

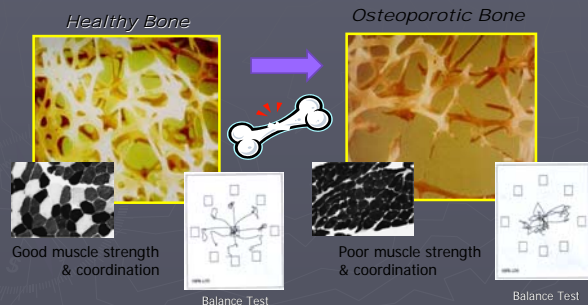
Low-magnitude high-frequency Vibration --- improves human musculoskeletal system



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Low bone mineral density + poor muscle strength
and balance ability => Fall and Fracture



What is vibration treatment ?

- ▶ Mechanical stimulation (biophysical intervention)
- ▶ Low-magnitude and High-frequency vibration
- ▶ Mild amplitude ~2mm
- ▶ Interactive Weight-bearing exercise



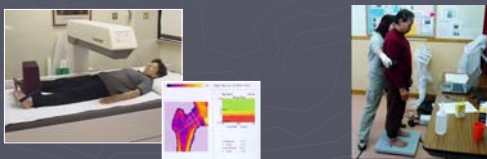
What is vibration treatment ?

- ▶ Vibration is effective in 30-50Hz (*In-born stimulating frequency)
- ▶ Research started in 2005 by Prof. KS Leung team in the Prince of Wales Hospital and shatin district
- ▶ New treatment method for osteoporosis and fracture prevention



Findings by Dept. of Ortho. & Trauma., CUHK

- ▶ LMHFV can effectively **enhance fracture healing, balance ability and bone mineral density**
- ▶ Tested in animals, postmenopausal women and elderly in community



Cont

- ▶ Fracture healings were accelerated by more than 30% (Leung, KS et al. Low-Magnitude High-Frequency Vibration Accelerates Callus Formation, Mineralization, and Fracture Healing in Rats. Journal of Orthopaedic Research 2008.)
- ▶ In LOS test: over 10% improvement in movement velocity, maximum point excursion and directional control (Cheung, WH et al. High-frequency Whole-body Vibration Improves Balancing Ability in Elderly Women. Arch Phys Med Rehabil 2007;88:852-7.)
- ▶ Hip Fracture healing enhanced
- ▶ Leg muscle strength increase in elderly

