



Enfield Health & Wellness Center

Phone: 860-763-2225
Fax: 860-763-3161

143 Hazard Avenue
Enfield, CT 06082

www.EnfieldHealth.com

Suffield Health & Wellness Center

Phone: 860-668-5222
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162 Mountain Rd, Suite 203
Suffield, CT 06078

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Carla Fleck, PTA
Meghan K. McEvitt, PT, MBA
Katie Myers, DPT
Jennifer Meier, MPT, CLT, CKTP,
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Jennifer Cavanaugh, PTA
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Rotator Cuff Tendinopathy Corticosteroids, Rehab, Prolotherapy, or Surgery?

Rotator cuff tendinopathy affects one in five shoulders and is known to interfere with work, sports, sleep, and everyday self-care.^{1,2} Unfortunately, many cases become chronic problems. Treatments have included physical therapy, corticosteroid injections, prolotherapy, and surgery. The interplay between these approaches and which strategies to recommend at what time remains a subject of ongoing research. For instance, physical therapy may be a preferable first-line approach compared to surgery when there is a non-traumatic tear. Physical therapy costs about half of what surgical repair costs, and orthopedic surgeon Dr. Kukkonen and colleagues found that **physical therapy produces results on par with surgical repair when used as the first-line treatment.**³ Across multiple shoulder diagnoses, **corticosteroid injections are known to be more accurate and up to three times more effective when performed with ultrasound guidance.**⁴ However, while ultrasound-guided corticosteroid injections provide rapid pain relief, they do not address the underlying pathology. When corticosteroids alone are used to treat shoulder impingement syndrome, Ramirez and colleagues found that 17% later experience a full-thickness tear, even though patients reported a decrease in pain.⁵ So while corticosteroids are recommended for rapid pain relief of shoulder symptoms, physical therapy again stands out for the purpose of addressing the underlying pathology.

Inasmuch as tendinopathy involves the weakening of tendons, prolotherapy treatments offer to remediate underlying biomechanical causes in rotator cuff syndrome. Prolotherapy involves the injection of an irritant (such as 12% to 25% dextrose solution) into ligament and tendon insertions, triggering an inflammatory healing cascade. The growth factors and collagen deposition of the healing response lead to proliferation, ligament tissue remodeling, strengthening of new tissue, joint stability, decreased pain, and improved function.^{6,7} The tissue repair and strengthening has been verified in both animal and human studies.⁸⁻¹⁴ We typically recommend prolotherapy as an adjunct to physical therapy, because the prescribed movement of physical therapy can help ensure new collagen lies down in functional patterns. Prolotherapy injection of painful entheses has demonstrated clinical benefit in several tendinopathies including Osgood-Schlatter, lateral epicondylitis, Achilles' tendinopathy, plantar fasciitis, and pubalgia.¹⁵⁻²⁰ But until recently, prolotherapy had not been studied in rotator cuff tendinopathy.

Earlier this year, Helene Bertrand, MD, CCFP and colleagues published an interesting blinded, controlled study addressing some very practical questions about prolotherapy. Participants were treated at a pain medicine clinic similar to the Health & Wellness Centers of Enfield and Suffield in that it offers physical therapy and injection treatments. Participants had moderate to severe shoulder pain (average duration 7.6 years), rotator cuff tendinopathy, and ultrasound-confirmed supraspinatus tendinosis/tear. All participants received seven sessions of physical therapy (which is not a lot considering the level of chronicity). Participants were divided into three groups. All three groups received injections, but only two groups received injections onto the painful entheses. All injections contained 0.1% lidocaine. The injections between the three groups differed in that only one contained dextrose; one contained saline; and one contained saline and was injected above the entheses. The superficial saline injection was intended as a placebo. The first two groups help differentiate between the effects of the needle insertion and the effects of the dextrose that was injected. At nine-month follow-up, 59% of the entheses-dextrose group maintained clinically significant improvement compared to 37% in the entheses-saline group, and 27% in the superficial-saline group. This data suggests that **prolotherapy added to the effectiveness** of their seven-visit physical therapy intervention to an important degree. The data also suggests that the benefit may have stemmed partially from the effects of the needle insertion, but that the dextrose itself made an important contribution to the overall outcome.

The Health & Wellness Centers of Enfield & Suffield provide highly competent physical therapy, ultrasound-guided corticosteroid injections, and prolotherapy, making our centers an excellent referral destination for your patients seeking fast pain relief, remediation of underlying pathologies, and rehabilitation outcomes above and beyond that available through physical therapy alone.

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