evaluated	1° Interest	2° Interest	Findings
Kashikar-Zuck et al., 2016	Pilot, qualitative study, utilizing individual semi-structured interviews plus feedback from study staff	<ul style="list-style-type: none"> <li>Fibromyalgia Integrative Training for Teens (FIT) 8-week program: CBT with specialized neuromuscular exercise training (focused on developing core strength, conditioning, and fundamental movement skills). Tailored approach reduces risk for injury or pain.</li> <li>Designed to instill confidence in patients with JFM to safely engage in physical activity and motivate them to incorporate regular exercise.</li> <li>Exercise is an important step towards improved fibromyalgia pain control.</li> </ul>	Obtain information about: <ul style="list-style-type: none"> <li>Feasibility</li> <li>Safety</li> <li>Tolerability</li> </ul> On the intense group-based CBT & personalized neuromuscular exercise training interventions	<ul style="list-style-type: none"> <li>Gather participant feedback (overall impression and opinion on format and content)</li> </ul>	<ul style="list-style-type: none"> <li>Participants felt supported and validated. Group format allowed greater patient engagement, participation, presented opportunities to learn and motivate each other.</li> <li>Trainers' ability to modify exercises to participants increased confidence and sense of strength.</li> <li>Progressive increase in exercise challenge ensured safety and education on proper form.</li> <li>FIT is developed from an evidence-based CBT protocol integrated with a highly novel delivery of exercise (neuromuscular training) that has never been tried in JFM.</li> </ul>
Salvat et al., 2017	Retrospective, randomized, blinded, clinical trial	<ul style="list-style-type: none"> <li>3, 6, 12 mo f/u eval on functional status and exercise regularity</li> <li><u>Control</u>: Received conventional pharmacologic treatment</li> <li><u>Experimental</u>: Received conventional pharmacologic &amp; multidisciplinary (physical &amp; CBT for 2 hrs twice weekly in small groups) treatment</li> </ul>	<ul style="list-style-type: none"> <li>Fibromyalgia Impact Questionnaire (FIQ): Evaluates functional capacity</li> </ul>	<ul style="list-style-type: none"> <li>COOP/WONCA: Assesses functional status via physical fitness, mood, daily activities, social activities, pain, and overall health</li> <li>With focus on physical function &amp; daily activity</li> </ul>	<ul style="list-style-type: none"> <li>1°: FIQ values lower in the multidisciplinary group, indicating improvement</li> <li>2°: Pts with FM have decreased step length &amp; distance. Multidisciplinary tx improved distance walked and step length. Overall improved functional gait.</li> <li>Study show experimental f/u pts had improved exercise capacity and regularity. They preserved functional improvements over time. Only multidisciplinary pts returned to what is expected in normal physical activity level.</li> </ul>
Sherry et al., 2015	Prospective cohort	<ul style="list-style-type: none"> <li>Evaluated pain and motor at program entry, end of program, and 1 yr f/u</li> <li>Received 5-6 hrs PT/OT daily, ≥4 hrs psychosocial service/week</li> <li>All medications discontinued</li> </ul>	<ul style="list-style-type: none"> <li><u>Pain</u>: 1)Visual analog pain scale 2)Pain Stages of Change Questionnaire 3)Pediatric Quality of Life</li> <li><u>Motor</u>: 1)Bruininks-Oseretsky Test of Motor Performance 2)Bruce treadmill protocol</li> </ul>	N/A	<ul style="list-style-type: none"> <li><u>Pain</u>: mean score decreased from 66/100 to 25/100; p=0.01. F/u at 1 yr, 33% reported no pain</li> <li><u>Motor</u>: Remain at improved level or continue to improve at 1 yr f/u. Treadmill time increased and reached 90<sup>th</sup>ile for age and sex</li> </ul>
Tran et al., 2016	Pilot, qualitative study,	Biomechanical assessment before & after FIT treatment : <ul style="list-style-type: none"> <li>Walking gait analysis</li> <li>Lower extremity strength</li> <li>Functional performance</li> <li>Postural stability</li> </ul>	<ul style="list-style-type: none"> <li>Is 3D motion analysis sensitive for strength, balance, gait, and functional performance evaluation?</li> </ul>	N/A	<ul style="list-style-type: none"> <li>Improved gait and functional performance.</li> <li>Increased bilateral hip abduction strength and dynamic postural control</li> </ul>
Kashikar-Zuck et al., 2010	Case-controlled, prospective study	<ul style="list-style-type: none"> <li>Assess long-term outcomes of JFM patients and their matched healthy controls</li> </ul>	<ul style="list-style-type: none"> <li>Explore prognosis of pts with JFM, physical, emotional &amp; social outcomes as they enter early adulthood.</li> </ul>	N/A	<ul style="list-style-type: none"> <li>JFM pts report more widespread pain, fatigue, headaches and sleep difficulties when they reach late adolescence and early adulthood</li> <li>&gt;70% JFM pts took at least one medication for FM or associated symptoms. 1/3 were in psychotherapy</li> <li>Treatments received were focused primarily on pharmaco and psychotherapy.</li> <li>Continued problems with pain and other symptoms after 3–4 ys suggest current treatments are suboptimal, and should consider structured exercise programs.</li> </ul>

## REFERENCE

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