



Pilates for Bone Health

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WHAT I'D LOVE YOU TO TAKE AWAY FROM THIS SESSION!

1


Understand how
your bones grow
and age

2

What you can
do to improve
your bone
health


3

Educate
younger women-
knowledge is
power!



1 in 3 women and
1 in 5 men will break a
bone due to Osteoporosis

ROYAL NATIONAL OSTEOPOROSIS SOCIETY



By the age of 85 a
women will have lost
48% of her bone
density!

BONE DEVELOPMENT

- ▶ In childhood osteoblasts (bone building cells) work faster than in adult life, so the skeleton increases in density and strength.
- ▶ Between **16 to 18 years old** bones stop growing in length but bone mass increases slowly into your mid twenties..
- ▶ In your **mid 20's to early 30's** the balance of bone break down and bone renewing stays stable.
- ▶ **Middle age (35/40-55)** *bone loss begins* and increases as part of the natural ageing process.

WHERE DO HORMONES COME IN?

- ▶ Bone development requires hormones.
- ▶ **Oestrogen** for women, **testosterone** for men required for the formation of bone.
- ▶ Old worn-out bone is broken down by cells called **OsteoClasts** and replaced by bone building cells called **OsteoBlasts**.

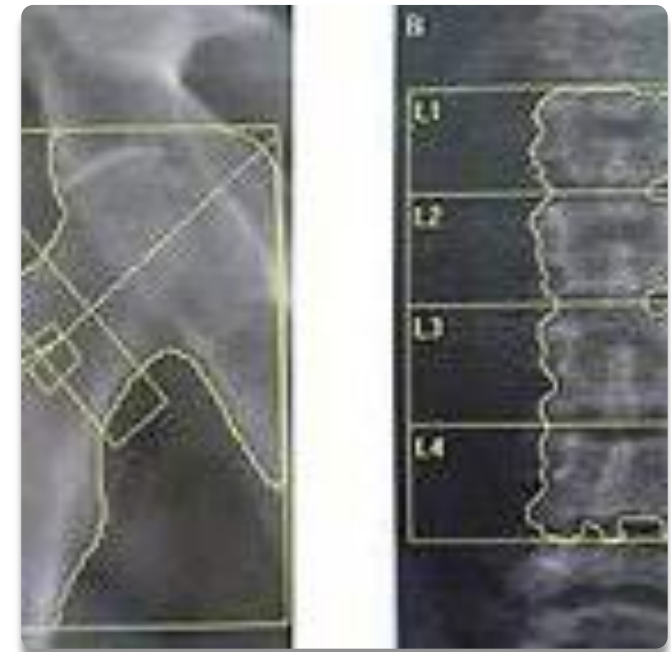
MAKING A DEPOSIT IN YOUR PERSONAL BONE BANK

Your lifestyle – *eating habits, exercise habits, movement habits* can influence how much you can ‘bank’ in your bone developing years.

Consequently this affects your likelihood.. **or not** of osteoporosis in later life..along with **genetics**.

HOW DO YOU KNOW HOW GOOD YOUR BONES ARE?

- ▶ A Dexa scan is an X ray of four of your five lumbar vertebrae and the neck of your femur.
- ▶ You are then given a T score and a Z score to show what your bone density is.
- ▶ Alongside this there is a fracture risk assessment.
- ▶ FRAX Score.



HOW DO YOU KNOW HOW GOOD YOUR BONES ARE?

▶ **What your T-score means**

- **+1 to -1** - Your bone density is in the normal range for a young and healthy person.
- **-1 to -2.5** - Your bone density is slightly below the normal range for a young and healthy person, also known as osteopenia.
- **-2.5 and below** - Your bone density is in the osteoporosis range.

▶ **Z score** measures you against someone of the same age

These only tell your GP how much bone tissue you have, it cannot show how strong it is or the likelihood of you breaking a bone.

MENOPAUSE AND POST-MENOPAUSE

- ▶ Bone loss becomes rapid in the first few years, due to ovaries no longer producing oestrogen and bone calcium levels decrease.
- ▶ First 5 to 7 years woman can lose as much as **20%** of their bone mass.
(Chopra 2002)
- ▶ Regardless of how good/dense your bones were prior menopause, every woman will experience some bone loss.
- ▶ Consequently the sooner we build up the bone bank the better.
- ▶ Encouraging children and young adults to be active and to engage in weight bearing activities and eating well is vital for a 'bone healthy' future.

