OSTEOSTRONG©

Fracture Proof

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The Foundation to Longevity

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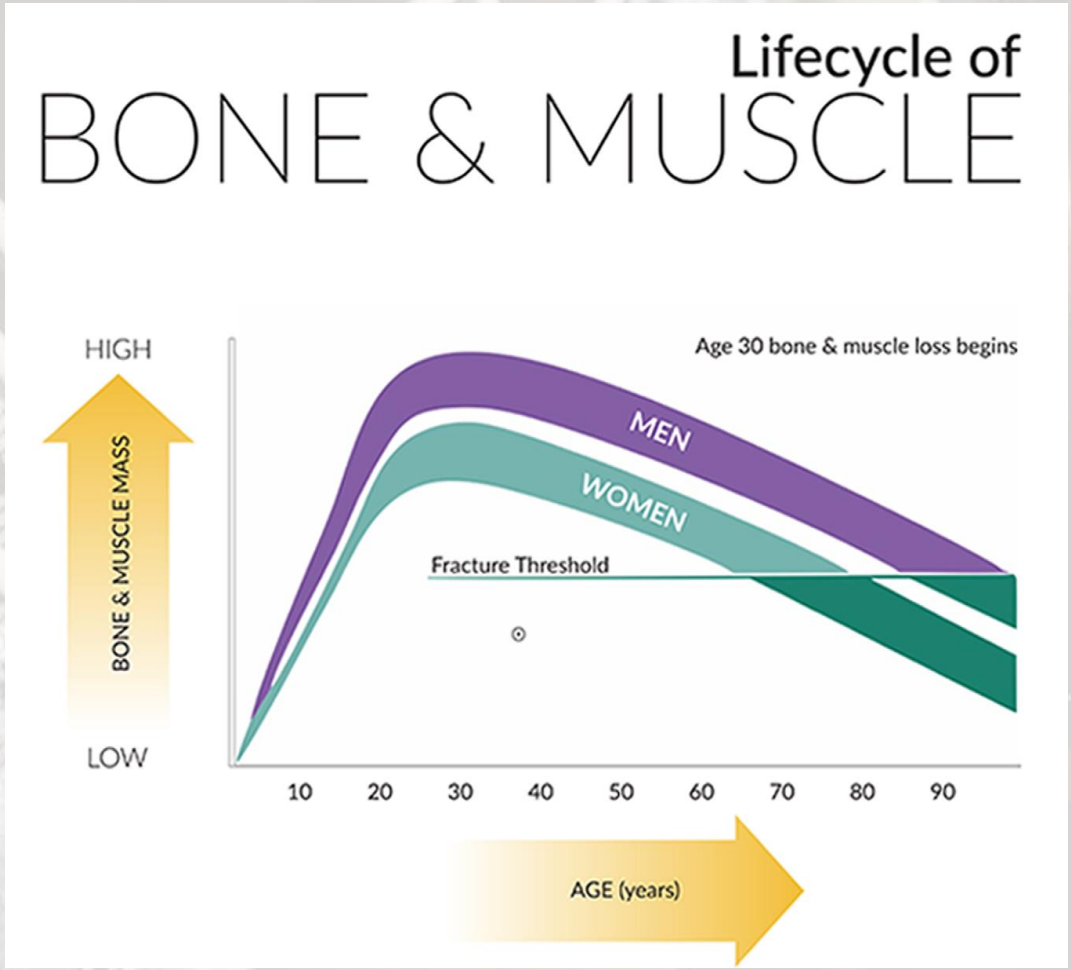

