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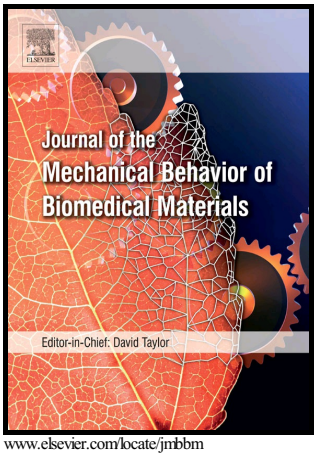

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Relationships of Bone Characteristics in MYO9B Deficient Femurs

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Abstract

The objective of this study was to examine relationships among a variety of bone characteristics, including volumetric, mineral density, geometric, dynamic mechanical analysis, and static fracture mechanical properties. As MYO9B is an unconventional myosin in bone cells responsible for normal skeletal growth, bone characteristics of wild-type (WT), heterozygous (HET), and MYO9B knockout (KO) mice groups were compared as an animal model to express different bone quantity and quality. Forty-five sex-matched 12-week-old mice were used in this study. After euthanization, femurs were isolated and scanned using microcomputed tomography (micro-CT) to assess bone volumetric, tissue mineral density (TMD), and geometric parameters. Then, a non-destructive dynamic mechanical analysis (DMA) was performed by applying oscillatory bending displacement on the femur. Finally, the same femur was subject to static fracture