

# bioDensity™ A Safe, Non-pharma Treatment for Bone Health and Fracture Prevention

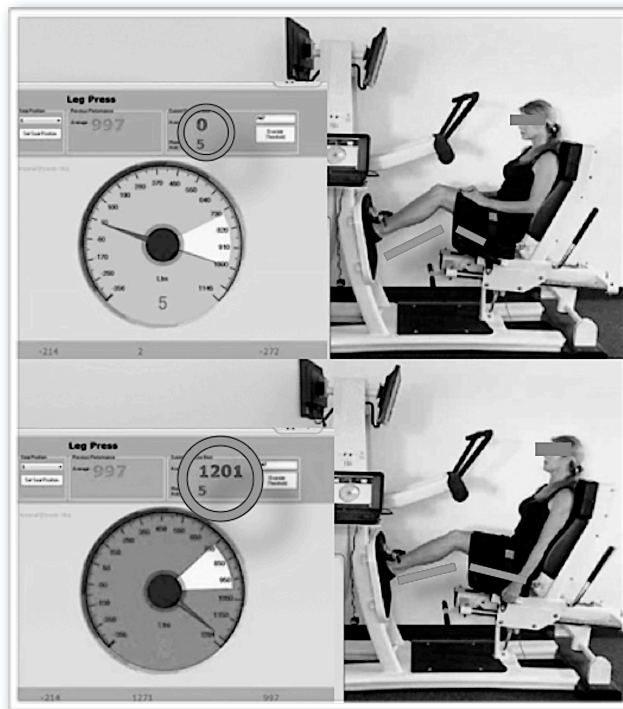
bioDensity has been developed to allow safe compression of bone, allowing stimulation of the body's natural process to increase bone density. Research has shown that one year of bioDensity use generates a significant increase in both hip and spine density reducing the risk of fragility fractures.

**Research:** Forces that briefly bend or compress bones stimulate an adaptive response of bone density growth (Wolff, 1892, U.S. Surgeon General, 2004). The bioDensity system allows individuals to self compress bone, at multiples-of-bodyweight in identified optimal positions, for safety, comfort, and effectiveness (Mookerjee & Ratamess, 1999). An analysis published in *Osteoporosis International* resulted in increases in bone density from the use of the bioDensity osteogenic loading system (Jaquish, 2013).

Analysis of 14 test subjects, average age of 62.5 years, underwent bioDensity osteogenic loading treatment on a weekly to bi-monthly basis for an average of one year. As subjects engage in bioDensity use, their ability to produce force/loading increases. As greater bone density develops, subjects can apply greater forces compounding the adaptation from one session to the next. Subjects in a separate bioDensity study increased force production, on average, 6.1% for females and 5.1% for males (Smith, et al. 2013). Subjects achieved an average of 3.1 multiples-of-bodyweight in spinal loading, and an average of 9.2 multiples-of-bodyweight in the legs/hips.

**Results: The bone density (g/cm<sup>2</sup>) measures in the subjects increased an average of 7.02% in the hip and 7.73% in the spine.** Bone density increases reached statistical significance from pre to post DXA scans (bone density analysis X-rays) ANOVA ( $P < 0.001$ ). This indicates that bioDensity can have significant effect on bone density, and can be used in a comprehensive program for prevention of fragility fractures.

**What You Should Know:** The forces applied with bioDensity are beyond those seen in conventional exercise which in itself has been shown to have positive effect on BMD (Poole, et al. 2011). The therapy provided with bioDensity shows higher forces for greater effectiveness, but indicates how users respond to the forces based on comfort as the limiting factor, making the intervention safe, controlled, and accurate with every use. It is important to point out that bioDensity is an exercise intervention, and results seen with any exercise depend heavily on the individual's commitment to the activity. With comfort as the limiting factor of force production, bioDensity has a higher level of compliance compared to other known treatments.



Above, a post-menopausal female subject is achieving leg/hip loading of 1200lbs./545kg. This is 10 multiples of her bodyweight. In the movement, the seat fixture does not move, nor does the foot plate. The visible leg extension is from compression.

## References:

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