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Title: Dysbaric osteonecrosis in mice.

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Abstract: The histopathology of dysbaric osteonecrosis and the influence of the number of exposures, compression rate, and obesity on the incidence and latency of the lesion were studied in 438 mice (2505 bones were examined). The animals were subjected to 75 psig air pressure for 2-6 hours (single or multiple exposures). Compression was rapid or stage. Decompression was safe. Osteonecrosis developed in the epiphysis of the tibia and/or femur in 34.1 percent of obese and in 5.8 percent of thin animals after a latent period of 2 to at least 12 months. It was concluded that: 1. dysbaric osteonecrosis appears to be independent of decompression sickness; 2. in obese mice the incidence is higher and the latent period shorter; 3. multiple exposures result in higher incidence and earlier lesions than single exposure; 4. the incidence is lower with stage than with rapid compression; 5. the pathogenesis of osteonecrosis may involve several factors (circulatory impairment by extravascular or intravascular bubbles, emboli, thrombi, vasoactive substances, gas-induced osmosis, autoimmunity) acting in concert or in sequence. Animals Atmosphere Exposure Chambers *Atmospheric Pressure Bone Diseases/*etiology/pathology *Disease Models, Animal *Diving Environment, Controlled Mice Necrosis/etiology/pathology Support, U.S. Gov't, Non-P.H.S.

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