

## Study Protocol

### Official Title:

Efficacy of Ultrasound-Guided Corticosteroid Injections Combined with Proprioceptive Neuromuscular Facilitation versus Conventional Physiotherapy in Patients with Subacromial Bursitis: A Randomized Controlled Trial

NCT number: pending

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## 1. Background and Rationale

Subacromial bursitis is a common cause of shoulder pain associated with functional limitation and reduced quality of life. Ultrasound-guided corticosteroid injections are widely used to reduce inflammation and pain, although their long-term effectiveness remains debated. Physiotherapy plays a key role in restoring shoulder function, but the optimal rehabilitation approach is still unclear. Proprioceptive Neuromuscular Facilitation (PNF) may enhance neuromuscular control and functional recovery. This study aims to evaluate the effectiveness of combining injections with different rehabilitation strategies.

## 2. Study Objective

To evaluate the effectiveness of ultrasound-guided corticosteroid injections combined with rehabilitation, and to compare PNF-based therapy with conventional physiotherapy in improving pain, function, and quality of life in patients with subacromial bursitis.

## 3. Study Design

Randomized controlled trial with two parallel groups (1:1 allocation).

## 4. Participants

Adults ( $\geq 18$  years) with chronic shoulder pain ( $\geq 3$  months) and pain intensity  $\geq 4$  on the Numeric Rating Scale (NRS).

## 5. Intervention

All participants receive 3 weekly ultrasound-guided subacromial corticosteroid injections (triamcinolone acetate 40 mg + lidocaine).

After injections:

- Experimental group: PNF-based rehabilitation (10 sessions, 2 weeks)
- Control group: Conventional physiotherapy (10 sessions, 2 weeks)

## 6. Outcome Measures

- Primary: Numeric Rating Scale (NRS)
- Secondary: DASH, EQ-5D-3L, EQ-VAS, Range of Motion (ROM)

Assessments at baseline, post-injection, post-rehabilitation, 3 months, and 6 months follow-up.

## **7. Statistical Analysis**

Data will be analyzed using repeated measures ANOVA and independent t-tests. A p-value  $<0.05$  will be considered statistically significant.