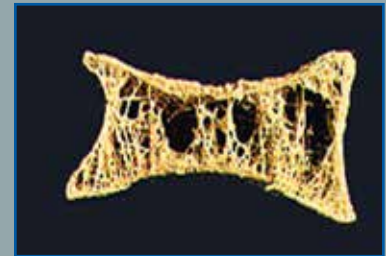


Fight Your Pain ...



Low-intensity Vibration

**The Ultimate High-Tech Therapy
for Osteoporosis & Pain Treatment**

- Bio-mechanical therapy concept**
- Medication free**
- Clinically proven**
- Easy and convenient to use**
- No side effects**
- Highly effective**



Stop Osteoporosis with Marodyne

Benefits of using Low-intensity Vibration

- Stop osteoporosis without medication
- Builds natural new bone mass
- Reduces pain & back pain
- Increases the osteointegration of implants
- Enhances muscular health, treats sarcopenia
- Better postural stability
- Improves blood circulation
- Absolutely gentle and safe treatment

Can you run **18** kilometers in **10** minutes?

This equals the stimulation Marodyne LiV gives your body every day!



Osteoporosis: Bones becoming weak

Function

Low-intensity Vibration works at the level of contributing to the physical environment, and therefore allowing a way to non-invasively control the actions of cells.

In diseases such as osteoporosis, where the normal mechanical environment is lost due to the weakened bone, Low-intensity Vibration can be effective because it, in essence, mimics this mechanical component and stimulates the body's natural responses to the biophysical stimuli to build new bone.

According to more than 25 years of research, Low-intensity Vibration acts as a safe intervention against musculoskeletal collapse. A healthy musculoskeletal system is essential to the aging process.

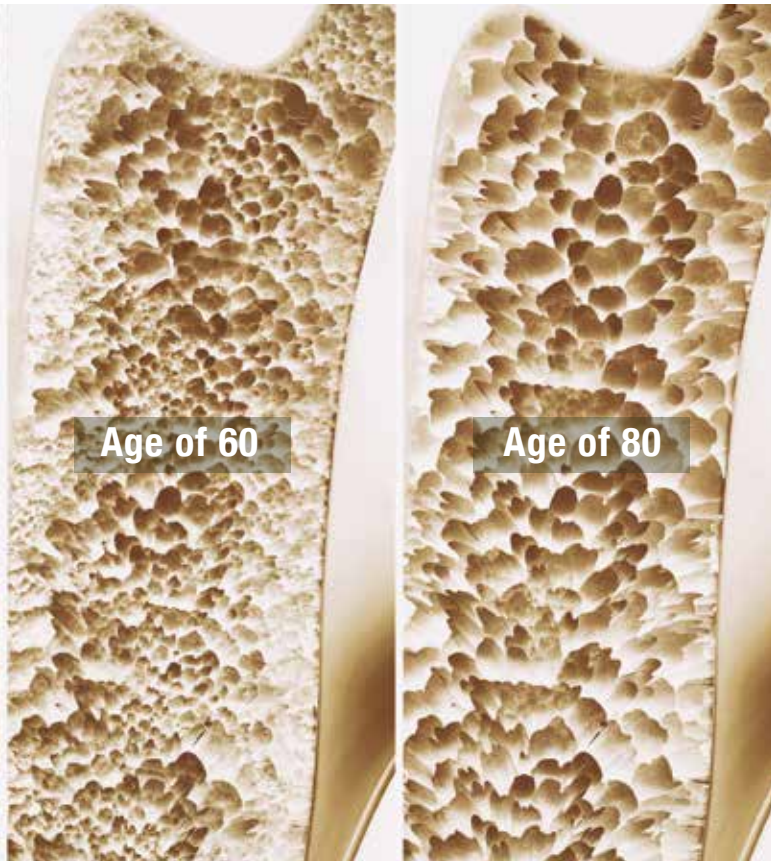
Effectiveness of Low-intensity Vibration

Research is based on how cells respond to Low-intensity Vibration. While a 0.4g acceleration does not feel like much to an individual, it is a strong signal to an individual cell.

Mesenchymal stem cells (MSCs) are an adult stem cell population primarily found in the bone marrow, and are able to differentiate into various cell types, including bone cells (osteoblasts), fat cells (adipocytes), fibroblasts, cartilage cells (chondrocytes), and muscle cells (myocytes). Studies show therapeutic potential of MSCs has increased in recent years.

Mechanical control of stem cell growth and differentiation is what makes Low-intensity Vibration applicable to many different conditions.

