



## **Top 10 Muscular Imbalances Corrective Exercise Approaches to Better Movement**

**By Sara Lewis, Movement Specialist, Mix Fitness**

*--We can truly improve our quality of movement and reduce aches and pains by addressing the quality of our connective tissue and increasing mobility in our muscles and joints.--*

### **Introduction**

Have you ever visited the doctor just to be told that he couldn't find anything wrong? Many times your doctor may be looking at the wrong symptoms. If you say your knee hurts, he looks at your knee. What if your knee hurts because your hip muscles aren't functioning correctly and putting strain on your knee?

This is where corrective exercise comes in. You're familiar with the term rehab. It's something you do after surgery. I'd like to introduce the term "prehab." These are exercises you do before resorting to physical therapy. Think of corrective exercise as prehabbing your muscles, connective tissue, and joints.

Your joints feel the effects of trigger points, stress, lack of mobility, and restricted movement. When one joint isn't functioning properly, others can suffer. For example, carpal tunnel syndrome is actually an issue with the shoulders. And plantar fasciitis can be caused by a misaligned pelvis.

Random aches and pains are not just a part of getting older. They are finally showing up after years of chronic poor posture and muscular imbalances. I've assessed teenagers and have found the same muscular imbalances that adults face. So, the problems start when you are young and accumulate when there is no intervention. Luckily, corrective exercise can put you on the path to pain-free movement.

To begin understanding how the body is connected, let's look at the joint-by-joint approach. Each joint serves a primary function in the body. Some joints are very mobile and therefore have large ranges of motion. Some joints are stable with less range of motion. Working from the bottom up, here's how each joint functions:

- Foot = stable
- Ankle = mobile
- Knee = stable

Hips/Pelvis = mobile  
Lumbar Spine = stable  
Thoracic Spine = mobile  
Shoulder Blades = stable  
Shoulder = mobile

Let's look at an example. A golfer or tennis player needs the ability to rotate from the hips and spine to swing the club or racquet. As mentioned above, the hips are supposed to be a mobile joint. So what happens when you have tight hip flexors? The rotation in your hips is limited and your lower back (lumbar, which is supposed to be stable) tries to rotate and takes the force of the rotation. That's a recipe for low back pain! And, the power of the swing is compromised.

To properly prehab your body, focus on keeping the mobile joints mobile so the stable joints don't suffer. Mobility doesn't just mean stretching. Exclusively stretching is an incomplete solution to increasing mobility. Mobility is improved by self-myofascial release, also known as, foam rolling, stretching, and specific mobility exercises.

Rolling with a tennis ball or foam roller releases stickiness in your connective tissue. Stretching creates tissue length once the freedom to move has been created by removing the glue. Then, moving your joint through it's full range of motion allows your muscles to do what they should be able to do. Your brain and muscles now understand what freedom of movement is.

Just because your knee hurts doesn't necessarily mean your knee is the problem. Corrective exercise specialists look for causes of pain in other parts of the body that influence the joint where the symptoms are showing up. In my quest to learn about this concept, I heard two different educators discuss how freeing restrictions in your calves and hips will alleviate shoulder pain. The body is way more connected than we know, but the fitness industry is beginning to understand it better!

You may think aches and pain come with aging. Hence the expression, "it sucks to get old." This emerging way of training begs to differ. Restore normal function to the muscles and connective tissue via self-myofascial release (SMR) and massage and rid yourself of nagging pains. Let me give you an example. I have a super tight hip flexor muscle. It makes a hollow popping sound when it moves during certain exercises. Although it is not painful, it limits my stride when running because it doesn't allow my hip to extend the way it should. I spent time in a conference session rolling all the musculature in my lower leg. When I finished and got up and walked around, I had much more range of motion in my hip. Keep in mind, I did not foam roll the hip itself.

### **The problem with simply stretching**

Think about a rubber band with a knot tied in the middle of it. It will stretch on either side of the knot, but the knot won't stretch. In fact, the knot will get tighter the more you pull on the rubber band. Your muscles act the same as the rubber band. A stretch will not maximize the length of your muscles if you have knots in

them! Furthermore, those restrictions reduce hydration to the working muscles.

