Do anabolic steroids help improve recovery from hip fractures in the elderly?

**EVIDENCE-BASED ANSWER**

The anabolic steroid, nandrolone, alone or in combination with a protein supplement, improves speed of gait and quality of life and preserves lean body mass. However, nandrolone has no effect on pain, independence in activities of daily living (ADLs), or the combined outcome of mortality and need for higher level of care on discharge (SOR: B, small RCTs).

An RCT of 63 women (mean age 81 years) living independently after hip fracture examined the effect of anabolic steroids on function and pain.¹ Patients were randomized to intramuscular (IM) nandrolone decanoate (25 mg every 3 weeks) for 1 year with vitamin D3 (0.25 mcg daily) and calcium (500 mg daily) or to control (calcium 500 mg daily). The speed of gait was evaluated in a corridor 30 meters long; pain was assessed by a 1 to 10 visual analog scale (VAS).

Compared with the control group, the anabolic steroid group had an increased mean gait speed (30 seconds per 30 m vs 46 seconds per 30 m, respectively; \(P = .009\)), but had no significant change in mean pain score (6.5 vs 5.0; \(P = .80\)).¹

An RCT of 60 women with a femoral neck fractures examined the effect of protein-rich liquid supplementation, alone or in combination with anabolic steroids, on body composition and function over 6 months.² The women were all older than 70 years with femoral neck fractures treated with internal fixation. They received a protein-rich supplement alone, the supplement with nandrolone decanoate 25 mg IM every third week, or standard treatment (control). All patients also received vitamin D (400 IU) and calcium (1,000 mg) per day. Outcomes assessed were body composition, ADLs, and health-related quality of life at 6 months. ADLs were measured by the Katz index of independence in 6 ADLs (score of 6=patient independent; 0=patient very dependent). Quality of life was measured using Euro Quality of Life scale (EuroQol), which assesses activities, pain, mood, mobility, and self-care.

At 6 months, the protein plus anabolic steroid group had an increase in lean body mass of 0.27 kg compared with decreases of 1.3 kg in the protein-supplement-alone group and 1.2 kg in the control group (\(P < .05\) for comparison of steroid vs other groups). At 6 months, more patients in the protein plus steroid and the protein-supplement-alone groups were independent in ADLs (Katz index score of 5–6) than in the control group (\(P < .005\) and .05, respectively, exact numerical results not reported). Anabolic steroid use (vs control) was associated with an increased odds ratio (OR) for any improvement in EuroQol at 6 months (OR 17; 95% CI, 11–256), an effect not seen with protein supplementation alone.²

An RCT of 29 elderly women (mean age 82 years) with hip fractures examined the effect of weekly injections of nandrolone 2 mg/kg given for 4 weeks or placebo on the combined outcome of need for a higher level of care at discharge and mortality.³ No significant difference was noted between groups in the numbers discharged to a higher level of care or mortality (risk ratio 0.75; 95% CI, 0.42–1.3). No power calculation was performed so the sample size may have been too small to detect a difference.

The quality of the evidence from all 3 studies was low due to poor randomization and lack of allocation concealment and unclear blinding.

Fheza Saleem, MD
Jeffrey F. Scherrer, PhD
Saint Louis University School of Medicine
St. Louis, MO