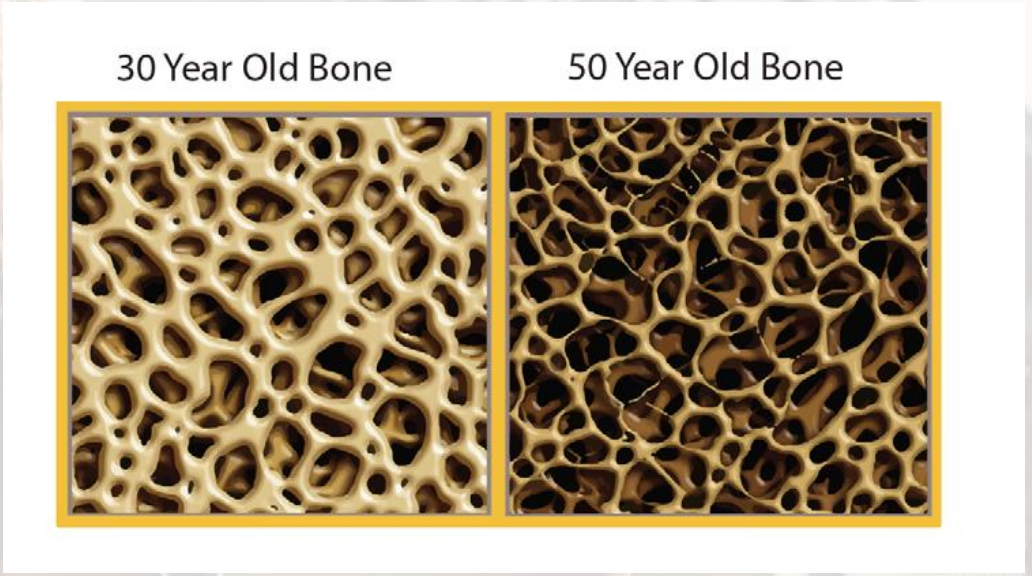

Challenges with Bone and Muscle Loss

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1. Increased risk of fractures
2. Fractured Hip over the age of 65 higher 2-year mortality than breast cancer
3. Strong correlation between osteoporosis and dimension
4. Sarcopenia (Muscle Loss) with age
5. Strong correlation between osteoporosis and Type 2 diabetes
6. Poor balance over the age of 65 increases 10-year mortality by 82%
7. Loss of athletic performance

A Serious Problem

Direct annual cost of treating osteoporotic fractures of people on average is reported to be between **5 and 6.5 trillion USD in Canada, Europe and the USA alone.**

This does not take into account indirect costs such as disability and loss of productivity. Prevention of this disease can significantly reduce the costs incurred by the health system.

Source:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7787041/

Primary Nutrients Needed for Feeding Bone

1. **Calcium – ☺ Use Plant-based**
   ☹ Avoid “calcium carbonate” or “calcium citrate”
1. **Vitamin D3**
2. **Vitamin K2**
3. Collogen
4. Phosphorous
5. Magnesium
6. Vitamin C
7. Collogen Protein
8. Boron

Most Common Things that Breakdown or Slow Bone Development

1. Sugars
2. Soft drinks and diets that increase acidity
3. Certain Medications
4. Chemotherapy
5. Hypothyroid
6. Autoimmune Diseases
7. Poor Nutrition
8. Low testosterone and estrogen