MAIN RISK FACTORS

- ▶ Being a woman!
- ▶ Menopause, especially early menopause before age 45.
- ▶ Hysterectomy again esp. if early/before 45.
- ▶ Anyone with loss of menstruation, common in athletes and dancers.
- ▶ Anyone with history of eating disorders, they have the same risk factors as post menopausal women.
- ▶ Anyone who has dieted all their life.
- ▶ Low rate of bone mineral accumulation while the skeleton is still maturing from early adolescence to age 35
- ▶ Low calcium intake..ie dairy free diets.
- ▶ Smoking
- ▶ Heavy drinking
- ▶ High caffeine
- ▶ Sedentary lifestyle

MAIN RISK FACTORS CONT.

- ▶ Genetics (Caucasian and Asian women have high incidence)
- ▶ Hereditary, esp. if mother broke hip!
- ▶ Small thin frame – wrists
- ▶ Low testosterone levels for men
- ▶ Prolonged steroid use – often used for arthritis and asthma/Glucocorticoids
- ▶ Chemotherapy and Radiation treatment.
- ▶ Use of some other drugs such as Dilantin (anti epileptic), Pentobarbital, treatment for thyroid problems.
- ▶ Metabolic/gastrointestinal disorders such as Crohn's or Celiac disease
- ▶ Depression

RISK FACTORS YOU CANNOT CONTROL

- ▶ **Age.** Your chances of getting osteoporosis increase as you get older.
- ▶ **Gender.** You have a greater chance of getting osteoporosis if you are a woman. Women have smaller bones than men and lose bone faster than men do because of hormone changes that happen after menopause.
- ▶ **Ethnicity.** White women and Asian women are most likely to get osteoporosis. African American women are also at risk, but less so.
- ▶ **Family history.** Having a close family member who has osteoporosis or has broken a bone may also increase your risk.

POSSIBLE CONSEQUENCES OF A SPINAL FRACTURE

- ▶ Change in biomechanics and joint loading
- ▶ Possibility of nerve entrapment leading to neural pain.
- ▶ Scoliosis (curvature of the spine)
- ▶ Pelvic misalignment (leading to back pain)
- ▶ Decreased range of movement at hip
- ▶ Knee problems
- ▶ Increased kyphosis (dowagers hump)
- ▶ Upper cervical spine in extension leading to headaches/dizziness
- ▶ Respiratory impairment (breathing problems)
- ▶ Incontinence
- ▶ Chronic pain

DIET AND OSTEOPOROSIS

- ▶ IMPORTANT NOTE ...we are movement teachers, not Dieticians.
- ▶ The next section is for information only, because we feel it's important to understand where food fits in with Osteoporosis and some of the information was a surprise to us.
- ▶ There are many people out there offering 'nutrition' advice BUT...

DIET AND OSTEOPOROSIS

- ▶ Dietitians are the only nutrition professionals to be regulated by law, and are governed by an ethical code to ensure that they always work to the highest standard.
- ▶ Dietitians work in the NHS, private practice, industry, education, research, sport, media, public relations, publishing, government and Non Government Organisations (NGOs).
- ▶ Dietitians advise and influence food and health policy across the spectrum from government, to local communities and individuals.

DIET AND OSTEOPOROSIS

As with all things, moderation is best!

Yes there are foods and drink that can have a detrimental effect on your bone health..alcohol, caffeine, some fats, too much salt and some fizzy drinks.

If someone is consuming a lot of these, there are probably other areas of their health and well being that will also be affected.

The Royal Osteoporosis Society (ROS) website has the best and up to date advice on foods and supplements that support bone health.

Everything is checked before posting so know that it's a reliable source of information.

CALCIUM – VITAL FOR BONES!

- ▶ Your body needs calcium (as well as phosphorus) to make healthy bones.
- ▶ Your body cannot make calcium.
- ▶ The digestive system is normally very bad at absorbing calcium.
- ▶ Vitamin D is the vital link to help the gut absorb more!

VITAMIN D – HOW BEST TO TAKE IT

- ▶ It's recommended that everyone in the UK takes a Vitamin D supplement between October and March due to our climate.
- ▶ If you are dark skinned, you cover up when you are outside, if you wear sunblock for medical reasons, if you already have osteoporosis you should take a supplement **ALL YEAR ROUND!**
- ▶ There are some good sprays on the market now – an easy way to take it.
- ▶ **Better You** do a combined Vit D with Vit K.
- ▶ Vitamin K helps bind calcium and other minerals to bone and is found in green leafy vegetables.



