



## Influence of Hamstring, Glutes and Piriformis Muscle Health on Low Back Pain

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**Received:** January 25, 2021

**Published:** February 16, 2021

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### Abstract

Flexibility and Strength are key factors to a muscle's health. They are important for normal biomechanical function. The purpose of this article is to highlight the importance of Hamstring, Glutes and Piriformis health on Low back pain cases.

**Keywords:** Hamstring Tightness; Piriformis Syndrome; Glutes Tightness; Strengthening; Stretching; Low Back Pain

### Abbreviations

opd: Outpatient Department; doc: Doctor.

### Introduction

Low back pain is a very commonly experienced condition with almost 8 out of 10 people experiencing it at some point of their life. It is safe to say, that, as someone who has had the privilege of treating wide variety of patient cases, low back pain comprises nearly 50% of any opd patient load. Lower back pain can often be a result of soft tissue impairments surrounding and supporting the lumbar spine.

Many a times when a patient walks into an opd the most common thing that they say is "hey doc everything was fine until I bent down to pick up my pen and couldn't stand back up" or "I have been working out for ages, I know this is not muscular" etc. And the therapist often always starts by assessing the flexibility and strength of their Hamstring, Glutes and Piriformis muscles and voila they almost always come out to be either severely or moderately tight, and therefore weak. And this is almost always succeeded by, "Stretching is so boring" or "I do stretch but not that frequently (which is like once in a month or couple of months). Or when asked

if they exercise, it's more of yes I go for walks or I am a housewife and so I am always active throughout the day. So how do the above mentioned sentences dictate why you are getting this pain? Let us get into the technical aspect of it.

Starting with Hamstrings, "The hamstrings are a group of four muscles (long head of the biceps femoris, short head of the biceps femoris, semitendinosus, and semimembranosus) that originate on the bottom of the pelvis, the sitting bones, and insert over the knee on the tibia or fibula. Tight hamstrings will pull on the pelvis, which in turn will cause the pelvis to tilt". A tilted pelvis will impact the alignment of your spine, which in turn will affect your lumbopelvic rhythm".

"The Glutes are composed of three muscles: the gluteus maximus, gluteus medius, and gluteus minimus. These muscles play an important role in carrying out your daily activities, as they affect the movement and positioning of the pelvis and lower spine".

"The Piriformis is a muscle which is deeply located in the buttock, behind gluteus maximus. It starts at the sacrum and connects to the upper surface of each femur and assists with lifting and rotating the thigh away from the body and stabilizing the hip joint".

When your Glutes and Piriformis are tight and weak they can cause soreness in your lower back and hamstrings, impair balance, and also cause radiating pain down your leg due to compression of sciatic nerve. (Your sciatic nerve passes inferiorly to your Piriformis muscle, which when inflamed can compress the nerve, which can cause the pain down your leg.) This is known as the Piriformis syndrome.

So your Hamstring, Glutes and Piriformis strength and flexibility are important factors as they will help maintain proper position of the pelvis, and also take off the load, off each other, and thereby also help in maintaining proper position and biomechanics of the spine.

When it comes to treating lower back pain, it is important to remember that, the muscles supporting and surrounding the low back, need both flexibility and strength. People often either, only do stretching exercises or concentrate only on strength training, which can lead to further problems. An adequate balance between the two is important.

Some of the basic exercises that you can include in your routine are Glutes Bridge, Pigeon pose, Cross-body Piriformis stretch, Knee to chest Piriformis stretch, Seated or lying Hamstring curls, Hip extensions [1-6].

### Conclusion

So the takeaway here is to work towards balancing out your muscles, so that they do not negatively impact your low back when doing your normal everyday activities. Work on these muscles (hamstring, glutes and piriformis) and you will end up complaining less about the oh so dreaded lower back pain.

### Conflict of Interest

No conflict of interest.

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