How to build bone? *Wolff and Deere*

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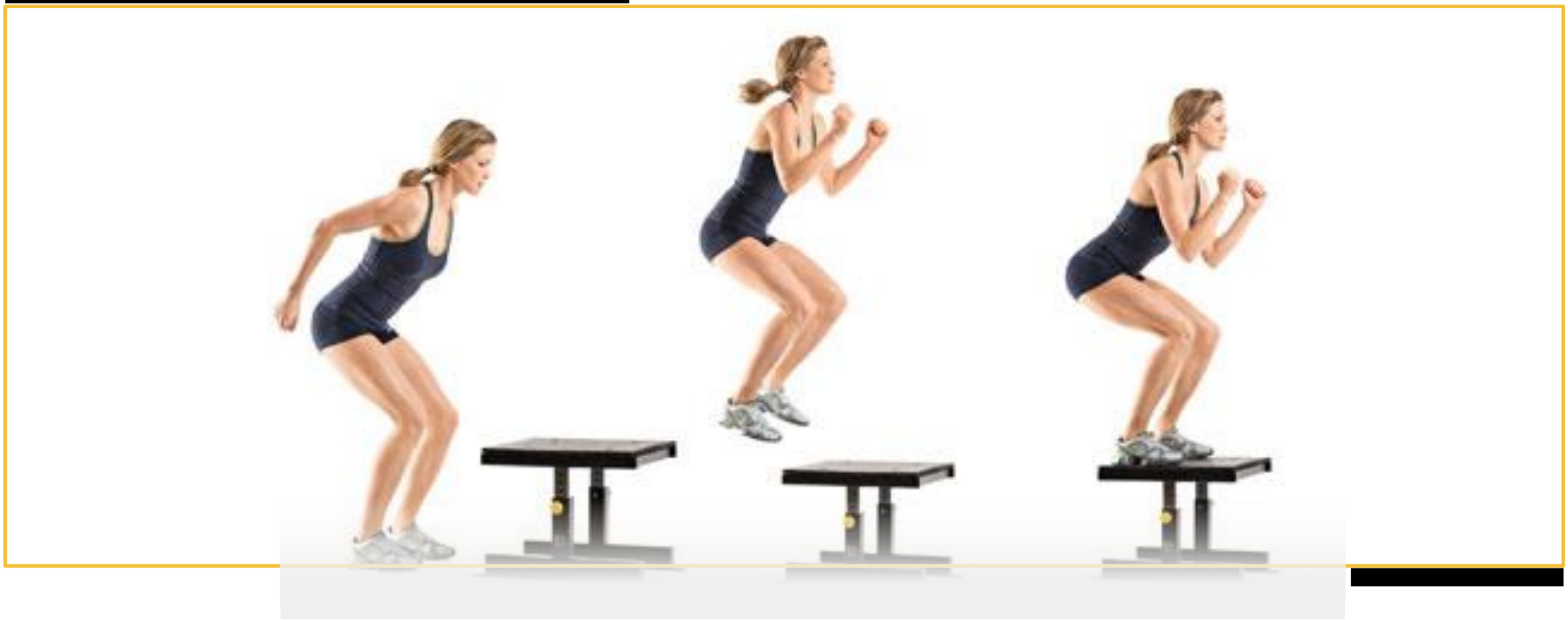
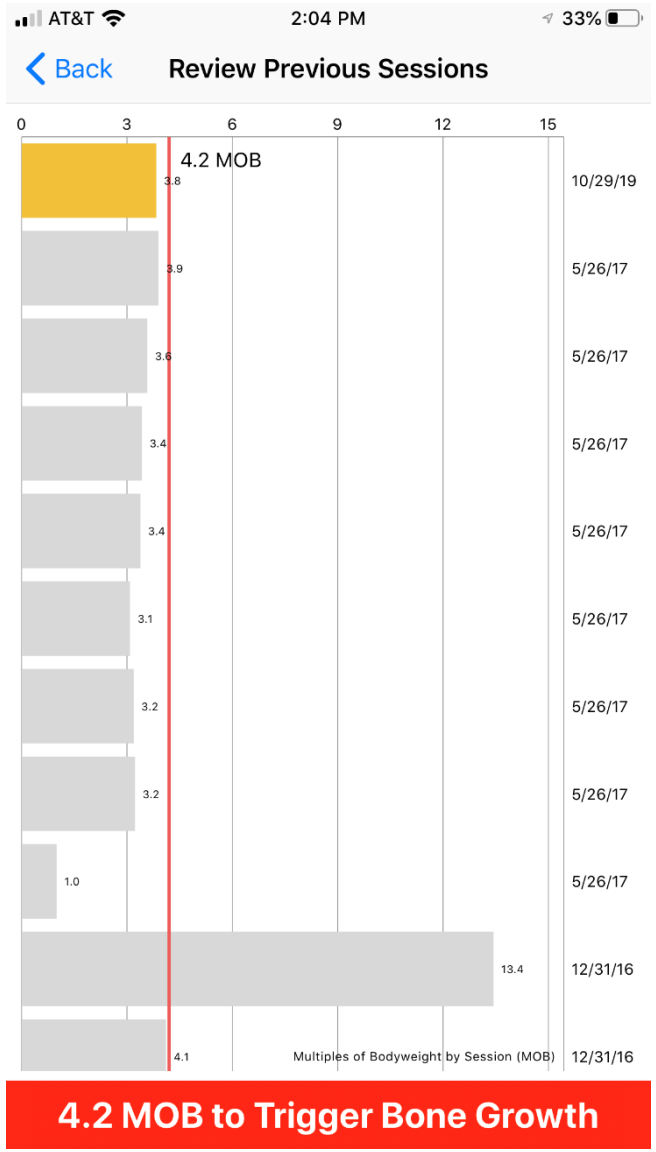
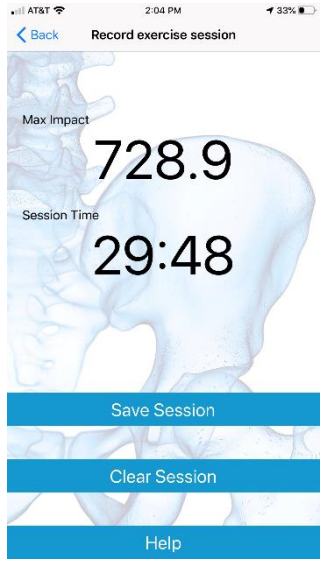
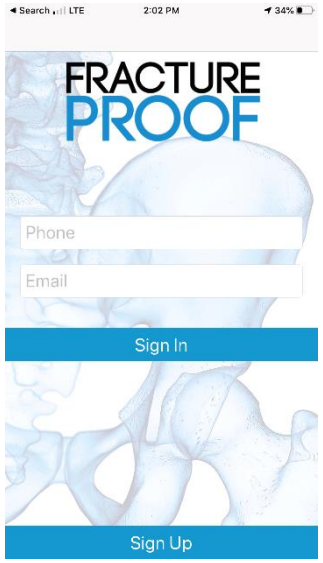


