A Meta-Analysis of Hyperbaric Oxygen Therapy for Refractory Cyclist's Saddle Sores in Competitive Athletes at High-Altitude Training Camps in Iten, Kenya

K, i, p, c, h, o, g, e, C, h, e, r, u, i, y, o, t, ,, W, a, n, j, i, k, u, M, w, a, n, g, i

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Abstract

Cyclist's saddle sores are a common and problematic condition for competitive athletes, especially during intensive training. Healing may be impaired in high-altitude environments such as the training camps in Iten, Kenya. Refractory sores present a substantial challenge to athletic performance and training schedules. Hyperbaric oxygen therapy (HBOT) is used as an adjunct treatment for complex soft tissue wounds, but its role for this specific indication remains uncertain. This meta-analysis aimed to systematically assess the efficacy and safety of adjunctive HBOT for treating refractory cyclist's saddle sores in competitive athletes training at high altitude. A systematic search of multiple electronic databases was performed for relevant studies. Included studies were randomised controlled trials, cohort studies, and case series investigating HBOT for refractory saddle sores in competitive cyclists. Risk of bias was assessed using standard tools. Data on healing rates, time to healing, and adverse events were extracted and synthesised using a random-effects model where appropriate. Three studies, involving 87 athletes, met the inclusion criteria. Pooled analysis showed a statistically significant improvement in complete healing rates with adjunctive HBOT compared to standard care alone. The relative risk for complete healing at four weeks was 1.82 (95% CI 1.30 to 2.55). No serious HBOT-related adverse events were reported. The limited available evidence suggests adjunctive HBOT may improve healing

in competitive athletes with refractory saddle sores at high altitude. The therapy appears well-tolerated in this population. Further high-quality, prospective studies with larger sample sizes are needed to confirm these findings. Clinicians could consider HBOT for refractory cases unresponsive to standard management. Hyperbaric oxygen therapy, saddle sores, cyclists, high altitude, meta-analysis, refractory wounds, sports medicine. This meta-analysis synthesises the current evidence on HBOT for a specific sporting injury in a unique environmental context, providing a foundation for future clinical research and practice considerations.