

## 1 CE Credit (self study)

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# Study Summary

## Publication

The Journal of Musculoskeletal and Neuronal Interactions

## Title

Is bone formation induced by high-frequency mechanical signals modulated by muscle activity?

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### Objectives:

- To assess the structural benefits of low magnitude vibration on bone morphology
- To determine whether bone formation and resorption are dependent upon varying frequencies of vibratory stimulation

### Design

- Subjects were given vibration therapy at either low frequency (45Hz) or high frequency (90Hz) over a 28 day period.

### Overview:

- The impact on bone formation was measured for low frequency, high frequency and control subjects.

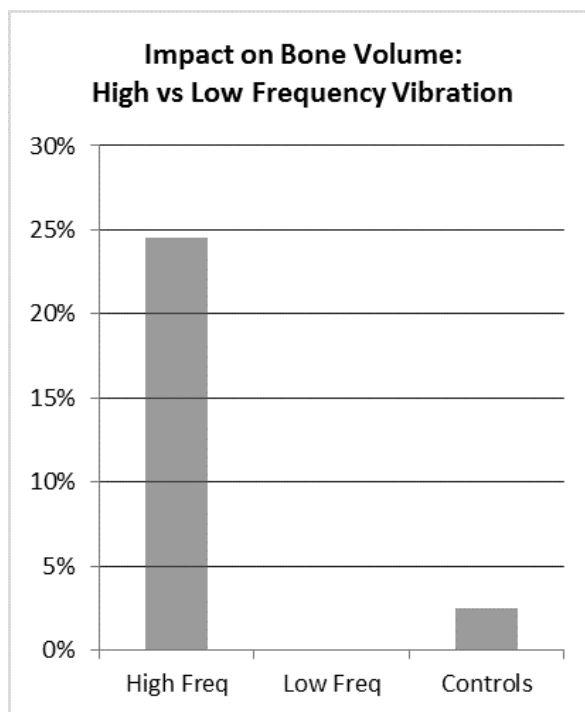
### Key Findings:

- Bone can differentiate between various frequencies of vibration in terms of remodeling
- Subjects exposed to high frequency vibration showed bone formation rates 159% greater than controls
- High frequency vibration resulted in significant increases in both trabecular bone volume and thickness
- Bone formation rates in low frequency vibration subjects (45Hz) were not statistically different than controls

### Conclusions:

The structural benefits that bone can gain through exposure to vibration are apparent

High frequency vibration caused significant impacts on bone morphology while low frequency vibration showed no statistically significant results



### Relative Impact of Frequency on Bone Morphology

*Increases in bone volume for high frequency subjects was 25% higher than controls; low frequency subjects were not statistically different than controls*

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