4.2 Multiples of Body Weight – Triggers Bone Growth



4.2 MOB to Trigger Bone Growth





How easy is it?

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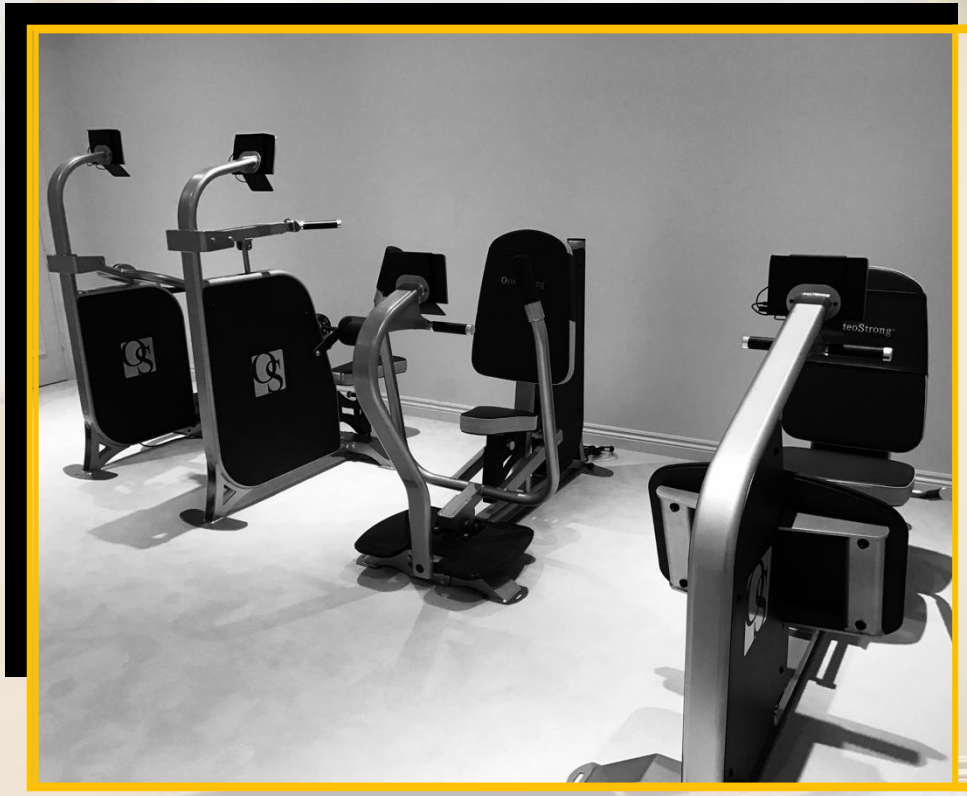

