

Appraisal

Critically appraised paper: Progressive exercise is not superior to best practice advice, and steroid injection is not superior to no injection, for rotator cuff disorders

Synopsis

Summary of: Hopewell S, Keene DJ, Marian IR, Dritsaki M, Heine P, Cureton L, et al on behalf of the GRASP Trial Group. Progressive exercise compared with best practice advice, with or without corticosteroid injection, for the treatment of patients with rotator cuff disorders (GRASP): a multicentre, pragmatic, 2×2 factorial, randomised controlled trial. *Lancet*. 2021;398:416-428.

Question: Is a progressive exercise program superior to best practice advice, with or without corticosteroid injection, in adults with rotator cuff disorders? **Design:** Multicentre, pragmatic, superiority, 2×2 factorial randomised controlled trial with concealed allocation. **Setting:** Twenty United Kingdom National Health Service trusts. **Participants:** Adults aged ≥ 18 years with shoulder pain attributable to a rotator cuff disorder developed in the past 6 months. The main exclusion criteria were: significant shoulder trauma, neurological disease or other condition affecting the shoulder; corticosteroid injection or physiotherapy for shoulder pain in the past 6 months; or being considered for surgery. Randomisation of 708 participants allocated 174 to best practice advice only, 178 to injection and best practice advice, 174 to exercise only, and 182 to injection and exercise. **Interventions:** Subacromial corticosteroid injection was delivered by extended-scope physiotherapists before exercise or advice sessions, with an optional re-injection after 6 weeks. The progressive exercise program (focused on resisted shoulder external rotation, flexion and abduction) included up to six individual face-to-face physiotherapy sessions over 16 weeks, and home exercises 5 days/week. Best practice advice was delivered in a

single session with a physiotherapist, involving simple self-guided home exercises (5 days/week). **Outcome measures:** The primary outcome was the Shoulder Pain and Disability Index (SPADI) score over 12 months. Secondary outcomes included SPADI subscales, quality of life, fear avoidance, pain self-efficacy, insomnia severity, participant global impression of change, serious adverse events, return to desired activities, exercise adherence, health resource use, out-of-pocket expenses and work absence. **Results:** At 12 months, 682 (97%) participants provided primary outcomes. Over 12 months, there was no difference in SPADI scores between progressive exercise and best practice advice (adjusted mean difference -0.66, 95% CI -4.52 to 3.20). There was also no evidence of a difference between corticosteroid injection compared with no injection (adjusted mean difference -1.11, 95% CI -4.47 to 2.26). **Conclusion:** Progressive exercise was not superior to best practice advice by a physiotherapist. Subacromial corticosteroid injection provided no long-term benefit.

Provenance: Invited. Not peer reviewed.

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Commentary

This commentary focuses on the main effect of progressive exercise and best practice advice. Although the progressive exercise treatment protocol allowed for up to six sessions of exercise and advice, participants in this group attended an average of three sessions. Hence, the progressive exercise group had only a modest increase in supervision compared with the single session in the best practice advice group, and this may explain why there was no between-group difference observed for the primary outcome. Further, the authors highlight that exercise to improve strength is considered integral to management. Although more participants reported doing the prescribed exercise volume at 8 weeks (ie, five exercise sessions/week) in the progressive exercise compared with the best practice advice group (60% vs 43%), it is unclear if this translated into greater strength gains with progressive exercise. Changes in strength also depend on exercise intensity. Both groups were advised to progress exercise based on rating of perceived exertion, but exercise intensity was not reported. This introduces some uncertainty about how different the exercise interventions were. Despite these limitations, readers can be quite confident that there is no meaningful

difference between the treatment groups because the confidence intervals do not include the clinically important difference in the primary outcome of 8 points. This is a strong finding given that the progressive exercise participants knew they were receiving additional care, which would have introduced directional bias toward this group. One session of best practice advice can thus be recommended in environments similar to the UK National Health Service. As this trial recruited only people with an episode of shoulder pain within the last 6 months, findings cannot necessarily be generalised to people with a longer history who may be likely to have tried (and failed) multiple previous treatments.

Provenance: Invited. Not peer reviewed.

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