

How bioDensity Increases Force Production

Force production is the metric that the bioDensity™ use displays to reflect changes in the body. When the use of bioDensity results in an increase in the force an individual is able to produce, the body has made adaptations. All exercise, if performed correctly, is an irritant to the body, and the body's response to the irritation is to engage protective mechanisms. The following details three adaptations of the body that occur and can be measured by force production increases with repeated use of the bioDensity device.

Bone Tissue Comfort with Greater Density

When children first begin to walk, then run and they strike the ground with their heels. This loading event during heel-strike impact delivers multiples of body weight in loading/force to their musculoskeletal systems inducing a response in growth of bone mass density. The U.S. Surgeon General states that activities that "involve impact are most useful for increasing or maintaining bone mass."¹ One of the limiting factors to this type of impact loading is user comfort in response to the loading of bone mass. This irritation stimulates the internal architectural bone matrix to become more dense in the same manner that impact does. The growth in density is a potential result indicated by the increases seen in the bioDensity force production of the user.

Neurological Amplification

By generating force in only the impact positions, users are able to recruit the greatest amount of muscular tissue. This is the reason the impact positions are the

instinctive positions for absorbing the highest loads the human body will ever have to endure. When an individual engages large amounts muscular cells in action, the cells work together more effectively over time, meaning "What fires together, wires together."² Motor learning, begins this way, and as the individual repeats and speeds the action, greater neural adaptive response takes place. Use of bioDensity engages the greatest amount of cells possible in action as the force in impact position is far beyond what can be used in conventional exercise. This directly stimulates greater neural activity. Seeing force production increases with bioDensity use indicates greater neural recruitment, which will enhance balance, speed, reflexes and posture.

More Powerful Muscle, Optimized Metabolism

With conventional resistance training, individuals irritate the regulation of fuel for contraction stored within the muscle cell. Instead, bioDensity irritates the mechanical structure of the muscle cell. The body's response to bioDensity induced irritation is to build greater density in the muscle cells³, thereby increasing the power of the muscle cell, without superficially increasing the size of the muscle. Significant muscular strength gains can be seen from just a single impact position force production experience⁴. Users of bioDensity will begin to develop greatly increased muscular power. This is easily observed in the increases in bioDensity force production. This is also the adaptation that increases energy expenditure of the user, accelerating weight-loss with the proper diet.

References

1. U.S. Surgeon General (2004). Bone health and osteoporosis: a report of the Surgeon General. Rockville, Md. : U.S. Dept. of Health and Human Services, Public Health Service, Office of the Surgeon General; Washington, D.C.: U.S. G.P.O., 2004. p.223
2. Hebb, D. (1949). The Organization of Behavior. A Neuropsychological Theory. New York, NY: Wiley.
3. Kraemer, William J.; Zatsiorsky, Vladimir M. (2006). Science and practice of strength training. Champaign, IL: Human Kinetics. p.50.
4. Mookerjee, S. Ratamess, N. (1999). "Comparison of Strength Differences & Joint Action Durations Between Full & Partial Range- of Motion Bench Press Exercise. Journal of Strength and Conditioning Research, 1999, 13 (1), 76–81 National Strength & Conditioning Association

© Performance Health Systems. All Rights Reserved. BIODENSITY is a trademark of Performance Health Systems.

This product or the use of this product is covered by US patent Nos. 7,806,806; 7,780,574; 7,775,937; 7,753,825; 7,959,540; and corresponding counterparts.

bioDensity™
www.bioDensity.com