If you've never tried SMR, I urge you to try it. It will be used in all corrective exercise strategies. Foam rollers work well on the thigh and tennis balls are incredibly useful on the upper body, lower leg and feet. Plus, they are cheap.

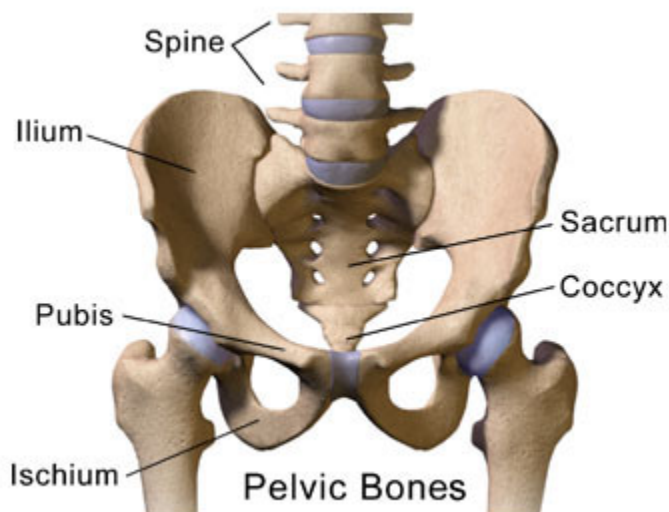
## Surprising Causes of Low Back Pain

Low back pain. So many people have experienced this often unexplained nagging ache. Some of us think we need to stretch the (low) back because it must be tight if it hurts. Many people perform exercises because they think that area must need to be stronger. Others go to a chiropractor. These strategies are all practical and may help, but some may not find any relief from stretching or strengthening.

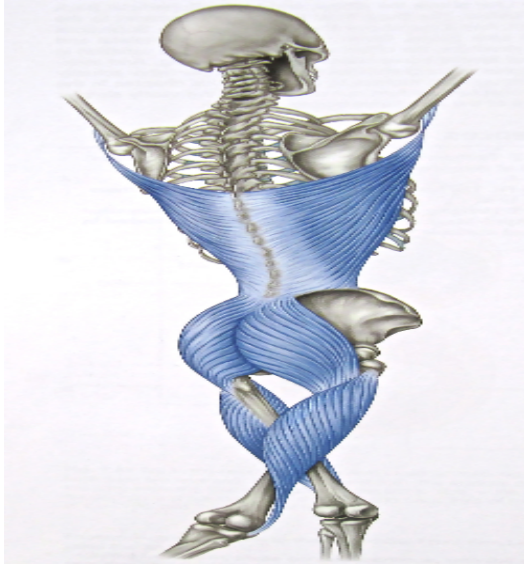
You may have heard that tight hamstrings will cause low back pain. Or that you need to strengthen your abs/core to reduce low back pain. However, those who suffer from lower back pain may each have a different reason why their lower back hurts. One treatment cannot be prescribed for all cases.

When we think about the lower back we think about our spine, but the pelvis is just as important, if not more so. We need to understand the muscles that influence our lumbar vertebrae and pelvis. Muscles move your bones. When a muscle is tight it can pull your bones out of their natural posture. So, muscles that attach to the spine and muscles that attach to your pelvis tell your skeleton how to move.

See how your lumbar spine comes into your pelvis? The bones are intimately related.

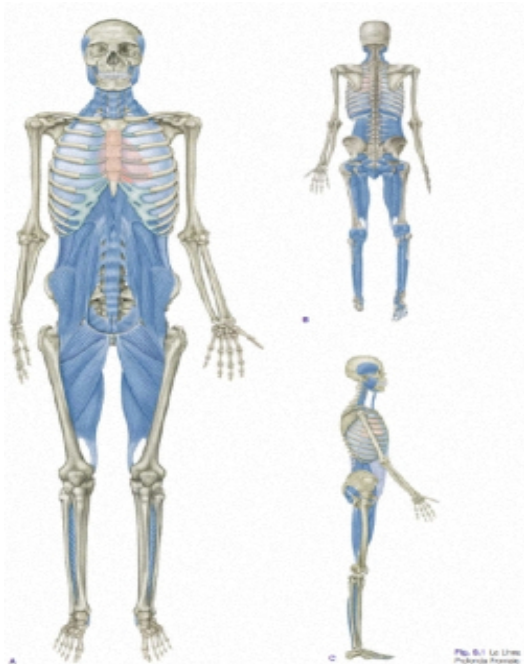


Now take a look at just some of the muscles in your lower back.