ROBOTIC MUSCULOSKELETAL DEVELOPMENT SYSTEM

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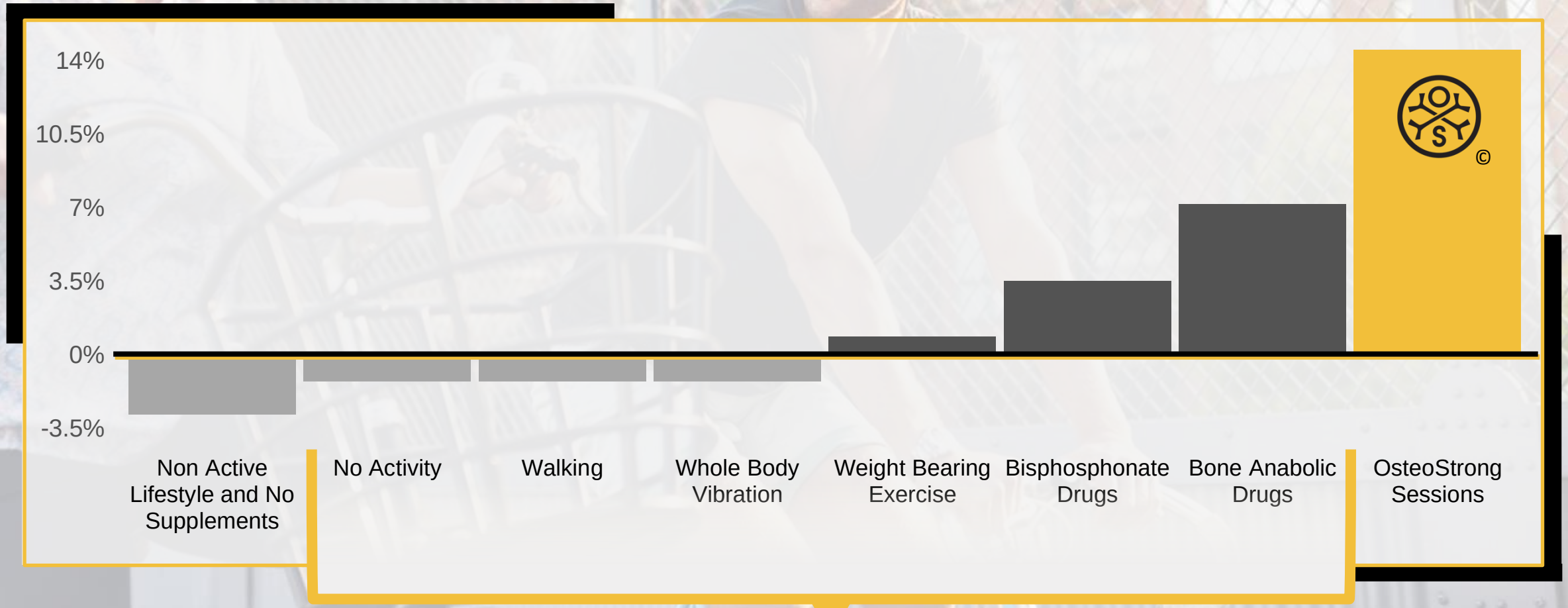
ANALYSIS FROM 152 PEER REVIEWED STUDIES



In each of these studies, participants also took
Calcium and Vitamin D3 supplements

AEROSPACE MEDICINE AND HUMAN PERFROMANCE: 2021

- PILOT STUDY
- LENGTH: **6 MONTHS**
- TITLE: Weekly Bone Loading Exercise Effects on a Healthy Subjects Strength, Bone Density, and Bone Biomarkers
- LEAD RESEARCHER: TSUNG, ANN. NASA CONTRACTOR AND COMPETATIVE POWERLIFTER

FOCUS OF THE STUDY:

AFFECTS OF OSTEOSTRONG SESSIONS IN THE AREAS OF:

- CORTICAL BONE DENSITY
  - Exterior Layer Bone - Hips and Lumbar Spine
- PHYSICAL STRENGTH: Measured with the OsteoStrong devices and with maximum effort one-repetition weightlifting.
- BLOOD TESTS FOR BONE TURN-OVER MARKERS:
  - BAP: BAP is an enzyme produced by osteoblasts, which are cells responsible for bone formation. It is a marker of bone formation and is typically elevated when there is active bone growth or remodeling.
  - NTX: NTX is a marker of bone resorption. It measures a fragment of collagen that is released during bone breakdown. Elevated NTX levels indicate increased bone resorption activity.

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AREOSPACE 2021. Continued.

RESULTS: BONE DENSITY

6.28% AVERAGE **INCREASE** IN **CORTICAL BONE DENSITY** THROUGHOUT THE BODY.

RESULTS: PHYSICAL STRENGTH

AT OSTEOSTRONG: 54% **INCREASE** IN **STRENGTH** AS SHOW ON THE OSTEOSTRONG DEVICES.

AT THE GYM: 12% INCREASE IN MAXIMUM WEIGHT LIFTED IN DIFFERENT EXERCISES AFTER FIRST 4 SESSIONS.

