

Response to Loucks et al.'s Comment on "Clinical Evaluation of Bone Strength and Fracture Risk"

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We thank Loucks and colleagues for their commentary on our recent review summarizing the methods that are currently available to evaluate bone strength and fracture risk in the clinical setting. In addition to the techniques discussed in our review [1], the mechanical response tissue analysis (MRTA) method described by Loucks et al. shows great promise in providing a non-invasive, in vivo evaluation of bone stiffness. MRTA assesses tibial/ulnar bending stiffness through analysis of the bone's frequency response to

vibrational loading [2], which has been shown to be highly predictive of the whole-bone stiffness measured through three-point bending [3]. In addition, in vivo studies have indicated that MRTA is able to detect a reduced ulnar stiffness in aged and osteoporotic subjects [4, 5], indicating its relevance to the clinical setting. We anticipate the application of the further enhanced Cortical Bone Mechanics Technology (CBMT) described by Arnold et al. [6] to a clinical model in the near future.

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