The big blue muscle running down from your shoulder joint is your latissimus dorsi, but you know it as your "lats." When it is tight, it can limit shoulder range of motion and pull on your pelvis. (Keep reading for a way you can check for this.) The muscle running across your pelvis is your gluteus maximus or what we commonly call our butt. The final pictured muscle running down the leg is one of your hamstrings which is also attached to your pelvis.

Those are just some of your superficial muscles, meaning the ones closest to your skin. There are more. Just look at all those muscles running across your spine and pelvis! And these two pictures don't cover all of them. All these muscles can affect how your spine and pelvis move.



I hope I didn't lose you in that anatomy lesson, but I wanted to prove my point that muscles control your posture. So, now...let's get back to why your lower back may be in pain due to your muscles.

### **Anterior Pelvic Tilt**

Let's first address why tight hamstrings may be a factor in lower back pain. Your hamstrings may be "tight" due to an anterior pelvic tilt. It's very common, and coming up, I will show you a video to assess if you have the condition.

In the anterior pelvic tilt, the natural curve in your lower back is increased. Your pelvis is tipped forward which lengthens your hamstrings. So they are getting stretched. They may feel tight, but that's because they are constantly resting in an overstretched position. Stretching them will just exacerbate the issue.

Additionally, in an anterior pelvic tilt, your "6-pack" abdominal muscle gets weakened, lengthened and typically the little muscles of your lower back get tight. So this is a case where stretching the hamstrings is not recommended, but stretching the lower back is advised. Strengthening the core and glutes will be important too.

### **Hip Mobility**

Another reason why your lower back may be hurting is due to the mobility of your hips. Above, we discussed the joint-by-joint approach. Some joints need to be primarily stable and other joints are designed to be mobile, or allow large range of motion. The hip is supposed to be mobile. The lumbar vertebrae have very limited movement and are therefore stable.

When the muscles in your hip joint become tight and don't allow the movement or hip rotation they are supposed to, the lower back can suffer. The lower back tries to answer the request for movement, but it is not meant to perform that way. Visualize a golf swing. If the hips cannot turn properly, the lower back is going to try to give you that power. Over time, the repeated shearing forces on your spine can lead to back pain.

### **Poor Posture**

Finally, posture. Slouching and slumping can increase the pressure placed on your lower back. In the case of a hunched back, practicing sitting tall will help. Avoiding common stretches for the back will also help. Strengthening your upper- and mid-back is recommended. Crunches, however, will be your worst enemy because they reinforce the rounded spine.

## The Worst Exercise You're Doing to Strengthen Your Lower Back

### Supermans



This exercise definitely targets the lower back muscles. However, it could be the worst exercise you could possibly do to improve your low back health.

If you have an anterior pelvic tilt or increased curve in your lower back, the muscles that extend your low back are already sitting in a position of contraction. They're hyperactive. They don't need to be strengthened, they need to be released.

Stretching is only one part of the equation. Stretching your lower back may help temporarily, but won't provide a long-term solution. With an excessive curve in your low back, your hip flexors are usually quite tight. They are the muscles responsible for pulling your pelvis out of neutral alignment. When your pelvis is pulled downward, your low back arches. Instead of stretching your lower back, start stretching your hip flexors and you'll be on your way to reducing your lumbar curve.

Additionally, you will need to strengthen your abdominals. Planks are a great exercise for strengthening your abs. However, it's very easy to cheat in a plank. Many people let their shoulders hold them up rather than firing their abs. The key to protecting your low back from "feeling it" during a plank or pushup is tucking your tailbone. The more you can engage your glutes (butt muscles) the harder your abdominals have to work.

