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Title: Skeletal response of growing rats to continuous long-term hyperbaric helium-oxygen exposure

Authors: Syftestad, GT
Boelkins, JN

Keywords: hyperbaric
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Issue Date: 1976

Abstract: Bone growth and composition were studied in growing rats following continuous long-term hyperbaric exposure. Six groups of eight rats each were maintained at 21 ATA He-O₂ (200 mm Hg O₂) and six groups were kept in simulated test chambers under room-air conditions. One group each of pressurized and control animals were removed and analyzed after 2, 3, 5, 8, 10, and 12 weeks. Each animal was weighed and sacrificed. One femur was removed for fresh, dry, ash, and matrix weight measurement and determination of calcium and phosphorus content. The pressurized animals showed a significant reduction in body-weight gain after each exposure period. Femurs from pressurized animals weighed less than controls but had significantly greater femur/body weight percentages. Calcium and phosphorus content was normal and the ratio of matrix to mineral was unchanged. Results suggest that pressurized animals had accelerated metabolic rates and inadequate caloric intake. However, measurements of bone mineral and matrix content indicate the skeleton develops normally under hyperbaric conditions.

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

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