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Minimally Invasive Spine Surgery
The Spine Institute
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Created by Hospital for Special Surgery

Your Home Exercise Program Before Spine Surgery

Benefits of Preparing for your Surgery

Physical activity and exercise in the weeks leading up to surgery can¹:

- Improve your function and tolerance for activities of daily living
- Decrease the length of the hospital stay after surgery
- Improve your recovery
- Reduce postoperative pain

DO NOT do activities that aggravate your back! If something bothers you, **STOP** and consult a physical therapist

Staying Active



Walking is great exercise to prepare for surgery!

- Aim for 30 min/day, in bouts of at least 10 minutes
- Aim for moderate effort (11-16 on the RPE Scale)²

Rating of Perceived Exertion Borg RPE Scale	
6	No exertion
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Extremely hard
20	Maximum exertion

Keeping Mobile

Do the following stretches daily to keep your muscles flexible and your joints moving.

Hold each stretch for 30 seconds and repeat 2-4 times.

1a. Single knee to chest



- Hug one knee to your chest (and repeat with the other leg)
- Feel the stretch in your lower back

OR

1b. Double knee to chest



- Hug both knees to your chest
- Feel the stretch in your lower back

2. Childs pose



- From a kneeling position, lean forward and push your bottom towards your heels
- Feel the stretch in your lower back



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3a. Hip stretch (sitting)

OR



- Cross one leg over the other and gently push your thigh down
- Feel the stretch in your buttock

3b. Hip stretch (lying)



- Cross one ankle over your thigh, and pull your thigh towards your chest
- Feel the stretch in your buttock

4a. Quads stretch (standing)

OR



- Stand holding onto a stable surface for balance
- Grab your foot and pull towards your bottom
- Feel the stretch in your thigh

4b. Quads stretch (lying)



- Lie on your back on your bed or a table, with one leg hanging over the edge
- Using a belt or strap looped around your ankle, pull your foot towards your buttocks
- Feel the stretch in your thigh

5. Hamstring stretch



- Loop a belt or strap around your ankle
- Pull your leg
- Feel the stretch in the back of your thigh

6. Hip flexor stretch



- Kneel on one knee on an exercise mat
- Tighten your stomach and buttocks muscles to keep a straight back and push your hips forwards
- Feel the stretch in the front of your hip



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Neutral Spine

Your doctor may have instructed you to keep a "neutral spine" during your daily activities.

Find your neutral spine lying down: Curl your tail bone under and round your back, pressing your lower back to the floor (1). Next, arch your back, so there is a space between your back and the ground (2). Find "neutral" as the comfortable position half-way between these two extremes (3).



Building Core and Back Strength

Take the time now to build up strength in your abdominal, buttocks, and back muscles

Do each of the following exercises daily. Do 10-15 repetitions of each exercise, 3 times.

1. Core activation



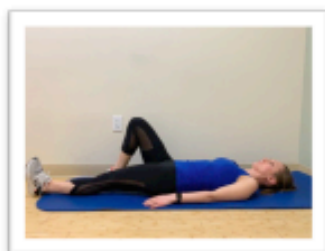
- Start by lying on your back with bent knees
- Breath in and let your belly rise as it fills with air
- Breath out and gently pull your lower stomach in, as you lift your head and shoulders off the floor

2. Core isometric



- As you breath out, lift one leg and gently press your opposite hand to your thigh – you should feel your abdominal muscles working

3. Straight leg raise



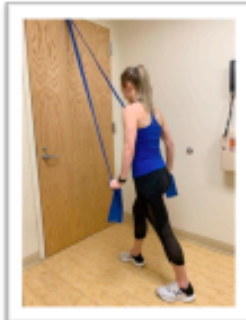
- Start by lying on your back, one knee bent, one straight
- As you breath out, tighten your abdominal muscles and raise one leg straight off the floor



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4. Core pull downs



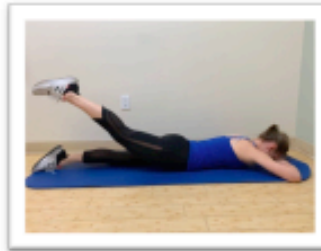
- Anchor and exercise band above you (fold it in half and close it above a door)
- Stand in a staggered stance with a neutral spine
- Hold one end of the band in each hand
- Tighten your abdominal muscles as you pull the band back, keeping your elbows straight

5. Hip bridges



- Start lying on your back on a firm surface, with knees bent, feet hip distance apart
- Tighten your buttocks muscles, and lift your hips off the floor, holding 5 seconds
- Slowly lower back to the starting position

6. Leg lifts



- Start lying on your front on a firm surface, hands supporting your forehead
- Tighten your abdominal muscles to keep a straight back
- Tighten your buttock muscles and lift your leg off the floor **keeping your back straight**, holding 5 seconds
- Slowly lower back to the starting position and repeat with the other leg

