Osteoporosis, Osteopenia and Bone Health

What you can do • What your healthcare team can do

Community Health Talk
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Where we are going

- What healthy bone does, and what changes with age
- Osteopenia, osteoporosis, DXA scans and fracture risk
- Exercise, food, vitamin D and falls prevention
- What your GP or clinician can assess and treat
- Medicines, including bisphosphonates and denosumab
- Common concerns, then questions

Bone is living tissue

It is constantly being renewed

Building and repair

- Old or damaged bone is removed
- New bone is laid down
- Muscle pull and weight-bearing activity stimulate bone
- Calcium, vitamin D, protein and hormones all matter

What changes with age

- Bone formation gradually falls behind bone loss
- Loss accelerates around the menopause
- Muscle strength and balance may also decline
- The result can be weaker bone and greater falls risk

The outcome that matters is fracture

A scan result is useful.

A fracture is what we are trying to prevent.

Pain and loss of confidence

Loss of movement and independence

Hospital care and future fracture risk

A “fragility fracture” usually follows a fall from standing height or less, or another low-trauma event.

DXA: measuring bone mineral density

T-score

Normal	**−1.0 or above**	Risk still depends on the whole person
Osteopenia	**Between −1.0 and −2.5**	Lower bone density, but not automatically a reason for medicine
Osteoporosis	**−2.5 or below**	Higher fracture risk, interpreted alongside other factors

There is no sudden biological cliff edge between −2.4 and −2.6.

We treat fracture risk, not just a DXA number

Two people can have the same T-score but very different risks.

Risk may be lower

- Younger age
- No previous fracture
- Good strength and balance
- No major medicines or illnesses affecting bone

Risk may be higher

- Older age
- Previous fragility fracture
- Parent fractured a hip
- Steroid treatment or other clinical risk factors

FRAX: putting the risk factors together

- Estimates the chance of a major osteoporotic fracture and hip fracture over 10 years
- Uses age, sex and clinical risk factors
- Can be calculated with or without a DXA result
- NOGG thresholds help decide whether to reassure, arrange DXA, treat, or seek specialist advice

Questions about smoking, alcohol, family history and steroid use are part of the calculation, not a judgment.

What can I do? Four foundations

1

Move and load bone

Weight-bearing activity

2

Build muscle

Resistance exercise

3

Practise balance

Reduce the chance of falls

4

Fuel the body

Protein, calcium and vitamin D

Medicines can reduce fracture risk, but they do not replace strength, balance and good nutrition.

Exercise: bones, muscles and balance need different things

Aim to include

- Weight-bearing activity: walking, stairs, dancing or suitable impact activity
- Muscle strengthening on at least 2 days each week
- Balance work, especially if older or unsteady
- Gradual progression rather than a sudden intense programme

Adapt if needed

- After vertebral fracture or with significant pain, seek tailored advice
- Avoid repeated loaded spinal bending if vertebral fracture risk is high
- Choose activities that are safe with your health conditions
- Physiotherapy can help after falls or fractures

Walking is excellent for health, but walking alone is not the complete exercise prescription for ageing bones.

Food, calcium and vitamin D

Food first where possible

- Regular protein supports muscle and recovery
- Calcium sources include dairy foods and calcium-fortified alternatives
- Some fish, pulses and green vegetables contribute
- Avoid undernutrition and unintended weight loss

Supplements are individual

- Vitamin D is commonly advised when sunlight exposure is limited
- Calcium tablets are not automatically needed if dietary intake is adequate
- Some treatments require calcium and vitamin D to be sufficient
- Check with a clinician if you have kidney disease or high calcium levels

Falls prevention is fracture prevention

- Address dizziness, faintness and medicines that increase falls risk
- Check eyesight, hearing, feet and footwear
- Improve lighting and remove trip hazards at home
- Keep frequently used items within easy reach
- Build leg strength and practise balance
- Seek assessment after recurrent falls or a significant unexplained fall

A highly effective bone medicine cannot prevent every fracture if falls risk remains high.

