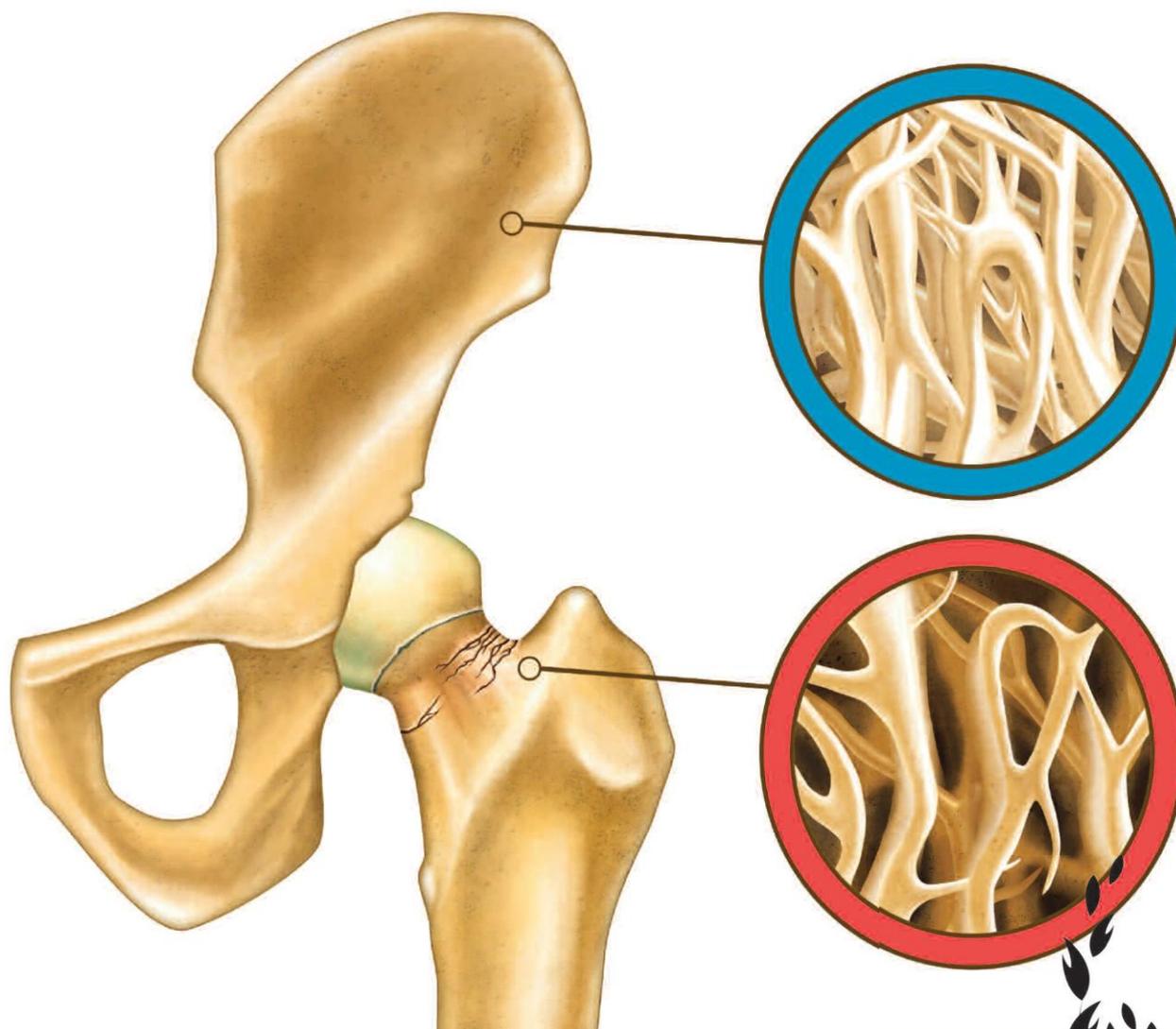


Exercise and management of osteoporosis with an eating disorder



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Osteoporosis is a progressive skeletal disease which leads to a reduced bone mass and reduction in bone strength. This leads to increased bone fragility and susceptibility to fracture, and if left untreated can lead to spinal deformity and persistent pain and disability.

Many people with Anorexia Nervosa (and to a lesser extent Bulimia Nervosa) are at risk of developing a bone density significantly lower than average. The low bone density in Eating Disorders has several causes including: low body weight/body fat and consequently low oestrogen levels leading to amenorrhoea in women or low testosterone levels in men and lack of adequate nutrition.