RESULTS BLOOD TESTS FOR BONE TURN-OVER MARKERS:

BAP (typically elevated when there is active bone growth or remodeling):

39% INCREASE

NTX1 (Elevated NTX levels indicate increased bone resorption activity)

41% DECREASE

LATEST STUDY: Greece 2023

- POPULATION: **Post-menopausal women**, with an **average age of 55 or above**.
- SUBJECTS: **140**
- LENGTH: **9 MONTHS**
- OSTEOSTRONG SUBJECTS: **70**
- CONTROL GROUP: **70**
- ½ THE SUBJECTS IN EACH GROUP WERE ON BISPHOSPHINATES MEDICATION.
- LEAD RESEARCHER: George P. Chrousos, MD

FOCUS OF THE STUDY:

AFFECTS OF OSTEOSTRONG SESSIONS IN THE AREAS OF:

- Cortical Bone Density
  - Exterior Layer Bone - Hips and Lumbar Spine
- Trabecular Bone Density
  - Interior Bone - Hips and Lumbar Spine
- Balance
- Strength
- HbA1C: Long Term Blood Glucose Levels

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OSTEOSTRONG EFFECTS ON THE LUMBAR SPINE: Greece 2023

OSTEOSTRONG GROUP:

- 2.21% **INCREASE** IN **CORTICAL BONE DENSITY**
- 1.73% **INCREASE** IN **TRABECULAR BONE DENSITY**

CONTROL GROUP:

- 0.12% **DECREASE** IN **CORTICAL BONE DENSITY**
- 1.31% **DECREASE** IN **TRABECULAR BONE DENISTY**

RESULTS:

179% GREATER IMPROVEMENT IN **CORICAL BONE DENSITY** OVER THE CONTROL GROUP.

200% GREATER IMPROVEMENT IN **TRABECULAR BONE DENSITY** OVER THE CONTROL GROUP.

THE AVERAGE **T-SCORE** FOR THE OSTEOSTRONG GROUP **INCREASED** FROM **-2.27 to -1.93**.

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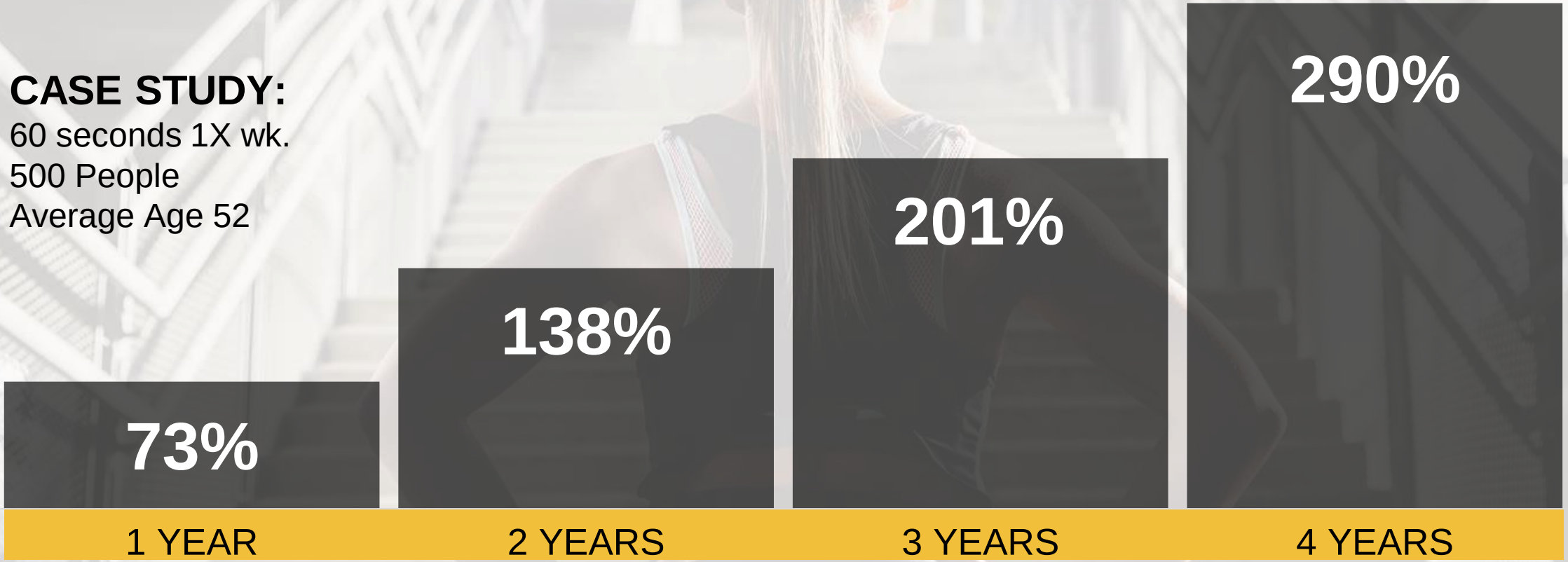
GAINS IN STRENGTH