CONSIDER HRT!

HRT IS ONLY ONE TYPE OF TREATMENT FOR THE MENOPAUSE. IT IS THE MOST EFFECTIVE TREATMENT AVAILABLE TO IMPROVE YOUR SYMPTOMS AND IT CAN ALSO WORK TO REDUCE YOUR RISK OF OSTEOPOROSIS AND CARDIOVASCULAR DISEASE.

WHY HRT?

- ▶ Oestrogen is your natural protection from Osteoporosis.
- ▶ If you have an early menopause you are at increased risk of Osteoporosis.
- ▶ Anything you can do to keep your bone turnover going will help you stay strong and prevent your risk of fracture.
- ▶ Body Identical HRT is a world away from the synthetic HRT that first appeared on the scene years ago.
- ▶ As well as osteoporosis protection it will also provide protection from coronary heart disease and dementia
- ▶ And if reduces other menopause symptoms such as brain fog, anxiety, night sweats, hot flushes etc..no brainer!



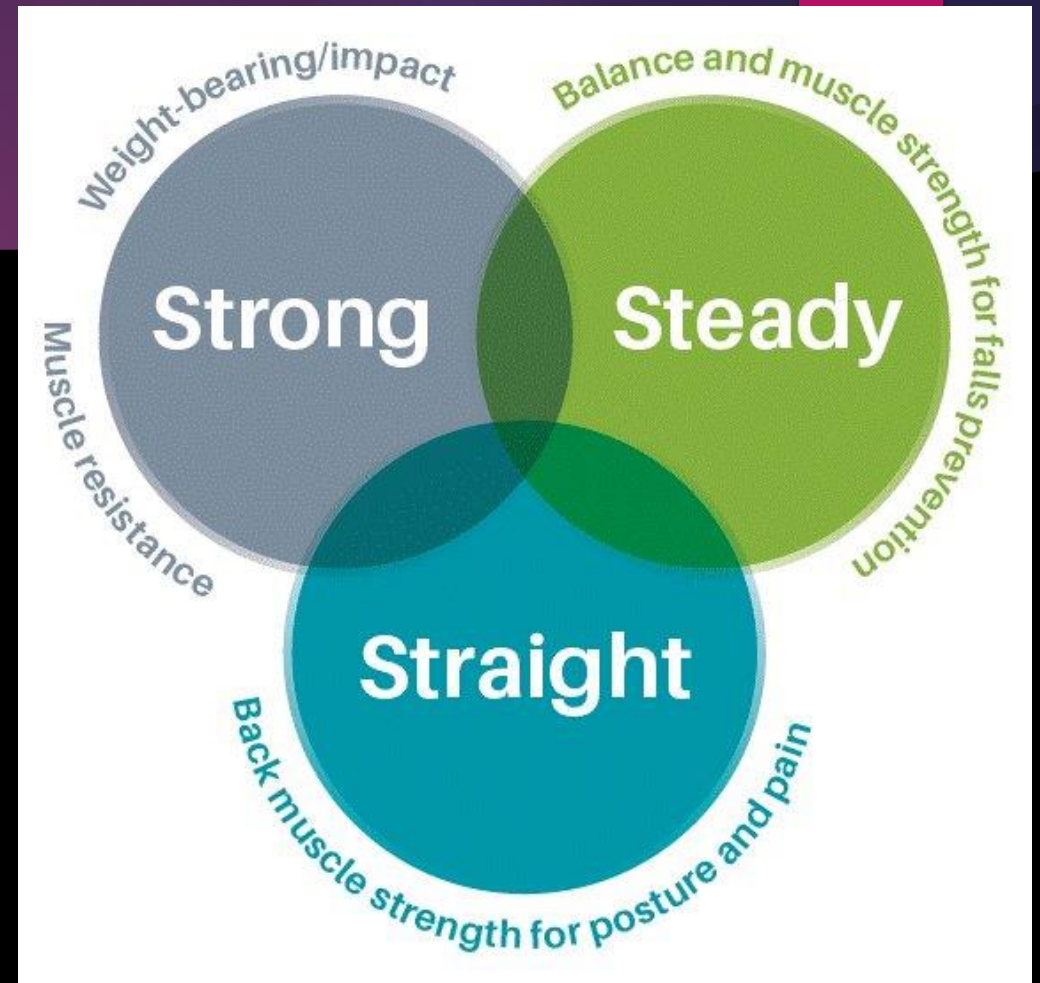
CAN EXERCISE HELP?

