Royal Osteoporosis Society
Better bone health for everybody

Exercises to care for your back
9

Pilates exercises - modifications with osteoporosis

Who: These recommendations are for you if:

- you have had a diagnosis of osteoporosis or are at increased risk of fracture and want to ensure Pilates exercises are safe and won't cause a spinal fracture
- you are looking to find out if you need to modify or avoid some exercises because you have had spinal fractures
- you have broken bones easily in the past

Bones lose strength as we get older, so whether you have had previous fractures or not, this information is useful to anyone over the age of 50 - to help reduce the chance of future injury and pain.

Why: Pilates is beneficial for helping to maintain bone strength, improving muscle strength and balance, as well as helping with pain and posture. But there are some exercises where you may 'over flex' your spine if you push yourself to the limits. This is especially true with uncontrolled, repetitive or sudden forward movements or if you are putting some load or strain on your spine in a curved position. This could put uneven pressure on the front parts of your spine which may increase your risk of a spinal fracture. Generally, Pilates is very safe and isn't going to cause a spinal fracture. However, to be on the safe side, using alternative moves that keep your back straight or allow you to bend in a controlled and comfortable way will help to reduce the risk of injuring your back.

When and how: **For exercises in Pilates that risk 'over flexing' the spine, follow these instructions to help you adapt your technique.** Move in a smooth, controlled way during and between all Pilates exercises, and move within your comfort range.
These are some of the Pilates exercises that you ask about, with explanations on what they are for and whether you need to amend the move or use an alternative.

1

Roll Down

- The Roll Down improves the flexibility of your spine and hips. However, the concern with this exercise is that your back is in a flexed position. The load of your unsupported upper body puts pressure on your spine which could potentially increase the risk of a spinal fracture.
- If you have osteoporosis or an increased fracture risk, the recommendation is to modify your flexion to a restricted range, supporting yourself against a wall - or use an alternative exercise to stretch your back muscles.
- To modify the Roll Down, stand with your back against a wall, your feet slightly away from the wall and your hands resting on your thighs. As you bend forward (and as you return to upright), keep your hands on your thighs to support your upper body as you move. Move forward only as far as remains comfortable with your lower body still resting against the wall.
- The Cat (see no.7) is a great alternative as it has the same purpose as a roll down.

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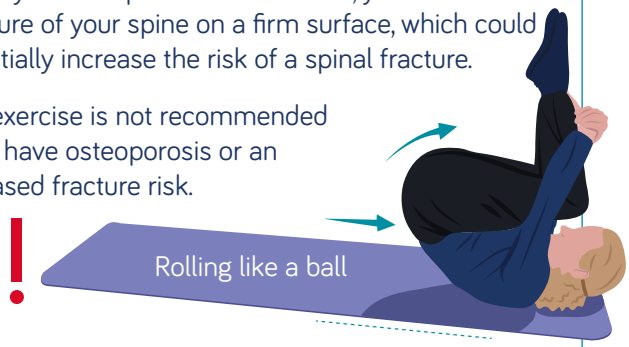
Rolling like a ball

- Rolling like a ball helps to mobilise, massage and stretch your spine. There is concern that you may over flex your spine in this position because you have to curl yourself up. In addition to that, you have the pressure of your spine on a firm surface, which could potentially increase the risk of a spinal fracture.
- This exercise is not recommended if you have osteoporosis or an increased fracture risk.



- There isn't an alternative Pilates exercise to massage the spine, but you can use The Cat (see no.7) as an alternative exercise to stretch the spine.

3

Roll Up

- The Roll Up and other similar exercises, like the Single or Double Leg Stretch, Hundreds, Scissors or Criss Cross, are used to strengthen your abdominal muscles and mobilise your spine and hips. However, your back is in a flexed position, pulling the load of your upper body and moving limbs against gravity. This puts uneven pressure on your spine which could potentially increase the risk of a spinal fracture.

