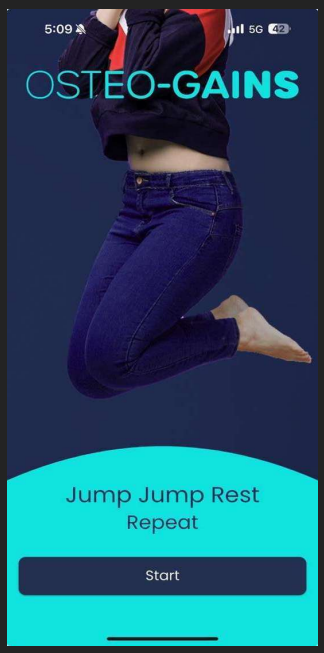


Bone Health: A Focus on Impact

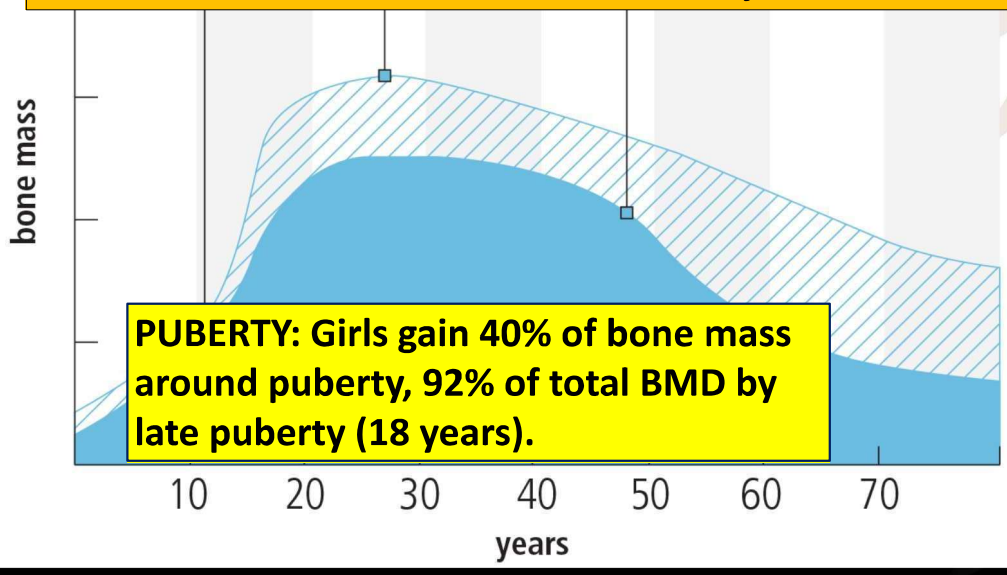
Presented by: Dr Tracey Clissold



When should we start focussing on our bones?

Bone mass throughout the life cycle

It has been theorised that achieving a 10% higher peak bone mass in young adulthood could delay the onset of osteoporosis by 13 years and reduce the lifetime risk of fracture by 50%.



PUBERTY: Girls gain 40% of bone mass around puberty, 92% of total BMD by late puberty (18 years).

Is Weight-Bearing Enough Impact?

i.e. Walking???

No… Bone Needs High Impact!



How much force?

- ❑ >3 Body Weights
- ❑ >43 Body Weights per second
- ❑ < 50 Ground Contacts
- ❑ Multidirectional

Osteogenic Thresholds??

ESSA Impact Loading for Bone Health

Table 1
Exercise prescription for the prevention and management of osteoporosis according to level of risk for fragility fracture.