Too much sitting and years of not working on your posture frequently contribute to lower back pain. I hope you have seen that in many cases the lower back is not the source of the problem.

## Top 10 Muscular Imbalances

If you think posture simply means a straight spine, you're ignoring all the other joints in your body. Remember that song, "The knee bone is connected to the thigh bone...?" It's really true since your bones and the muscles that move them are all related to each other!

Go ahead and test yourself at home for these ten posture problems. I'm willing to bet you have at least one. Why am I so confident? Because these problems start early in life and you're not aware of them until much later in life when nagging pain creeps in. That's when you start blaming your bad knees or bad back and chalk it up to getting old. Further, you will stop activity you enjoy and/or think you have to start physical therapy. Notable physical therapist, Gray Cook, says, "In many cases, you just pare down your life and limit it so you're more comfortable, but in no way are you more functional. The pain is gone, but it's because you don't agitate it—not because you rehabilitated it."

The good news is there is hope! If you address your muscles and connective tissues, you can reduce pain and restore proper posture. First, you have to know what's wrong. So check all ten of these.

### **1) Turtle Neck**

Do you have turtle neck syndrome? I don't mean an obsession with wearing shirts covering your neck. What I'm referring to is sticking your neck out like a turtle while doing exercises.

Turtle neck is common during exercises on all fours like pushups, planks, and bird-dogs. But, it can appear in any exercise. I see it a lot during crunches and exercises on the TRX. Turtle neck occurs mostly when your head is not being fully supported on a bench or the floor. So, that means it can happen while you're sitting at your desk, driving, or watching TV.

Here's what it looks like:



Are you saying to yourself, "That plank doesn't look too bad?" Consider this picture:



Notice the pole laying across my back. There should be three connection points between the body and pole at all times during the exercises: tailbone, between the shoulder blades, and back of the head. It's hard to see with my ponytail, but the naturally-occurring curve in my neck is not touching the pole.

When standing, turtle neck syndrome is actually considered forward head posture. Forward head posture means your cheekbones are more forward than your collarbone.

Check your head position right now as you read this. Can you pull your chin in, slightly down and back? Think about making a double chin rather than touching your chin to your chest.



This picture shows good head posture.

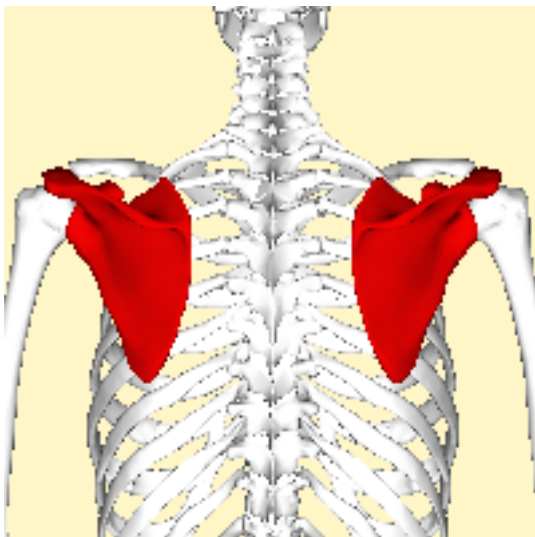
We almost never train the muscles surrounding our neck. Why exercise if it won't make you look good, right? Wrong. The little muscles surrounding your neck are the ones that hold your head upright all day. They stabilize your head. So, how do you know if you have turtle neck syndrome? Have someone look at you from the side as shown in this picture. Your cheekbone should be over your collarbone.

## 2) Scapular Winging

If you've ever watched a red carpet event, you've no doubt seen many celebrities' shoulder blades. You may think to yourself, "her back looks good in that dress," or "her back is really defined." Have a look at this picture of Scarlett Johansson. Want to know what I see? Shoulder dysfunction. Those arrows pointing to the bony prominences on her scapula show off her poor posture.



Your shoulder blades are not supposed to look like angel wings. In fact, they are supposed to lay flat against your rib cage. Flat, meaning you can't see any bony edges when your arms are resting beside you.



