National Osteoporosis Society

Strong, Steady and Straight: Physical Activity and Exercise for Osteoporosis

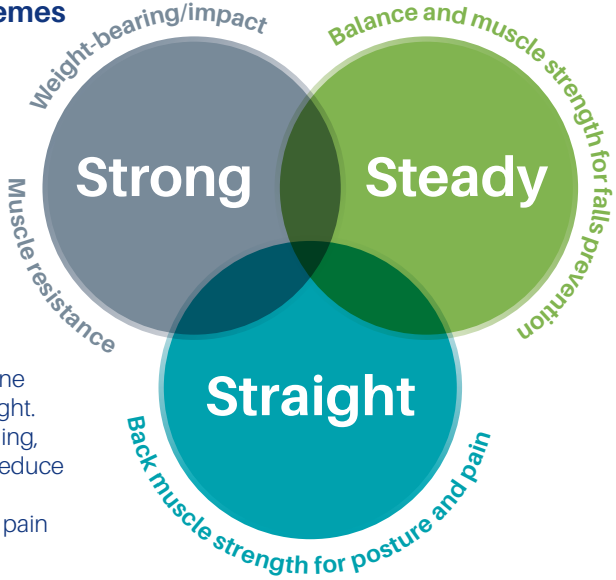
Quick guide: summary (for use in conjunction with full Expert Consensus Statement)

The statement is structured around important themes for osteoporosis:

STRONG – the types and amount of exercise and physical activity needed to promote bone strength.

STEADY – the importance of including exercise and physical activity to reduce falls and resulting fractures.

STRAIGHT – a focus on 'spine care', keeping the back straight. A positive approach to bending, moving and lifting safely to reduce the risk of vertebral fracture, improve posture and relieve pain after vertebral fracture.



Key Principles

Physical activity and exercise has an important role in the management of osteoporosis – promoting bone strength, reducing falls risk and managing symptoms.

People with osteoporosis should be encouraged to do *more* rather than less. Adopt a positive and encouraging approach – 'how to' rather than 'don't do'.

Physical activity and exercise is not associated with significant harm including vertebral fracture – though some caution is advised, the benefits of physical activity and exercise outweigh the risks.

Professionals should avoid restricting physical activity and exercise unnecessarily according to bone mineral density (BMD).

People with painful vertebral fractures need clear and prompt guidance on how to adapt movements involved in day-to-day living, and exercises for posture and pain.

Strong – for bone strength

Weight-bearing/impact exercise

- Most days of the week; build up to 50 moderate impacts (i.e. low level jumping, jogging, dancing, hopping).
- If frail, less mobile or has vertebral or multiple low trauma fractures – up to 20 minutes of lower impact activity (e.g. walking).
- Avoid sitting for long periods.

Muscle strengthening (with increasing resistance)

- On 2-3 days a week - activities or exercise to feel a push or pull on the muscles (explain 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 reduce 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 – 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.

SAFETY – Adopt a positive encouraging approach – explain that fractures are rarely caused by exercise and the benefits outweigh the risks.

With osteoporosis

- Recommend correct techniques when using weights or resistance bands, gym equipment – get specialist advice if unsure.
- Recommend modification of exercises that involve end range sustained repeated forward bending unless you are using the 'hip hinge'/are very experienced/have very good muscle tone and control.
- Always increase intensity gradually and tailor according to individual fitness and ability.

