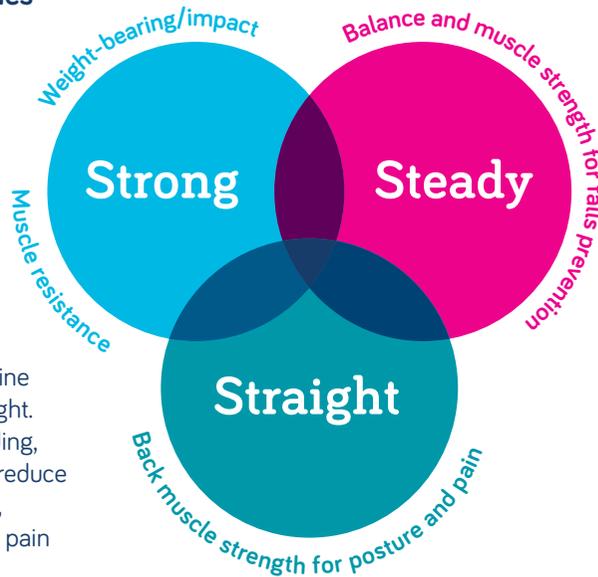


The statement is structured around important themes for osteoporosis:

**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.



### 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.

### 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.

## Using the recommendations

**All patients with osteoporosis\***  
Low BMD, higher fracture risk, fragility fractures including vertebral

**\*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).

Frail, falling or unsteady?      Back pain or other vertebral fracture symptoms

YES      NO      NO      YES

Prioritise **STEADY**

Prioritise **STRAIGHT**

**Steady**

**Strong**

**Straight**

For frequent fallers – advice from falls service/physiotherapist may be appropriate

Exercise for:  
**BALANCE**  
**GAIT** and muscle strength exercise

**MUSCLE STRENGTH**

**IMPACT FOR BONE STRENGTH**

AND

Progressive muscle resistance

Vertebral fracture?

Modify extreme or loaded flexion unless used to movements/ very good muscle tone

Advice on:  
**MOVING LIFTING**  
Exercise for:  
**BACK STRENGTH POSTURE**

Progress to **STRONG** and **STRAIGHT** if not yet included

Advise to consider balance exercises **STEADY**, posture and lifting advice **STRAIGHT** if not yet included

NO      YES

Moderate impact

Lower impact

Progress to **STRONG** and **STEADY** if not yet included

For some individuals moderate impact may be appropriate depending on number of vertebral and other fragility fractures, level of fitness & muscle tone, previous experience of moderate impact exercise, back pain from fractures etc.

# Strong

# Steady

# Straight

Exercises

OR

Sports and activities

### 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)

- 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

- 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

### 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

- 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

- Swimming
- Pilates
- Yoga
- Hydrotherapy
- Aqua-aerobics

### Frequency and amount

- 2-3 days per week

Weight-bearing/impact

Build muscle

Improve balance

Build back muscle

Correct technique

Strong bones

Fewer falls

Improved posture and pain

Fewer fragility fractures

Improved wellbeing and self esteem

Key recommendations: physical activity and exercise for osteoporosis