CASE STUDY:
60 seconds 1X wk.
500 People
Average Age 52



TYPE 2 DIABETES AND WEIGHT LOSS

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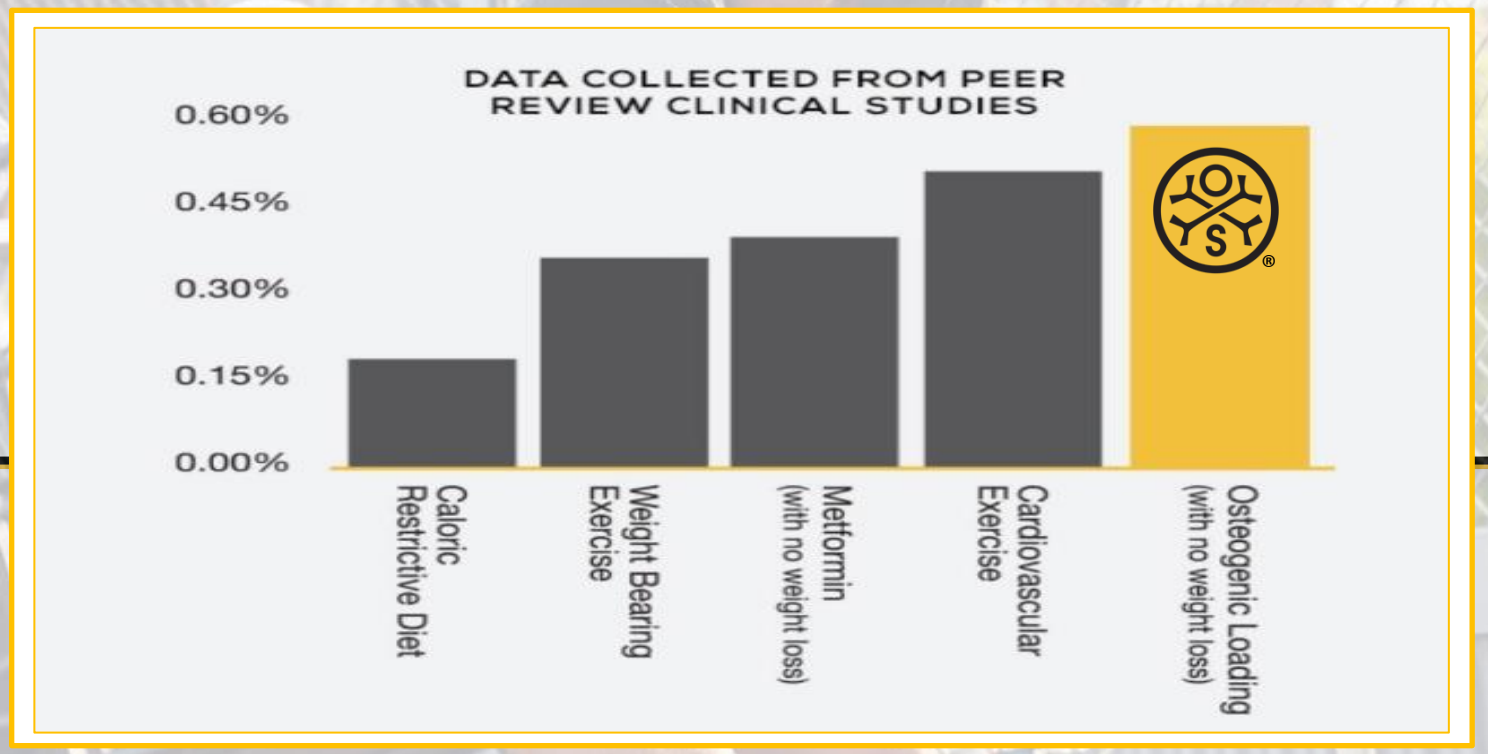
REDUCTION IN A1C



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