

# **Hypertonic dextrose injections (prolotherapy) for knee osteoarthritis: results of a single-arm uncontrolled study with 1-year follow-up.**

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## **Source**

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## **Abstract**

### **OBJECTIVE:**

The objective of this study was to determine whether prolotherapy, an injection-based complementary treatment for chronic musculoskeletal conditions, improves pain, stiffness, and function in adults with symptomatic knee osteoarthritis (KOA) compared to baseline status.

### **DESIGN:**

This was a prospective, uncontrolled study with 1-year follow-up.

### **SETTING:**

The study was conducted in an outpatient setting.

### **PARTICIPANTS:**

Adults with at least 3 months of symptomatic KOA, recruited from clinical and community settings, participated in the study.

### **INTERVENTIONS:**

Participants received extra-articular injections of 15% dextrose and intra-articular prolotherapy injections of 25% dextrose at 1, 5, and 9 weeks, with as-needed treatments at weeks 13 and 17.

### **OUTCOME MEASURES:**

Primary outcome measure was the validated Western Ontario McMaster University Osteoarthritis Index (WOMAC). Secondary outcome measure was the validated Knee Pain Scale (KPS). Tertiary outcome measure was procedure-related pain severity and participant satisfaction.

## **RESULTS:**

Thirty-six (36) participants ( $60 \pm 8.7$  years old, 21 female) with moderate-to-severe KOA received an average of  $4.3 \pm 0.7$  prolotherapy injection sessions over a 17-week treatment period and reported progressively improved scores during the 52-week study on WOMAC and KPS measures. Participants reported overall WOMAC score improvement 4 weeks after the first injection session ( $7.6 \pm 2.4$  points, 17.2%), and continued to improve through the 52-week follow-up ( $15.9 \pm 2.5$  points,  $p < 0.001$ , 36.1%). KPS scores improved in both injected ( $p < 0.001$ ) and uninjected knees ( $p < 0.05$ ). Prescribed low-dose opioid analgesia effectively treated procedure-related pain. Satisfaction was high and there were no adverse events. Female gender, age 46-65 years old, and body-mass index of  $25 \text{ kg/m}^2$  or less were associated with greater improvement on the WOMAC instrument.

## **CONCLUSIONS:**

In adults with moderate to severe KOA, dextrose prolotherapy may result in safe, significant, sustained improvement of knee pain, function, and stiffness scores. Randomized multidisciplinary effectiveness trials including evaluation of potential disease modification are warranted to further assess the effects of prolotherapy for KOA.