Unfortunately, it's not just Hollywood's A-list who have this posture. Chances are you or someone you know has it too. Here's a picture of one of my clients.



On her right, you can see the lower, inside border of her shoulder blade. That means the top part is tilted forward and the bottom part is tilted away from the ribs. On her left side, you can see the entire inside border of her scapula catching the light because it's tilted sideways (similar to ScarJo's above.)

What does all this mean? For many, misaligned scapula spells shoulder problems. Think of someone you know with shoulder pain. Ask them if they've ever had their scapula assessed. The shoulder joint itself is formed in conjunction with the scapula as you can see from the anatomy picture above. Lifting weights overhead or simply putting an item on a high shelf can become cumbersome when your shoulder blades don't allow your shoulder to move properly.

To make matters worse, your spinal posture can influence your scapula too. If you have a rounded thoracic spine (like so many desk jockeys do these days) your shoulder blades are not sitting in ideal posture. Try this right now: Round your spine like a hunchback. Do it slowly a few times and feel how your shoulder blades have to move with your spine. Now, stay hunched over and try to raise your arms above your head. Doesn't feel too good...does it? And you probably had limited range of motion as well.

Your spine, scapula and shoulder are interconnected. If you're dealing

with pain, you need to look at the whole picture. It's all too easy to blame the rotator cuff for shoulder problems when it may not be the culprit.

### 3) Hunchback

You're thinking the hunchback of Notre Dame. I'm thinking a less severe version. To check for this at home, you'll need a partner. Place one finger on your sternal notch and the other finger on your second thoracic vertebrae. Draw a line between the two contact points. Normal is a horizontal line (blue in the picture.) If the contact point in the back is higher than the contact point in the front (green line,) your spine is rounding and/or your rib cage is too low.



### 4) Tight Lats/Limited Shoulder ROM

Tight latissimus dorsi muscles can limit your shoulder range of motion (ROM.) This is quite common and easy to test at home. Simply raise your arms as high as they naturally go. Palms face in. Have someone snap a picture from the side as shown below. Check the angle of your shoulder. It should be vertical. Ideally, you can see most of your face. The person in the picture needs to improve in this area.



## 5) Limited Shoulder External Rotation

Lying on your back, place your arm at 90 degrees and let your forearm fall backwards to the floor as far as it will naturally go. Assess the angle where it naturally stops. If your arm is not in full contact with the floor, your shoulder internal rotator muscles are likely restricting external rotation mobility. Be careful though because it's super easy to cheat on this one by letting your shoulder joint shift forward and by extending your wrist so your knuckles touch the floor. (The white line is "normal.")



## 6) Internally Rotated Shoulders

Internally rotated shoulders are another common symptom of the desk jockey lifestyle: commute to work, sit poorly for 8-9 hours, commute home, sit down for dinner, sit and watch TV. When does the chest ever get to expand and open in the sitting position? Never. That leads to overly tight chest muscles. Your chest muscles start pulling your shoulder joint inward.

Notice the arm lines in the picture below. Your elbows and hands are affected by tightness in the shoulder joints. You can see the back of her hands. Ideally in this position, your hands lay beside your body and you see the thumbs pointing ahead, not in.



Limited shoulder external rotation (#5 above) and internally rotated arms can both be addressed with mobility exercises. Mobility exercises are the ones you never see or read about. They typically don't break a sweat or require much equipment. They just give your joints freedom. You need mobility before loading the body with structured exercises. Instead of playing to our strengths, we really need to correct our weaknesses.

Here is a link to a video of one of the common mobility exercises I give my clients:

<https://www.youtube.com/watch?v=fT20Y8cq6Jo&list=UUktJMmVW9cvSqM9KB89um2Q>

If you work at a computer for the majority of the day and/or spend a lot of time commuting, this is a great way to loosen up your chest and increase range of motion through your shoulder joint. Another way to improve your mobility is to foam roll. You can use a tennis ball on your chest. But the best method to increase mobility is to foam roll, then do mobility exercises. Mobility exercises are different from holding a stretch. As you can see from the video, they gently move your joints through ranges of motion without forcing the muscle to lengthen.

