Supervised Rehabilitation Versus Home Exercise in the Treatment of Acute Ankle Sprains: A Systematic Review

Mark A. Feger, MEd, ATC[a], C. Collin Herb, MEd, ATC[a], John J. Fraser, MS, PT, OCS[a,b], Neal Glaviano, MEd, ATC[a], Jay Hertel, PhD, ATC[a,*]

KEYWORDS

• Ankle instability • Physical therapy • Therapeutic exercise

KEY POINTS

- Compared with home exercise programs, supervised rehabilitation results in less pain and subjective instability at 8 weeks after ankle sprain, but not at longer term follow-up points.
- Supervised rehabilitation results in greater gains in ankle strength and proprioception compared with home exercise at 4 months after ankle sprain.
- The incidence of recurrent ankle sprains in the 12 months after ankle sprain is equivocal between patients treated with supervised rehabilitation and home exercise.
- Only 11% of ankle sprain patients in the general population receive supervised rehabilitation within 30 days of being diagnosed with an acute ankle sprain.

Ankle sprains are the most common large joint injury incurred by competitive and recreational athletes.[1] Ankle sprains are also the most common recurrent injury seen in high school athletes.[2] Additionally, the long-term outcomes after ankle sprain are often poor. Up to 45% of patients report an incomplete recovery at 3 years after injury[3] and patients with chronic symptoms after ankle sprain report diminished self-reported function and being less physically active because of their ankle pathology.[4,5] Despite these outcomes, many individuals who incur an ankle sprain choose to not seek formal health

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[a] Department of Kinesiology, University of Virginia, 210 Emmet Street South, Charlottesville, VA 22904-4407, USA; [b] US Navy Medicine Professional Development Center, Bethesda, MD, USA

* Corresponding author. Department of Kinesiology, University of Virginia, 210 Emmet Street, South Charlottesville, VA 22904-4407.

E-mail address: jhertel@virginia.edu

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care for this injury.[6] Among those patients who do seek treatment, there is consensus that functional treatment allowing early motion and a return to pain-free weight bearing is preferred to prolonged immobilization for mild and moderate ankle sprains,[7–9] although a period of immobilization may be preferred in severe ankle sprains.[10]

Functional treatment typically consists of protected active range of motion, stretching exercises, and neuromuscular training emphasizing balance exercises. In many organized sports settings, including professional, intercollegiate, and many interscholastic settings, these rehabilitation programs are closely supervised by athletic trainers or physical therapists. Such treatment is ubiquitous in the practice of sports medicine in these settings; however, when patients who participate in less organized athletics incur ankle sprains, they are often not referred for supervised rehabilitation. Supervised rehabilitation is the undisputed standard of care for patients participating in highly organized athletics, but is not the usual treatment in the general population. Our primary purpose was to review the best available research literature that has investigated whether clinical outcomes differ between ankle sprain patients who perform supervised rehabilitation versus unsupervised home exercise programs. Our secondary purpose was to estimate the rate of referral of ankle sprain patients to physical therapy in an effort to determine how commonly supervised rehabilitation is used in the treatment of acute ankle sprain and assess whether it is the current standard of care in the general population.

REVIEW OF RANDOMIZED, CONTROLLED TRIALS

Review Process

A systematic search of PubMed, Web of Science, CINAHL, and Medline (OVID) databases was independently performed by 3 of the co-authors (MAF, CCH, JJF) using the search terms: ankle AND (sprain OR sprains OR [ligamentous injury] OR [ligament injury]) AND ([home program] OR care OR treatment OR rehabilitation OR therapy OR physiotherapy OR training OR rehab OR management OR exercise OR intervention) NOT (deltoid OR syndesmosis OR [high ankle]). No search limit was placed on publication date, so dates ranged from the retrospective limits of each database up to September 2014. The 3 reviewers collaborated at each stage of the study selection process, with each stage progressing only after consensus was reached between reviewers (**Fig. 1**). A total of 602 studies were initially identified and 352 remained after removing duplicates. All 3 reviewers then screened for relevant studies based on title and an additional 317 studies were removed. The final 35 studies were assessed for eligibility. After screening by abstract, only 9 studies remained and only 4 of those studies[11–14] met our inclusion criteria, as described in Review Findings. The remaining 5 studies[15–19] did not meet our inclusion criteria because they were not clinical trials comparing supervised and home exercise programs for lateral ankle sprains. The 5 studies that were screened out via full text review and the 4 included studies were cross-referenced in an attempt to identify additional studies that may have been missed in our electronic search; however, no additional studies were identified.

Studies were only included if they were a randomized, controlled trial (RCT) that compared the prescription of supervised rehabilitation to unsupervised home exercise programs following an acute lateral ankle sprain. Studies were included if they analyzed any subjective patient-reported outcome (ankle sprain recurrence, pain, subjective instability, or function) or objective laboratory or clinical measures (range of motion, strength, postural control, or joint position sense). Studies were limited to clinical trials conducted on human subjects that were written in English. We did not