HECK YES.....

BUT WHAT IS THE MOST EFFECTIVE WAY?

THE ROYAL OSTEOPOROSIS SOCIETY AND EXERCISE

- ▶ In 2019 the ROS delivered their *Strong, Steady* expert consensus statement on physical activity and exercise for osteoporosis.
- ▶ It cleared up a lot of confusion about what was safe and what to avoid for anyone in the exercise world working with anyone with osteopenia and osteoporosis.



EXERCISE – HOW CAN IT STIMULATE BONE GROWTH?

- ▶ Bone responds to intensity NOT duration. i.e. it responds to a force greater than it is used to...not a repetition of the same amount of force.
- ▶ So if you started to walk every day, having not done so..at first it would respond to the movement of your body weight to bones and bone density would improve.
- ▶ HOWEVER it soon acclimatizes to that activity and so it no longer finds sufficient stimulus for bone growth.
- ▶ BUT...at least you are out and moving and getting a bit of Vitamin D!

AFTER 10 MINUTES OF REPETITIVE EXERCISE THE BONE WILL STOP RESPONDING

- ▶ So choose an exercise class where the activity is changed frequently..
- ▶ High impact exercise is recommended for premenopausal women, but not for menopausal or post menopausal women or elderly women or men.
- ▶ A combination of hip loading activities such as stepping, low impact jumps, vigorous walking, light jog, stairs, strength training with weights increases hip BDM in postmenopausal women (Dohrt et al, Welsh 1996)
- ▶ Once you reach the menopause, as well as the bone loss, its not so easy to build bone density. BUT you can achieve small gains especially when combined with nutrition and medicine.

REMEMBER PUNK POGO?

Two minutes a day of vertical jumping can produce significant improvement in bones! Not recommended for everyone, like those with joint problems and the like!



STRONG..muscle strengthening

- ▶ On 2-3 days a week - activities or exercise to feel a push or pull on the muscles (understand that mild discomfort afterwards is normal).
- ▶ For maximum benefit, depending on fitness levels, recommend increasing the intensity of exercise to work muscles harder using weights or resistance bands.
- ▶ Build up to 3 sets of exercises with 8-12 repetitions of the maximum weight that can be lifted safely.
- ▶ Exercises to strengthen back muscles will promote bone strength in the spine.

STEADY..to avoid/reduce risk of falls.

- ▶ If unsteady, over 65 and not taking regular exercise – do some challenging balance exercises 2-3 days a week.
- ▶ If repeated ‘faller’ consider referral to falls service/physiotherapist.
- ▶
- ▶ Posture training and back exercises to improve kyphosis may reduce falls risk.

STRAIGHT ..for a spine caring approach

- ▶ Correct techniques for moving and lifting including the 'hip hinge'.
- ▶ On 2-3 days a week – exercises to strengthen back muscles to help with posture with a focus on endurance by exercising at low intensity - up to 10 repetitions, held for 3-5 seconds.
- ▶ Daily exercises to relieve back pain.
- ▶ Consider physiotherapy referral for painful fractures or mobility problems.

WHAT ARE OUR EXERCISE AIMS?

- ▶ We want to....
- ▶ Improve your body awareness and proprioception (knowing/feeling where your body is in space!)
- ▶ Improve your posture, postural awareness, elongate your spine to prevent further damage and spinal compression.
- ▶ Improve your breathing efficiency, particularly helpful with kyphotic postures because of the ribs compression.

EXERCISE AIMS CONT.

- ▶ Improve your joint mobility, particularly at your hips.
- ▶ Improve core control
- ▶ Improve your pelvic floors
- ▶ Improve your overall muscle strength and flexibility
- ▶ Help you prevent falls so co-ordination and motor patterns, balance and righting reflexes
- ▶ QUITE A LOT TO DO...so please get moving!

BONE UP ON YOUR BONE HEALTH

- ▶ Go to the NOS website and find the diet sheet advice
- ▶ Keep a food diary and see what your intake of Calcium and Vit D is and what else you could add to your diet that you don't already consume.
- ▶ Get your Vit D levels checked with a blood test.
- ▶ Do your FRAX online assessment
- ▶ ***SHARE THE HECK OUT OF THIS SESSION WITH EVERY WOMAN YOU KNOW OF ALL AGES, BUT ESPECIALLY YOUNGER WOMEN.***

Don't be in the dark about
your bone health!

THANK YOU....FEEDBACK WELCOME

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