

Rapid Recovery Hyperbarics

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Early administration of hyperbaric oxygen therapy in distraction osteogenesis--a quantitative study in New Zealand rabbits.

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BACKGROUND: We investigated the effect of hyperbaric oxygen (HBO) therapy on the early phase of tibial lengthening in our established rabbit model. **METHODS:** Twenty-four male rabbits (six per group) underwent right tibial lengthening by 5 mm. Group 1 then underwent 2.5 atmospheres of absolute hyperbaric oxygenation for 2 hours daily for 6 weeks postoperatively; group 2, for early 5 weeks (weeks 1-5), group 3, for late 5 weeks (weeks 2-6), and group 4 had no HBO therapy. Bone mineral density (BMD) was measured before surgery and weekly thereafter from weeks 2 through 6. The mechanical strengths of the lengthened tibias were measured. **RESULTS:** Significantly higher mean %BMDs were obtained for groups 1 and 2 compared with groups 3 and 4. There was no difference in the mean %BMD between groups 1 and 2 ($p > 0.05$). The results were similar for mean percentage maximal torque; group 1 had the maximum torque, followed sequentially by groups 2 though 4.

CONCLUSION: The study results suggest that early and full-term administration of HBO therapy on tibial lengthening may achieve better benefits.

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