



STRENGTH SOLUTIONS FOR LOWER BACK PAIN: GLUTE-HAMSTRING REHAB TRAINING

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Your hamstrings and glutes are an integral part of your body's postural system. In many people they are under-utilised and significantly weak, leading to many lower back problems. Almost all of us suffer from a bit of back pain now and again. Strengthening the hamstrings and glutes could be the key factor in the rehabilitation and long term solution for your lower back pain. In this article I have put together essential exercises that you can do at home and in the gym to help you work on these muscles, to create a stronger 'posterior chain', improve your lumbo—pelvic posture and reduce your pain.

HAMSTRING AND GLUTE FUNCTION

Your hamstrings and gluteus maximus muscles' main function at the hip joint is to extend it (move the leg backwards). Of the two, the hamstrings are the primary mover and the glute max is the secondary. For this reason, in *walking* the hamstrings do most of the work moving the leg backwards and controlling the movement going forward (the 'eccentric' phase) and the glutes do minimal work (and in some people - none!). The hamstrings are made up of three muscles and span over the hip and the knee, so when walking they also flex the knee and control the knee in the eccentric phase against the quads. The Glute max is complex in its function as it fires mostly 'on demand', so when the



load is high enough and fast enough (like a sprint) and even more when the hip is in flexion (like at the bottom of a squat, step ups and running up stairs) - it switches on to give more power to the leg extension movement. On top of these functions these muscles also help stabilise the pelvis to help you

maintain neutral (which is the crucial part for core stability and reducing back pain in standing, walking a running).

The main problem we have is that if the glutes 'aren't firing', have poor tone and the hamstrings are weak, then during activities like squatting and running, you lose neutral and overload your back.

ACTIVATION OF THE MUSCLES

The first thing to work on before you jump into the gym is to do activation exercises for these muscles, otherwise you will compensate with the strengthening exercises and make your problem even worse!. Follow the exercises below and get practicing!

BOSU HIP EXTENSION

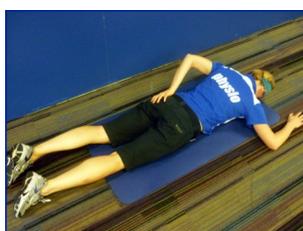
Slowly clench your glutes and tilt your pelvis backwards so your pubic bones dig into the bosu. Keep your



knees on the ground and as you tilt your pelvis, slowly raise your body up so you are pivoting from the hip. Keep breathing, attempting to hold a static position for 30 seconds at a time. The whole idea is to get your glutes and

hamstrings working in a closed chain fashion, so you are extending your hip by moving the body, not by moving the leg. This teaches you to keep your lower back in neutral the whole time. If you arch your lower back you lose neutral spine and overload the back extensors.

SINGLE LEG HIP EXTENSION



This is for one glute that is not firing compared to the other side. Very common in people with back pain on one side or very one-side dominant. Slowly tilt your pelvis back again to neutral,

keeping your abdominals on. Slowly clench the buttock and attempt to use the glutes and hamstrings to raise the leg. Again, very important that you do not extend the back and only lift your leg to the point where you can control your core and keep neutral.

GLUTE BRIDGES

The key is to push through your heels to tilt and lift your pelvis, and not to arch your back. Imagine you are pushing your heels into the ground or trying to push the ground away from you. Your pelvis should naturally tilt backwards. Add on clenching the glutes and maximising the buttock contraction as you lift up, being careful not you lose neutral or use your back extensors. This is a great pre-exercise for the hip thrust below.



STRENGTHENING EXERCISES

It's better starting with minimal to no weight initially and then as you perfect the exercises, slowly add the weights on so you don't lose form or compensate with you lower back.

HIP EXTENSION THRUSTS



Start with your hips flexed (bent) so your buttocks are close to the ground. As with the glute bridges, push through your heels and tilt the pelvis into neutral and keep pushing and contracting the glutes and hamstrings until you get to the top (level). Don't over arch the lower back - remember you shouldn't feel your lower back working, only the back of your legs and buttocks!

PHYSIO LUNGES

I named this the 'Physio' lunge as it differs from normal vertical lunges, and is my personal favourite for getting the glutes and hamstrings really going. The difference is the angles are all forward from 30-45°. You must keep you heel down in the front and as you lunge forward, move 80% of your bodyweight onto the front foot, and keep you back straight so you bend at the hip and fire the glutes by pushing through the front heel.



For a detailed video of this great Physio Lunge exercise go to www.physiofitness.com.au/physio-lunge.htm

SINGLE LEG REHAB PRESS

This machine I have coined the 'Rehab' press as it is a closed chain machine. Always do one-legged, aim for full range and push through your heel. Imagine pushing the base plate away from you rather than your body away. This will maximise your gluteal and hamstring work. Make sure you keep you knee in line with your foot.



ECCENTRIC HAMSTRING CURLS

Many people use this machine incorrectly and have the weight far too heavy. The trick is to lighten the load and work one leg eccentrically. You must make sure you tilt your back into neutral by squeezing you glutes and using your core to stabilise. As you curl up you must not let you lower back arch or you will over-work the lower back extensors. Then drop one leg away and lower ('eccentrically') with the other. Always reset your pelvis to neutral every repetition.



ROMANIAN DEADLIFTS

Lastly, the infamous Romanian deadlifts. One of the best hamstring and glute strengthening exercises around, but also one of the hardest to keep form. A word of caution; anyone with a history of lumbar disc bulges, in my opinion, should never be doing weighted deadlifts. I recommend with this exercise in particular you get one-on-one instruction to improve your muscle activation and perfect your technique.



There are many other variations and many more advanced exercises that can be done. However it's essential to master the basics before you increase the weight or try anything too difficult. Above all, it's about strengthening the muscles to improve the function of controlling your lumbo-pelvic position when running, squatting and standing, and not for size and looks!



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Tim has over 14 years experience in Physiotherapy and the Fitness Industry. He is also an exercise rehabilitation expert, clinical educator and regular FILEX convention presenter.

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