

Exercises for people with flat back

- By Dr. Pam Squire, MD



& Daehan Kim, M.Sc. Kinesiologist



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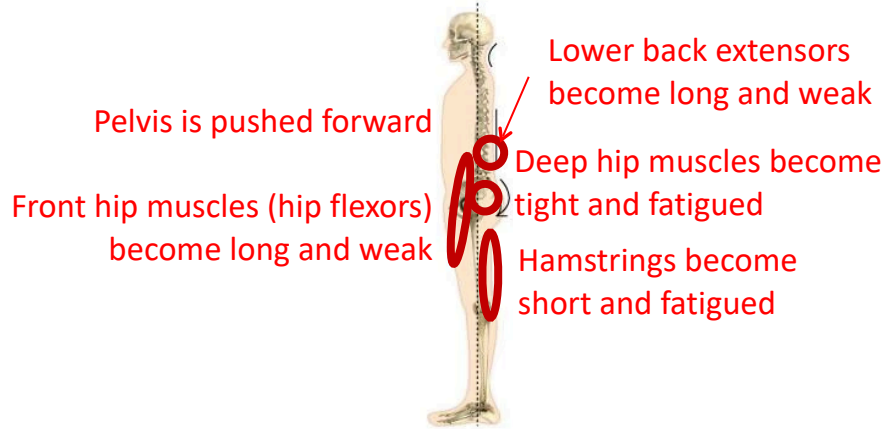
What is flat back?



Ideal posture



Flat back



Common muscular imbalance associated with flat back

Pelvis is pushed forward

Lower back extensors become long and weak

Front hip muscles (hip flexors) become long and weak

Deep hip muscles become tight and fatigued

Hamstrings become short and fatigued

The following exercises aim to help you minimize the muscular imbalance associated with flat back. This handout is just a few ideas. If you have concerns with your posture and feel imbalanced in your body, and would like more support, a clinical kinesiologist can help you. Our team could provide appropriate assessments and customized exercises to help. Please contact info@embodieddynamics.net for details.

<Mobility exercises / stretching for flat back>

• Finding your “personal” neutral spine in quadruped

When your spine is in neutral, your back and neck are placed under the least amount of stress and strain. In the neutral position, 3 natural curves of your spine – your cervical (neck), thoracic (middle) and lumbar (lower) curves – are quite evenly distributed. Each person has slightly different angles in these curves. Therefore, it is beneficial for you to find your personal neutral. Repeat this exercise several times!



1. Round your back as far as you comfortably can so your belly button moves toward the ceiling.



2. Then, arch your lower back as far as you comfortably can so your stomach moves toward the ground.



3. Then, find the middle between #1 & #2. This is your neutral position.

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• Quadruped rocking in neutral spine

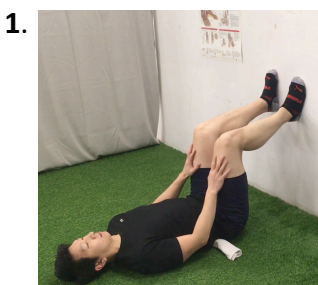


Find your **neutral spine** using the the previous exercise.



Rock back as you **maintain the neutral spine**. By trying to maintain the arch in your low back, you may feel gentle activation in your deep abdominal muscles or deep pelvic muscles. Repeat 5 – 10 times

• Beginner-friendly hamstring (back of the thigh) stretches



Lie on your **back** with a **small towel** under your **low back arch**. Then rest your feet on the wall about hip width apart with your knees and hips about 90°.

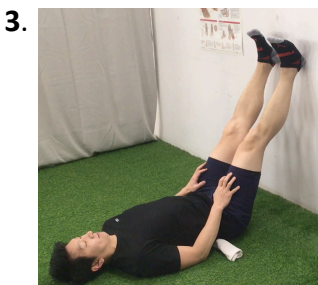
*** It is normal that your low back slightly flattens in this position. The towel underneath the arch will be used to monitor excessive flattening of the arch. Try not to force the arch by making the towel too thick. ***



Then slowly **slide your heels up**. Try to keep your inner edge of the **feet parallel** to each other and keep the **kneecaps pointing the middle toes**. Try to keep the **ankles about 90 degree**. You may **feel the stretching in the back of the thighs and back of the knees** before the knees become straight.

*** If your effort to straighten your knees makes the **lower back arch pushes down the towel hard**, don't straighten the legs. Instead **enjoy the nice stretching** at your own maximum range **without overly flattening the arch**. ***

Hold this position for **20 – 30 sec to start with** and gradually **progress to 1 min**



If #2 gets easy, try to **stretch your hamstrings with your knees straight**. Monitor the pressure onto the towel so that you can **avoid over flattening of the arch**.

Hold this position for **20 – 30 sec to start with** and gradually **progress to 1 min**

Once this gets easier, try to repeat the process by moving **your hips closer to the wall**.

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• Hamstring stretch with hip flexor activation



1. Lie on your **back** with your knees bent. Put a **small towel** under your **low back arch**. Then bring your **one knee close to your chest**. And **stabilize that position** with your hands behind the thigh.

**** The towel underneath the arch will be used to monitor excessive flattening of the arch. Try not to force the arch by making the towel too thick. ****



2. Then **gradually straighten the knee** with your **toes pulled up** while **keeping the knee close to your chest** using your **front hip muscles**. You can use your **hands** behind the thigh to support this **without completely relying on them**.