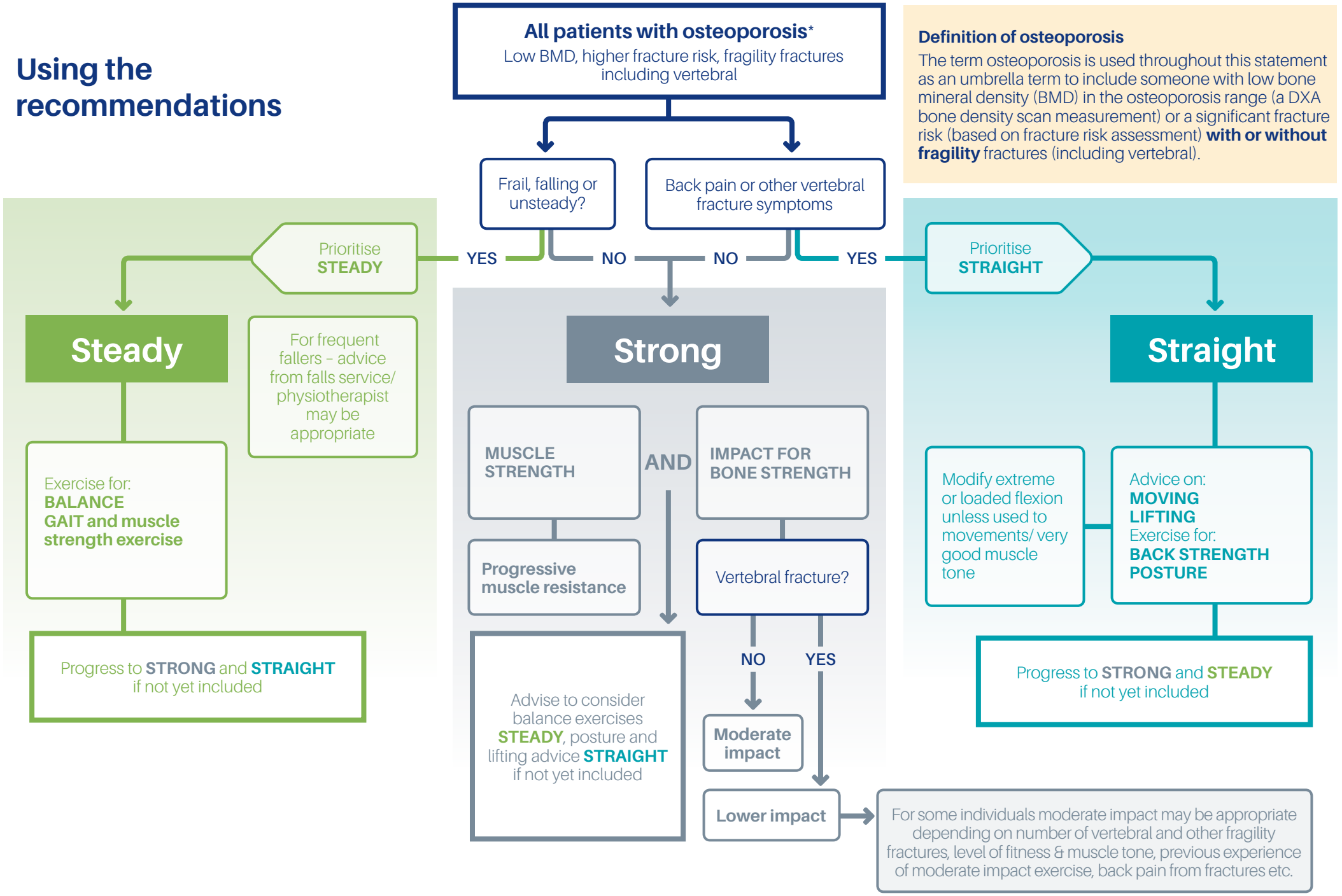
With vertebral or multiple low trauma fractures

- Recommend lower impact rather than moderate impact exercise (jogging, low level jumping) as a general rule. May be appropriate to increase after individualised discussion.

With poor balance

- Recommend improving balance and muscle strength before increasing physical activity levels.

Using the recommendations



Definition of osteoporosis

The term osteoporosis is used throughout this statement as an umbrella term to include someone with low bone mineral density (BMD) in the osteoporosis range (a DXA bone density scan measurement) or a significant fracture risk (based on fracture risk assessment) **with or without fragility** fractures (including vertebral).