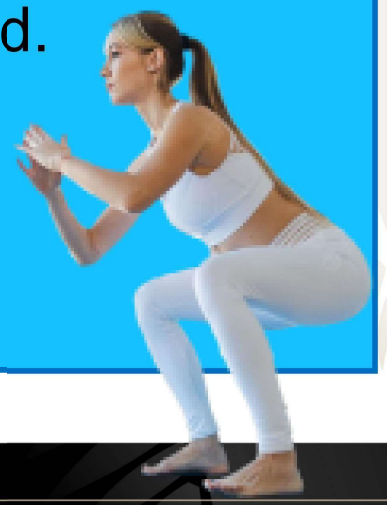
Exercise mode	Exercise components	Low-risk* individuals (prevention of OP)	Moderate-risk** individuals (prevention of OP)	High-risk*** individuals (management of OP and prevention of falls)
Impact loading	Vertical and multidirectional jumping, bounding, hopping, skipping rope, drop jumps and bench stepping. Progress BW intensity by increasing heights for activities such as bounding and drop jumping, adding weighted vests and changing directions. Impact loading can be interspersed between balance and resistance training exercises. using weighted vests, changing direct of movement	Intensity: High impact activities (>4 BW), as tolerable Frequency: 4–7 d/wk Sets/Repetitions: 50 jumps per session (3–5 sets of 10–20 repetitions with 1–2 min rest between sets)	Intensity: Moderate-to-high impact activities (>2 BW), as tolerable Frequency: 4–7 d/wk Sets/Repetitions: 50 jumps per session (3–5 sets of 10–20 repetitions with 1–2 min rest between sets)	Intensity: Moderate impact activities □ (2–3 BW), within the limits of pain, increasing as tolerated. Frail individuals will require a period of PRT to develop adequate strength to perform some impact activities. Frequency: 4–7 d/wk Sets/Repetitions: Aim to work up to 50 repetitions over time (5 sets of 10 repetitions with 1–2 min rest between sets)

* Low-risk = asymptomatic individual with normal BMD (T-score above -1.0 SD) and functional status, and no clinical risk factors for falls or fracture
** Moderate-risk = low bone mass (T-score -1.0 to -2.5 SD) and/or certain clinical or functional risk factors for fracture
*** High-risk = very low bone mass (T-score less than -2.5 SD/osteoporosis) and/or a number of clinical or functional risk factors for fracture

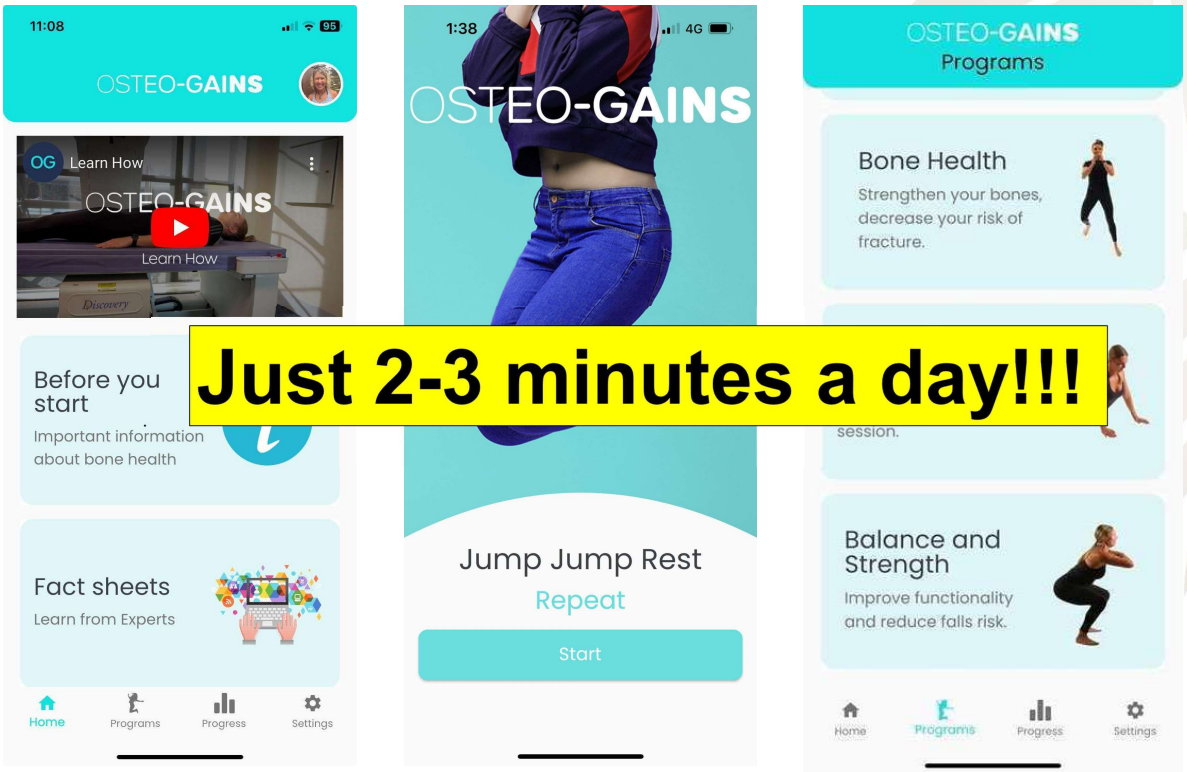
It's actually all about the landing!!!