LiV and 10 minutes a day



...er due to hormonal changes or age

Developed with support by NASA



Treatments

- Osteoporosis – bones becoming porous, or brittle, due to hormonal changes or age
- Osteopenia – bone density levels are lower than normal
- Pain – helps reduce pain, back pain, pain of chemotherapy
- Postural stability – enhanced balance and coordination, fall prevention for the elderly
- Rehabilitation (after operations) – speeds up bone growth into the prosthesis because of a faster stem cells adsorption

No Side-Effects

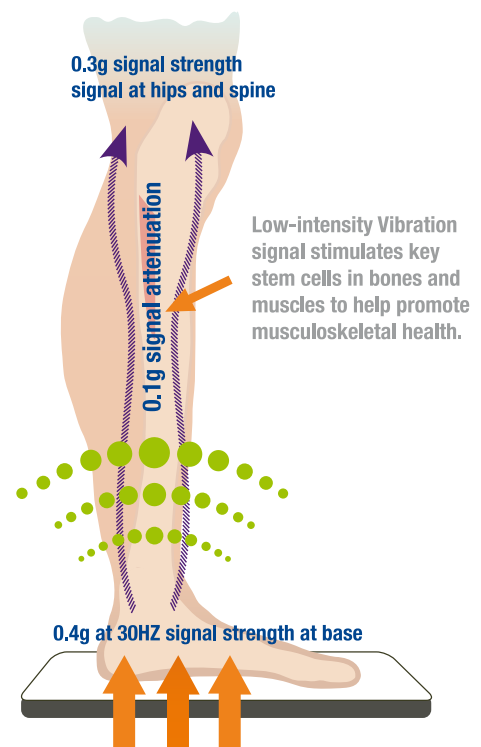
Safe solution – several decades of research have shown that Low-intensity Vibration offers a safe alternative that may stimulate muscles to help build lean mass and relieve aches and pains throughout the body.

Not Just a Matter of Magnitude:

Fundamental Differences Between Low-intensity Vibration and High-intensity Vibration

According to research focused on Low-intensity Vibration, there is a small therapeutic window where mechanical signals are effective without putting you at risk. The delivered signal has to be just right: too little or too much stimulus are both equally ineffective as therapies.

In fact, too much signal, like those found in whole body vibration devices, can be extremely dangerous, which has been emphasized in the biomedical literature.



Standing 10 minutes per day on Low-intensity Vibration provides maximal benefits to bone, muscle and stem cell health.

Message from Dr. Clinton Rubin



I have spent the entire 30 years of my scientific career trying to understand how mechanical signals influence the body. One of our key findings has been that extremely low magnitude mechanical signals, delivered in the form of Low-intensity Vibration (LiV), have the capacity to dictate the regeneration patterns of mesenchymal stem cells (MSCs)

found within the body to stimulate bone and muscle and suppress the formation of fat.

We have discovered, through our many years of scientific research, that Low-intensity Vibration promotes the building of lean muscle mass and the conditioning of muscle reflexes.

It is the goal of all biomedical scientists to see the work that we do in the laboratory translate to the clinic, to help the health and well-being of patients. It is very exciting, indeed, that we are finally achieving this goal. Thank you for considering the Marodyne LiV-Therapy as a potential mean of restoring and protecting muscular wellness. It has been a long scientific journey, but we are very, very pleased to see the application of this technology become a reality. This guide will give you all the information you need to know about Low-intensity Vibration.

Best Regards,

Clinton T. Rubin, Ph.D.

Chief Scientific Officer, SUNY Distinguished Professor & Chair Department of Biomedical Engineering Stony Brook University Stony Brook, New York



Effectiveness Proven by Studies

Our peer-reviewed studies have been featured in leading scientific journals. The journal articles have served as the foundation to build a case for a safe solution for diseases such as osteoporosis.

LiV signals help childhood cancer survivors with bone density

Kirsten K. Ness, The effects of low magnitude high frequency mechanical stimulation (LMS) on bone density in childhood cancer survivors (CCS), Podium Presentation, APTA CSM Indianapolis Feb 2015

LiV signals may prevent osteoporosis Ward, K. et al. Low magnitude mechanical loading is osteogenic in children with disabling conditions. J. Bone Miner. Res. 19, 360-369 (2004). DOI: 10.1359/JBMR.040129

LiV signals strengthen long bone

Rubin, C., Turner, S. Bain, S., Mallinckrodt, C. & McLeod, K. (2001) Anabolism: Low mechanical signals strengthen long bones. Nature 412:603-604. DOI: 10.1093/ageing/af1082

LiV signals can improve postural stability Jesse Muir, Stefan Judex, Yi-Xian Qin, Clinton Rubin: Postural instability caused by extended bed rest is alleviated by brief daily exposure to low magnitude mechanical signals Gait & Posture 33 (2011) 429-435

LiV signals accelerate and augment bone repair Goodship AE, Lawes TJ, Rubin CT.: Low-magnitude high-frequency mechanical signals accelerate and augment endochondral bone repair: preliminary evidence of efficacy. J Orthop Res. 2009 Jul;27(7):922-30

LiV signals can improve bony ingrowth of implants Rubin, McLeod - Promotion of Bony Ingrowth by Frequency-Specific, Low-Amplitude Mechanical Strain - 1994 Clin Orthop Relat Res.

LiV signals can help to reduce low back pain Holguin N, Muir J, Rubin C, Judex S (2009) Short applications of very low-magnitude vibrations attenuate expansion of the intervertebral disc during extended bed rest. doi:10.1016/j.spine.2009.02.009 in press.

LiV signals have ability to alter mesenchymal stem cells Rubin, C., Capilla, E., Luu, Y-K, Busa, B., Rosen, C., Pessin, J. & Judex, S. (2007). Adipogenesis is suppressed by brief, daily exposure to high frequency, extremely low magnitude mechanical signals. Proc. Nat. Acad. Sci. 104:17879-17884

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