Quick guide: exercise and activity details

Strong

Exercises

Weight-bearing/impact

+ **Moderate**: Low jumps, Skipping/hopping, Jogging, Stamping
- **Lower**: Stair climbing (repeated), Marching/brisk walking, Walking, Standing

Frequency and amount

Increase up to moderate impact for optimum benefit:

- Most days about 50 moderate impacts
- Include a variety of movements/speeds/directions e.g. a jog/walk
- 5 sets of 10 with reduced impacts in between
- 20 mins session if only lower impact advised

Upper body/spine

Wall press
Bicep curl/tricep press
Chest press
Back extension
Tennis ball squeeze
Overhead press
Dead lift

Lower body/hip

Squats
Sit-to-stand
Hip abduction, extension & flexion
Lunges
Leg press

Using weights (best evidence), resistance bands or body weight

Frequency and amount

- 2-3 days per week
- Build up to 3 sets of each exercise
- Progressive muscle resistance (using weights or resistance bands for upper and lower body including spine) 8-12 repetitions (most you can lift until fatigue)

OR

Sports and activities

Weight-bearing/impact

+ **Moderate**: Running/jogging, Dancing including Scottish/Zumba etc, Racquet sports, Track events/team sports/ball games
- **Lower**: Nordic walking/rambling

Frequency and amount

- Most days or supplement with exercises above

All sites*

Circuit training
Aerobics
Aqua aerobics
Pilates/yoga
Heavy house work
Gardening/DIY

Lower body/spine*

Hill walking
Rambling
Stair-climbing
Sports involving lunges/squats

Upper body/spine*

Rowing
Sports involving upper body/power
Carrying shopping etc

Frequency and amount

- 2-3 days per week
- Muscles need to feel warmth/tension
- Unlikely to reach 'moderate or high intensity' especially in hip or spine but will help to maintain bone strength

Steady

Exercises

Sit to stand/lunges
Compensatory stepping
Heel raises/toe walking
Toe raises/heel walking
Tandem stand/walk
Single leg stand
Reduced base of support/uneven surfaces

Frequency and amount

- For the less steady and over 65s – 2-3 days per week
- For fallers – Most days, challenging balance programme – under guidance

Sports and activities

Many activities under impact and muscle strengthening will help balance

(excluding rowing, running, jogging & swimming)

Pilates / yoga

Tai chi

Frequency and amount

- 2-3 days per week

Straight

Exercises

Back muscle strengthening exercises

Safe moving and lifting techniques

Hip hinge for safe bending

Frequency and amount

- For all – 2-3 days per week
- Focus on endurance by exercising at low intensity - up to 10 repetitions, held for 3-5 seconds
- **Daily** if experiencing pain from vertebral fractures

Sports and activities

Swimming
Pilates
Yoga
Hydrotherapy
Aqua-aerobics

Frequency and amount

- 2-3 days per week

Weight-bearing/impact → Strong bones

Build muscle → Strong bones

Build muscle → Fewer falls

Improve balance → Fewer falls

Build back muscle → Correct technique → Improved posture and pain

Strong bones → **Fewer fragility fractures**

Fewer falls → **Fewer fragility fractures**

Improved posture and pain → **Improved wellbeing and self esteem**

01761 471771

For full Expert Consensus Statement visit **nos.org.uk/HCPexercise**

Key recommendations: physical activity and exercise for osteoporosis

Strong

Build bone and muscle strength

Weight-bearing/impact exercise for bones

50 impacts per session

Frequency

Most days

With osteoporosis

Moderate impact

Lower impact

Low impact - weight bearing

Frequency

Most days

Build up gradually

Build muscle

Frequency

2-3 days / week

Weights & resistance bands

3 sets, 8-12 reps of max weight

Progressive resistance training

Sports and everyday activities

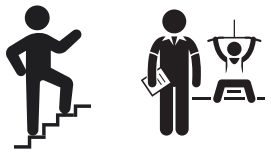
Vertebral or multiple fractures, or less able

Some extra caution

Exercise up to lower impact

Individualised advice

Ensure safe technique



Steady

Improve balance

Activities like tai chi or dance

Frequency

2-3 days / week

Or a challenging balance class

Positive approach

Reassurance - 'how to' not 'don't do'

Benefits of exercise for osteoporosis

Keep active
– something is better than nothing

- **Build bone and muscle strength**
- **Improve balance**
- **Improve pain, posture and movements**

Aiming for fewer fragility fractures and improved wellbeing

Straight

Improve pain, posture and movements

Manage pain from vertebral fractures

Daily back muscle strengthening exercises

Frequency

Daily

Improve posture and movements

Learn safe moving and lifting

Hip hinge for safe bending

Posture exercises

Frequency

2-3 days / week

Use alternatives

Extreme or loaded flexion

Avoid

Inactivity and prolonged sitting