Prolotherapy: Addressing Ligamentous Healing Deficits for Improved Musculoskeletal Outcomes

The role of ligamentous instability in chronic pain conditions often goes overlooked. Ligamentous laxity, or enthesiopathy, can be a primary cause of chronic musculoskeletal pain.¹ Even a year after a ligament injury, a large percentage of patients still have objective mechanical laxity and subjective joint instability.²³ Unhealed ligament injuries disrupt proper joint mobility and stability, causing abnormal force transmission through the joint, damaging other structures in and around the joint including cartilage. Joint instability caused by ligament deficits leads to chronic pain, diminished function, and even osteoarthritis of the affected joint.³⁻⁵ Both altered biomechanics and ongoing biochemical reactions in the synovial fluid cause cumulative damage to articular cartilage, the subchondral bone, the injured ligament, and other soft tissue structures in the given joint.⁴⁻⁶ Even painful muscle spasms can be secondary to the joint alterations caused by partially healed ligaments.¹

Exercise therapy may strengthen ligaments compared to self-directed gradual return to activity, but even then the healing will likely be incomplete. Prolotherapy, also known as regenerative injection therapy, stands apart as one of the few conservative treatments known to improve ligament strength and function over and above that available through exercise therapy. Considered non-pharmacotherapeutic and non-surgical, 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.⁷⁻⁸ Concurrent physical therapy proves useful for ensuring new collagen lies down in functional patterns. Prolotherapy treatments are shown to increase ligament size and mass, tendon hypertrophy, extracellular matrix, fibroblastic proliferation, and ligament-bone junction strength while repairing cartilage defects.⁹⁻¹¹

Studies find prolotherapy advantageous for numerous clinical presentations. In symptomatic chronic knee osteoarthritis, prolotherapy nearly doubles improvement in disability index scores compared to exercise therapy alone.¹²⁻¹⁴ Prolotherapy improves clinical outcomes in cases of refractory lateral epicondylitis,¹⁵,¹⁶ refractory Achilles tendinopathy,¹⁷,¹⁸ chronic groin pain with adductor tendinopathy,¹⁹ chronic plantar fasciopathy,²⁰ dysfunctional sacroiliac joint,²¹, ²² coccygodynia,²³ Osgood-Schlatter disease,²⁴ rotator cuff tendinopathy,²⁵ etc. Prolotherapy is one of the many physical medicine treatments now available at the Health & Wellness Centers of Enfield and Suffield - serving to further differentiate our centers from your other referral alternatives.

Physical Medicine Treatments Now Available
To enhance our ability to quickly and effectively manage your referrals for pain and joint dysfunction, the Health & Wellness Centers of Enfield and Suffield now provide physical medicine treatments in compliance with any instructions from referring practitioners. Services such as trigger point injections, cortizone injections, lidocaine injections, hyaluronic acid injections, and prolotherapy can be used to enhance rehabilitation programs for many complaints.
REFERENCES