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Title: Influence of delayed hyperbaric oxygenation on recovery from mechanically induced damage.

Authors: Nelson, AG
Wolf Jr, EG
Li, B

Keywords: hyperbaric

Issue Date: 1994

Abstract: This study examined whether subjecting a crushed muscle to a delayed intermittent hyperbaric oxygenation protocol would facilitate healing, the marker for healing being a return toward 100% uncrushed muscle in selected mechanical, morphologic, and biochemical parameters. Thirty-six rabbits (4 groups of 9) had the right lateral head of their gastrocnemius muscle surgically crushed. After surgery, the rabbits were exposed daily for 90 min 5 days/wk to either 100% O₂ at 243 kPa, 8.5% O₂ and 91.5% N₂ at 243 kPa, 100% O₂ at 101 kPa, or 21% O₂ at 101 kPa. Initial treatments were administered 16-18 h post-muscle crush. After 10 days of treatment, maximal twitch and tetanic tension of the crushed muscle and its contralateral counterpart were measured. The muscles were then removed and analyzed morphologically, and the activity of citrate synthase, phosphofructokinase, and glucose-6-phosphate dehydrogenase were measured. The treatment group means for any of the parameters measured were not significantly different from each other. The extent of muscle damage, however, was determined to be minor as the control group recovery threshold was approximately 80%. Thus, it seems that the treatment protocol used does not facilitate healing for this type of muscle crush injury.

Description: Undersea and Hyperbaric Medical Society, Inc. (<http://www.uhms.org>)

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