- If you have osteoporosis or an increased fracture risk but have very strong abdominal and back muscles because you have been doing this exercise regularly with ease and without pain or problems, you may decide to continue. If you are at all unsure or have had spinal fractures, the recommendation is that, for appropriate exercises, you use a wedge to support your spine or use alternative exercises to be on the safe side.

- An alternative exercise for working your abdominal muscles is the Knee Fold perhaps adding a leg extension and/or arm circles.

4

Hip Roll

- The Hip Roll is used to mobilise your spine in rotation. However, there is a concern that the load of your legs, with your feet off the floor, is putting uneven pressure on your spine. This could potentially increase the risk of a spinal fracture.
- If you have osteoporosis or an increased fracture risk, the recommendation is to modify the exercise by leaving your feet on the floor to support your spine.

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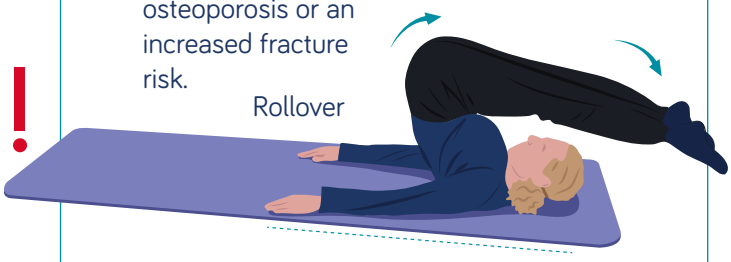
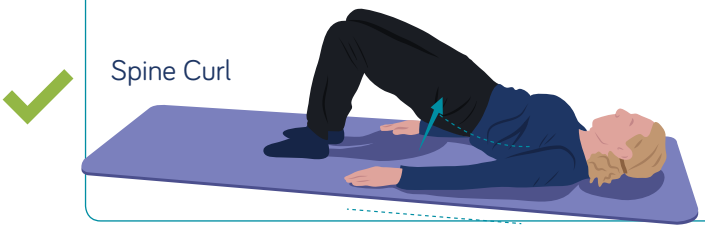
Rollover

- The purpose of the Rollover is to mobilise your spine, but this move places a lot of pressure on your upper spine and neck and it also requires very strong abdominal muscles.
- This exercise isn't recommended if you have osteoporosis or an increased fracture risk.



- An alternative exercise to mobilise your spine is a Spine Curl. This is a safe exercise that helps to improve the flexibility and strength of your back. Take care not to curl up as high as a Shoulder Bridge exercise - this could create over flexion at the top of your spine.



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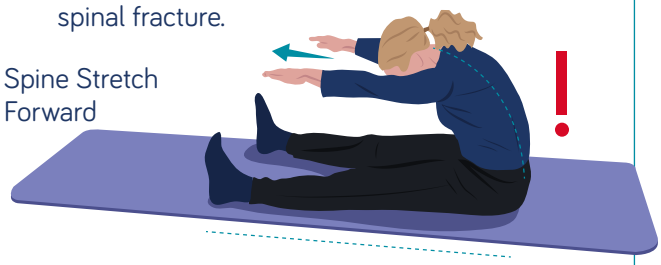
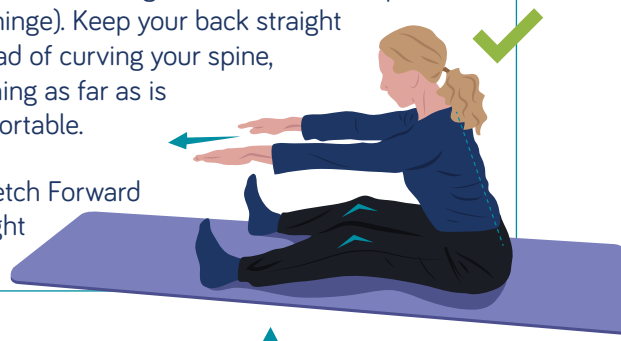
Spine Stretch Forward

- The Spine Stretch Forward and seated exercises like The Saw are used to mobilise your spine in flexion and flexion and rotation. There is potential to over flex your spine with these moves, especially while rotating. This puts too much pressure on your upper spine which could potentially increase the risk of a spinal fracture.