7. Superman



- **Once you can keep your back straight while lifting a leg, you can progress to this**
- While lifting one leg off the ground, lift your opposite arm – **making sure to keep your back straight**, holding 5 seconds
- Slowly lower back to the starting position and repeat with the opposite arm and leg



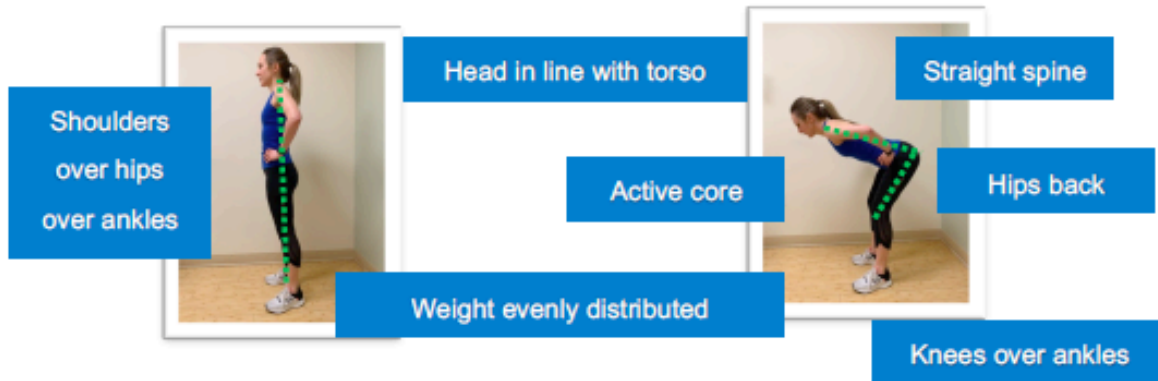
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Hip Hinge

Learning how to hinge at your hips is important for everyday activities. Practice hinging from your hips while keeping your back straight.

Start from a straight standing position, then bend forwards from the hips, as shown:



Sit to Stand

Practicing getting up and down from a chair with strong legs and a straight back will help with back pain in the short term, and help you get around more easily after your surgery.



- Sit at the edge of the chair, feet behind your knees



- Lean forwards, keeping a straight back



- Push down into your heels, press up with your legs



- Straighten your knees and stand all the way up

To sit back down again, repeat these steps in reverse! Reach back with your hips and slowly, with control, lower your bottom to the chair

Practice makes perfect: repeat this 10 times at breakfast, lunch, and dinner!



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Bed Mobility

Practice "log rolling" to move around in bed. By moving your body like a log as shown below, there will be less strain on your back. This will feel more comfortable before and after your surgery.



- Start with one leg bent, the other leg straight



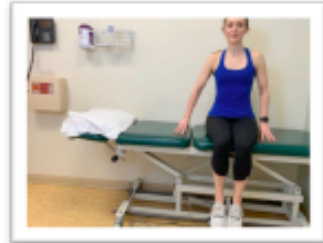
- Roll your body like a log to turn on to your side
- Use the weight of your leg to help you roll over while keeping a straight back



- Swing your legs over the edge of the bed



- Keeping your back straight, push yourself up with your arms
- Let the weight of your legs help straighten you up



- Well done, you are up!

Positions of Comfort and Relief

Try lying in the following positions to relieve strain on your lower back.



- On your back with pillows under the knees



- On your side with pillows between the knees



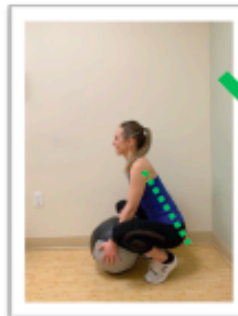
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Safe Lifting



DO NOT
lift from a
stooped or
twisted
position



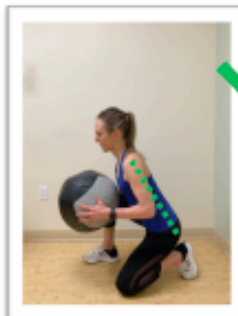
- Get close to the object

- Bend your knees and squat or lunge down

- Keep the weight close to your chest

- Press up with your legs

DO
keep your
back
straight





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References

1. Santa Mina, D., Clarke, H., Ritvo, P., Leung, Y. W., Matthew, A. G., Katz, J., ... & Alibhai, S. M. H. (2014). Effect of total-body prehabilitation on postoperative outcomes: a systematic review and meta-analysis. *Physiotherapy*, 100(3), 196-207
2. Amorim, H., Cadilha, R., Parada, F., & Rocha, A. (2019). Progression of aerobic exercise intensity in a cardiac rehabilitation program. *Revista Portuguesa de Cardiologia (English Edition)*, 38(4), 281-286.