If you have had a bone scan this will indicate whether you have a diagnosis of osteoporosis, osteopenia or low bone mineral density for age, gender and ethnicity. You will be able to discuss this with your GP or Consultant and identify appropriate ways to improve your bone health.

Low bone density is considered a risk factor for fractures but is not a perfect measure of bone strength as some people with low bone density never break a bone and vice versa. Your age, as well as many other factors, affect your likelihood of fractures and therefore it is essential to ensure that you also discuss your bone health and risk factors with the Physiotherapist to ensure that you are aware of how these will impact on your everyday life.

Fortunately, alongside medical management of your eating disorder, where weight restoration has a positive effect on bone health, you can take steps to protect your spine to reduce the likelihood of fractures and changes in your spinal curves and potentially improve your bone density through specific exercise (especially before you reach about 30 years old when your peak bone mass is generally achieved).

The aim of this leaflet is therefore to provide you with information and advice on the types of exercises and activities which are effective, but also which activities should be avoided in order to protect your spine from fracture and postural changes.

What exercises and activities should you avoid?

Where osteoporosis or osteopenia are present certain exercises or movements should be **avoided** to lower the risk of fragility fractures and if you already have an osteoporotic fracture or are at a high risk of fragility fractures **more** caution is necessary.

If you are not healthy i.e. not in the healthy weight range/not menstruating, then you are likely to be losing further bone mass leading to a worsening picture on your next bone scan. You may be at a higher fracture risk and therefore more caution is necessary.

- **High impact** exercises such as jumping, running, jogging or skipping as these types of exercise can potentially lead to the development of osteoporotic stress fractures caused by the forces placed on the bone structures.
- **Exercise and activities that increase the risk of falling** such as horse riding, skiing, ice-skating and sports or activities which involve a quick change of

direction, as there is a possibility of a fracture in the event of a fall. Care should be taken in situations that can lead to anyone of any age falling, such as unstable ladders and chairs and the icy, snowy pavements. Consider precautions such as ice grippers. **Contact sports** are also not advisable.

- **Exercises in which you bend forward** (forward flexion of the spine) especially in standing, such as touching the toes. Bending forward exercises place the spine in the kyphotic (hunched) posture which increases your chance of wedge fractures. Avoid sit-ups, abdominal crunches and any other exercises in this flexed spinal (bent forwards) position, which are loaded with force or weight.
- **Spinal flexion (bending forwards) combined with twisting exercises**, such as a twisting sit up/crunch, as the combined movements of flexion and twisting cause increased compression in the spine and can result in a fracture.
- **Spinal twisting or side bending exercises which are forced, uncontrolled or performed using weights/resistance** should be avoided. Maintaining movement and building strength are advisable as long as the movement is controlled, a good posture is maintained.
- **Activities which require bending or twisting forcefully** such as golf, bowling, and some yoga poses.
- **Rolling like a ball and rolling around on the spine** are not safe and should be avoided as these transfer pressure from the floor on to the spine.
- If you carry out any **Pilates exercises** then exercises such as 'articulation into high bridge', 'roll down' or 'CLAM 3' should be avoided due to the nature of these movements.
- **Loaded neck flexion** where the head is unsupported should be avoided, instead support the head in the hands when lifting it from the ground. Also avoid placing body weight on the neck.
- Be **careful when coughing and sneezing**. Fractures can occur from the forceful cough or sneeze if the back is rounded or twisted. Sitting or standing against something for support or bracing in an upright position are advisable.
- **Take extra care when lifting, moving and handling**. Lifting and picking up things from the floor can lead to compression fractures in the spine especially if your back is bent or twisted. Your back should always be kept straight and your legs should be doing the work. Carrying heavy cases and shopping bags can cause fractures too, so carrying less and spreading the load will help to avoid fractures. Consider placing shopping bags on a chair rather than the floor when resting bags down and packing/unpacking.

Although the above information may feel restrictive or limiting to your lifestyle, it is possible to discuss safe alternatives to the exercises/activities that you enjoy doing, specific to your BMI level. You can adapt your lifestyle accordingly to minimise the risk of osteoporotic fracture or further deterioration in bone health.

No matter what type of exercise you are considering or are currently doing, with a diagnosis of osteoporosis or osteopenia it is important that you begin or review these

under the supervision of a Physiotherapist so that you can ensure that what you are doing is safe.

What type of exercise is safe and effective?

Although regular exercise is known to be beneficial in maintaining and improving bone density, the advice commonly given, such as high-impact, high-intensity strengthening exercises, are for those within a **healthy weight range**.