What can the GP or clinician do?

Assess

- Clarify whether a fracture was low trauma
- Calculate FRAX and decide whether DXA is useful
- Review medicines and medical conditions
- Look for important secondary causes where appropriate

Act

- Treat vitamin D deficiency or inadequate calcium intake
- Discuss bone-protective medicines when benefit outweighs risk
- Address falls, frailty and medication burden
- Monitor treatment and respond to new fractures or side effects

When is medication considered?

Usually when the person's future fracture risk is high enough that treatment benefit is likely to outweigh inconvenience and harm.

- After some fragility fractures, particularly hip or vertebral fracture
- When FRAX and NOGG indicate high or very high risk
- When osteoporosis is present alongside important clinical risk factors
- During prolonged oral corticosteroid treatment in people at sufficient risk
- Very high-risk patients may need specialist assessment for bone-building treatment

Main medication options in general practice

Option	How given	Typical role
Alendronate / risedronate	Tablet, usually weekly	Common first-line treatment
Zoledronic acid	Intravenous infusion	When oral treatment is unsuitable or adherence is difficult
Denosumab	Injection every 6 months	Effective antiresorptive option; timing and exit plan are critical
HRT	Tablet or patch/gel regimen	Selected younger post-menopausal women after individual risk assessment
Specialist treatments	Injections or infusions	Very high fracture risk: teriparatide, abaloparatide, romosozumab and others

The best medicine is the one that is appropriate, safe and realistically deliverable for that individual.

Denosumab: effective, but time-sensitive

What it does

- A monoclonal antibody that blocks RANKL
- Reduces the activity of bone-resorbing cells
- Given as a 60 mg injection every 6 months
- Reduces vertebral and other fracture risk in appropriate patients

What patients need to know

- Pre-dose checks commonly include calcium, vitamin D and renal function
- Attend blood tests and injections on time
- Do not stop or delay it without a clinical plan
- If it must stop, another antiresorptive treatment is usually needed

The key difference: its protection wears off quickly when doses are missed or treatment is stopped.

Teeth, jaw problems and thigh pain: keeping risk in perspective

Dental health

- Medication-related osteonecrosis of the jaw is rare at osteoporosis doses
- Good oral hygiene and regular dental care reduce problems
- Tell your dentist the name and date of bone treatment
- Do not stop treatment independently for dental work

Symptoms to report

- Persistent exposed bone, non-healing mouth lesions or unusual jaw symptoms
- New persistent thigh or groin pain
- Symptoms suggesting low calcium after denosumab, if advised you are at risk
- Any new fragility fracture while on treatment

For denosumab, dental procedures may need careful timing, but the next injection must not simply be allowed to drift.

Case study: Jane, aged 68

- Enjoys walking
- BMI 22
- Stopped smoking 15 years ago
- Mother fractured her hip aged 78
- Recently fractured her wrist after a fall from standing height
- DXA result: osteopenia

Does Jane have a bone-health problem?

Yes: the fracture, age, family history and DXA result need to be considered together.

Next steps: FRAX/NOGG assessment • review falls and secondary causes • lifestyle plan • discuss medication if risk is high enough

Five things to remember

1. Osteoporosis care is about preventing fractures, not treating a scan.
2. Osteopenia can still matter when other fracture risks are present.
3. Strength, balance, nutrition and falls prevention are active treatment.
4. Medicines reduce fracture risk when used for the right person.
5. **Do not stop osteoporosis treatment, especially denosumab, without advice.**

Questions

What would you like to explore further?

Common topics

- “My scan says osteopenia. Should I worry?”
- “Are calcium tablets good for everyone?”
- “What if I cannot tolerate alendronate?”
- “Can I have dental treatment while taking bone medicine?”
- “How long will I need treatment?”

This presentation gives general information and cannot replace individual medical advice.