## **7) Anterior Pelvic Tilt**

I made a video demonstrating an at-home test for this with a few corrective exercises. Watch it now. Copy and paste this link to our YouTube channel into your web browser.

[https://www.youtube.com/watch?v=Xen9\\_mqsITA](https://www.youtube.com/watch?v=Xen9_mqsITA)

## **8) Weak Hip Flexors**

Find out if you have this condition by lying on your back with both hands under the natural curve in your lumbar spine. Legs are straight with toes pointing up. Raise one leg until you start to feel your spine pressing down on your hands. When the pressure begins, stop lifting your leg. Notice the angle of your leg. If your leg has not reached 90 degrees of flexion at the hip when you feel the pressure, your range of motion is limited. It could be due to weak hip flexor muscles or tight hamstrings or both.

## **9) Overpronation**

This is another extremely common postural adaptation and if you're a runner, you've probably heard the term. Overpronation occurs when your hips are out of alignment or do not have sufficient stability or mobility. Your ankles and consequently your arches cave in toward each other. Overpronation is usually paired with an anterior pelvic tilt. The poor pelvis position compromises the entire length of the leg all the way down to your

toes. Do your shoes wear on the inside edge of your heel? That's one sign. Do you have bunions or flat feet? Those are more signs. Do you walk like a duck as discussed next?

Watch this video for more discussion on arches, bunions, plantar fasciitis, orthotics and shoes.

<https://www.youtube.com/watch?v=hfiFmrmtr8>

As discussed in the video, the first step to improving your arch is releasing overactive tissue by using a tennis ball. You will also need to strengthen your arch. There are two easy exercises you can do at home.

### **Towel Scrunches**

Place a small towel on the floor with your toes at one end. Use your toes to gather up the towel. Keep bringing the far end of the towel closer to your toes. Then stretch the towel back out. Repeat for a total of 4 reps. Start on hardwood or tile and progress to carpet.



### **Toe Pick-Ups**

Use your toes to pick up little things. The triangle-shaped makeup sponges work well for this exercise. While seated, dump a bunch of them on the floor in front of you. Pick them up one at a time and place them down in a nearby spot.

Just like any exercise program, begin in small increments and gradually build up. One set of each exercise done daily is a good start.

Doing these exercises can help relieve some of your foot pain. Plantar fasciitis is inflammation of the muscles, tendons, and other connective tissue on the bottom of your foot. This is caused by muscles continuously pulling on the heel bone. For overpronators, those muscles are being stretched beyond their limits. Contrary to belief, an overstretched muscle is actually very tight. A stretched rubber band has a lot of tension in it. The same is true for your muscles.

Remember, these exercises only address the foot and ankle. And they are part of a program for healthier feet. As mentioned above, your hip needs to be evaluated as well since it influences the alignment of your leg.

## 10) Duck Feet

Like overpronation, duck feet is actually caused by your hips. Your hip joint and the muscles in it affect your knees and feet just like the shoulder affects your elbow and hands. Have a look at the picture. You may think his feet are turning out, but so are his knee caps which means the problem starts from above the ankle and knee joints. The problem here is tight external hip rotators and weak inner thigh muscles, all of which attach on your pelvis. The bottom of that red line should fall right over the center of each foot.



## Conclusion

Stop accepting pain as part of your life. You have the ability to heal muscular imbalances, you just need to be proactive. Your body responds and adapts to the stresses you place on it. Knowing which muscles need attention provides you the opportunity to choose the most efficient exercises during your workouts. Prehab now with corrective exercises to improve alignment and movement. Start improving the quality of your movement today. And if you need further help, don't hesitate to contact us!

## **About the Author:**



Sara Lewis is the owner of Mix Fitness, a personal training business specializing in corrective exercise and restoring alignment in the post partum mom. With more than a decade of experience in the fitness industry, Sara has worked in a variety of settings including government-based, large commercial chains, and university fitness facilities.

Lewis holds a BS in Exercise & Health Promotion from Virginia Tech and currently holds ACE, ACSM – HFS and AFAA certifications.

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