It is essential that any exercises you carry out are tailored specifically to your individual needs if you are an unhealthy weight or are not menstruating, and also if you are engaging in excessive/compulsive exercising behaviour (where there is an unhealthy balance between nutritional intake and activity levels). This is because any increase in your activity levels can interfere with weight gain and the restoration of menstruation.

Exercise may in fact be harmful to you if it results in plateau or further weight loss, placing your bones at further risk.

Once a healthier weight is reached, an appropriate bone building programme will depend upon your bone density, fracture risk and ability to maintain a healthy weight. There are specific exercises that can be taught that stimulate bone activity in a healthy weight population. For example, strengthening the back muscles, has been shown in many research studies to increase bone mineral density in the spine and to reduce the risk of vertebral fracture. These exercises may also have the *potential* to stimulate bone in those with an unhealthy weight.

Following discussions regarding your individual needs, risk factors and lifestyle, the following types of exercise may be recommended that will ensure that you can engage in safe and effective exercise more appropriate to influence improvements in your bone health, and protect your spine to reduce the likelihood of fractures and curvature.

1. Strengthening exercises that use resistance (such as body weight, the pull of gravity, weights or exercise bands) strengthens bone by the muscle pulling on the tendons that attach the muscle to the bone and the bone responds to this pull by becoming stronger.

It is most effective to carry out strengthening exercises that target the back, wrist and hip muscles as these are the areas more affected by osteoporotic changes.

Strengthening the core muscles to improve core stability and support of the spine, will have a positive influence on posture and balance. Pelvic floor strengthening exercises can help improve stress incontinence.

2. Weight-bearing exercises work directly on the bones in the legs, hips and lower spine and wrists to stimulate bone production.

If you are at an unhealthy weight/not menstruating, with a diagnosis of osteopenia or osteoporosis, you will usually be advised to carry out low- to medium- impact exercises such as walking, stair-climbing or dancing.

It is important to be aware that bone does not respond to the duration of the exercise, but the intensity. For example, after 10 minutes of repetitive exercise (such as walking or stair climbing) the bone will stop responding. Therefore weight bearing exercises are beneficial to bone only during the first 10 minutes of exercise and longer durations and continued repetitive exercise will not have the same beneficial effect, and should be avoided to prevent any detrimental effect on weight restoration.

In addition, swimming and water aerobics have many health benefits, but are not weight-bearing exercises and it is not helpful to include them in a bone-strengthening exercise programme.

3. Flexibility exercises are important to maintain joint and muscle flexibility and promote a good upright posture, that will reduce the risk of developing vertebral fractures and an increased spinal curve (kyphosis). These exercises include spinal extension (bending backwards) especially in the upper back, front of the hip stretches, shoulder retraction (stretching shoulders backwards and downwards) and chin tucks.

Twisting and one sided elongation in a **good upright posture**, will promote general spine flexibility.

4. Stability and balance exercises can be taught to reduce the risk of falling and potential resultant fracture in those with poor balance and stability.

In addition, **modified** Pilates exercises are often recommended. The strength training and weight bearing aspects of Pilates are thought to promote bone production. Classes incorporate a wide range of exercises which can be carefully considered and modified for people with osteoporosis and osteopenia, to avoid risky movements and exercises. With Pilates exercises the energy expenditure is relatively low, whilst still producing the desired outcome. This type of exercise is therefore more appropriate and favourable for someone recovering from an eating disorder.

Tai Chi classes are also recommended for individuals with osteopenia and osteoporosis as they consist of gentle strengthening exercises that can improve posture, flexibility and stamina.

However, it is very important to discuss attendance at these classes with your physiotherapist or doctor as they will not be recommended for all individuals. Finding a class with an instructor who is knowledgeable in osteoporosis is essential.

It cannot be emphasised enough that this information leaflet provides only a guide on the exercises that should be avoided and those that are recommended. Any exercise should be tailored specifically to individual needs and goals for improving overall health and wellbeing, with guidance and advice from a Specialist Physiotherapist.

Remember that restoration of weight, menstruation and a balanced diet are the most effective treatment for restoring some bone mass lost during amenorrhoea, improving bone strength or preventing further bone loss.

February 2016

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Adapted from PHYSIOTHERAPY GUIDANCE NOTES for OSTEOPOROSIS AND EXERCISE
in ANOREXIA NERVOSA and BULIMIA NERVOSA

Lynn Hammond, February 2015

<http://cpmh.csp.org.uk/physiotherapy-eating-disorders>