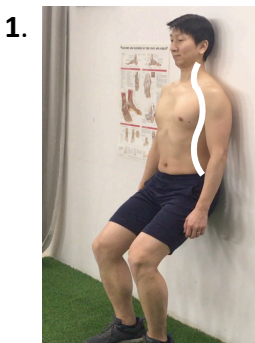
**** You will likely feel the stretching in the back of the thigh and the back of the knee before your knee straightens fully. Hold this position for 2 – 5 sec****

Repeat 10 times

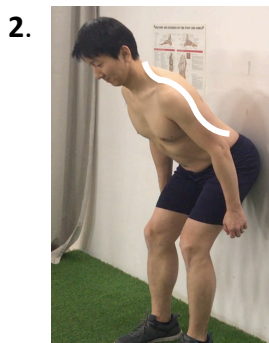


You can also use a strap or a long towel.

• Squat to hinge hamstring mobilization



1. Stand with your **back against a wall** with your **back neutral**. Your **hips and knees are bent slightly** as if you are doing a partial squat. Your **knees are above your toes facing the middle toes**.



2. Then **slide your hips up** as you **let your body fold forward at the hips**. Keep your back neutral. Feel the nice **stretch in the back of your thighs and back of your knees**. Stay in this position 2 – 5 seconds then go back to #1 by sliding your hips down. **Keep your back neutral the whole time**. Repeat 10 – 12 times.

• Stretching for deep hip muscles



Lie on your back. Cross your leg. Then **gently press your knee away from your chest** without letting your **pelvis tilt sideways**. Start with **20 – 30 sec hold** and gradually **progress to 1 min**.



You can feel a deeper stretch by doing it on a chair.

Let your body **fold forward at the hips**. **Keep your back neutral** the whole time. **Start with 20 – 30 sec hold** and gradually **progress to 1 min**.

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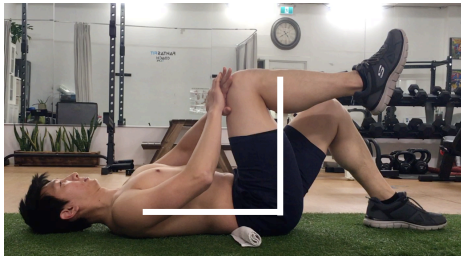
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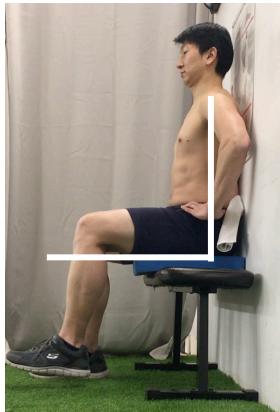
<Activation / strengthening exercises for flat back>

• Hip flexor activation with neutral spine



Lie on your back with your knees bent. Put a small towel under your low back arch. Then bring your one knee up so that your hip angle is slightly below 90°. Then try to bring that knee closer to the chest but resist that motion with your hands. You will feel the front thigh and deep core working. Use about 50% of your maximum effort. Hold this position for 5 - 10 sec. Repeat 10 times.

**** The towel will be used to prevent excessive flattening of the arch. Try not to force the arch by making the towel too thick. ****



Once the exercise above becomes easier. Try it in sitting with your back against a wall. Put a small towel under your low back arch. Then bring your one knee up so that your hip angle is slightly below 90°. Avoid side tilting of the pelvis. Keep your spine neutral and tall. You will feel the front thigh and deep core working. Hold this position for 5 - 10 sec. Repeat 5 times.

**** The towel will be used to prevent excessive flattening of the arch. Try not to force the arch by making the towel too thick. ****

• Bird dog



Get down on your hands and knees. Your hands are in line with your shoulders; your knees are in line with your hip joints. **Find your neutral spine position** (refer to the "find your personal neutral spine" on the 1st page).



Raise your right arm with your thumb pointing to the ceiling and your arm straight. **At the same time**, slowly slide your left foot back. As the foot slides, **raise the left leg slowly so it becomes straight out behind you parallel to the floor**. Hold this position for 2 sec then lower. Switch sides. Keep your spine neutral and avoid rotation of the pelvis. Repeat 8 to 12 times on each side.

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• Elevated mountain climber

1.



Take a **high plank position on a bench** with your heels off the ground and your ankles about 90°. Your feet are about hip width apart. Your **hands are in line with your shoulders**; your **knees are straight without being locked**. Find your **neutral spine**.

2.



Then **slowly lift one knee** so that **your hip angle is slightly below 90°**. Maintain your **spine neutral** and **keep the alignment and posture of the opposite leg**. **Avoid rotation of the pelvis**. You will **feel your deep core working**.

Hold this position for 2 sec then lower. Switch sides. Repeat 8 to 12 times on each side.

• Split stance squat

1.



Take a **half kneeling position on a foam pad or a towel**. Your **hips and knees are about 90°** with your **spine neutral**. Look straight ahead.

*



Avoid excessive tilting of the pelvis. If it is difficult for you to control the tilt of the pelvis, **elevate the surface under your knee to make it easier**.

2.



Then **push your front heel and the ball of the back foot into the floor to raise yourself straight up**. Then slowly lower yourself again. Maintain the **neutral spine throughout** this movement.

Repeat 8 – 10 times on each side.