OSTEO-Vert/ OSTEO-Star/ OSTEO-Stride

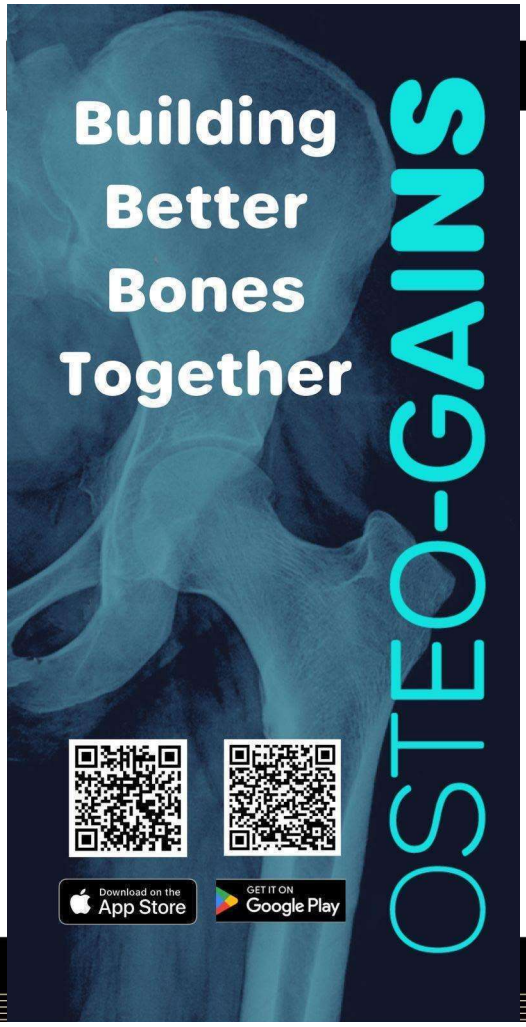
- ❑ Perform a small jump (progressing to jump higher over time)
- ❑ Land stiffly (minimal bend in knees and hips), barefooted and flat-footed.
- ❑ Immediately jump again…
- ❑ Think of the ground as LAVA!!



How to Share these Awesome Results?



Just 2-3 minutes a day!!!



Download for FREE at the Apple and Google Play Store

Bone Health: A Focus on Jump - Landings: Dr Tracey Clissold

The aim of this practical is two-fold:

1) To get as many of you to experience the 'Osteogenic Thresholds' required to stimulate Bone to satisfy the following:

I. The magnitude of force
II. The rate of force development
III. The multidirectional application of force

2) To brainstorm/ practice ways to apply optimal forces to the upper skeletal system in a safe, relative and practical way

Notes