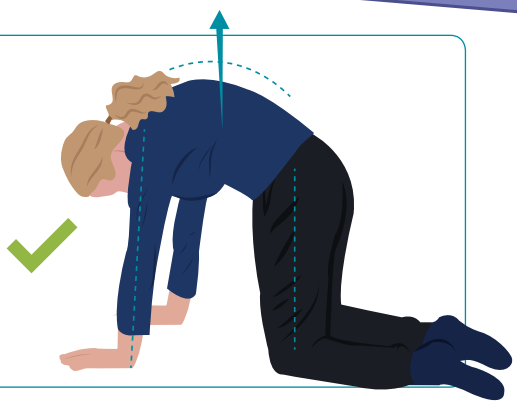
- If you have osteoporosis or an increased fracture risk, the recommendation is to modify these exercises by bending your knees and bending forward from the hips (hip hinge). Keep your back straight instead of curving your spine, reaching as far as is comfortable.



7

The Cat

- The Cat is an exercise that is used to mobilise your spine and hips. You may also find this move helps with back pain and provides a gentle flexion/extension exercise to stretch your back muscles.
- There is no concern with this exercise as you are supported, and you are moving your spine in a very controlled way.



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Curl Up

- The Curl Up is used to mobilise your spine and strengthen your abdominal muscles. In this move your back is in a flexed position, pulling up the load of your upper body against gravity. This puts uneven pressure on your spine which could potentially increase the risk of a spinal fracture.
- If you have osteoporosis or an increased fracture risk but have very strong abdominals because you have been doing this exercise regularly with ease and without pain or problems, you may decide to continue. If you are at all unsure or have had spinal fractures, the recommendation is to use alternative exercises to be on the safe side.
- You could use the Knee Fold as an alternative. However, it would be preferable to work on strengthening your back muscles by curling your spine backwards, into a back extension, with exercises such as the Diamond Press, Dart and Star.

It's important to carry on doing the exercise you love and so learning 'how to' carry out moves safely is much better than stopping altogether. Remember, many moves can be performed with your back straight, hinging from the hip, which will reduce the risk of injuring your spine. Look at some of our other similar fact sheets, *Moving and lifting safely* fact sheet (7) theros.org.uk/exercise/MovingAndLifting and our *Bending forward with osteoporosis* fact sheet (8) theros.org.uk/exercise/BendingForward, where you can learn more about the 'hip hinge'.

These are general recommendations to be 'on the safe side'. If you are someone with painless spinal fractures or fractures that are healed, with the pain fully resolved, you may decide to return to a previous exercise routine - this is an individual choice you would need to make. See the accompanying video to these exercises at theros.org.uk/exercise/Pilates

Tip: If you have discomfort in your back or feel you are pushing yourself beyond your comfort range, ask a Pilates instructor for advice about how to modify the exercise. Choose a small exercise class where everyone is getting good supervision and use the following suggestions to help you have the conversation with your instructor.

As a precaution you could talk to your Pilates teacher and explain that you have osteoporosis/risk factors (or you have had spinal fractures) and that means:

- your bones might be weaker and at risk of breaking - including those in your spine
- Pilates exercises are generally safe and most people, even those with 'risk factors', don't break bones when they exercise - but to be on the 'safe side' you would like to avoid over flexion of the spine which might increase the risk of spinal fractures
- you would like advice about how to amend any exercises that 'over flex' the spine or put a load on the spine in a curved position
- you would like them to ensure you are moving in a controlled way with proper technique
- you would like advice on back extension exercises and core stability exercises to build up your core muscle strength to support your spine

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The names of the exercises used in this fact sheet reflect those used in Pilates. You may find they have different names in our other fact sheets. This fact sheet forms part of a range of nine fact sheets on exercise for osteoporosis and bone health. Further resources including general information about osteoporosis and bone health are available at theros.org.uk or call 01761 471771

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