

LOW BACK PAIN

WHAT IS IT AND WHAT YOU SHOULD DO



PERFECT STRIDE
PHYSICAL THERAPY

*The Perfect Stride
Physical Therapy Guide
to Low Back Pain*

|*FEBRUARY 2019*|



TABLE OF CONTENTS

Disclaimer	3
What is Lower Back Pain	4
Why Do We Get Low Back Pain	5
The Science of Pain	6
What Should I Do	8
Takeaways	19
References	20



DISCLAIMER

The information in this book is meant to be an educational resource. **If you are experiencing back pain or have in the past we advise you to consult a physician or other licensed health care professional.** This is particularly true if you have heart disease or high blood pressure and have not engaged in or been cleared to engage in physical activity, smoke, have high cholesterol, or have any bone, joint or other orthopedic problem that could be made worse by physical activity. In the event that you experience faintness, dizziness, disconcerting pain or shortness of breath at any time while exercising you should stop immediately. The authors advise readers to take full responsibility for their safety and know their limits. Do not take risks beyond your level of experience, training, and/or comfort level. Applying the information covered in this book is solely at your own risk and should not replace or act as a substitute for professional medical advice or treatment.



Low Back Pain is the leading cause of disability worldwide and nearly 80% of individuals in the United States will experience low back pain at one point or another in their lives.

Although back pain can effect anyone, a higher prevalence tends to be found in women than men and incidence increases with age up to 65. More severe forms of back pain tend to occur more often in older individuals.

Degenerative age-related changes of the spine happen as we get older, similar to wrinkles and grey hair. However, this doesn't mean we are all doomed to have chronic low back pain. 90% of all low back pain resolves within six weeks and if equipped with the proper knowledge of movement and general health, everyone has the ability to decrease their risk of developing low back pain

The prevalence of low back pain throughout the United States is staggering. It is a source of extreme economic burden as well as the leading cause for activity limitation and work absence.

In addition to a high prevalence rate, the recurrence of low back pain is estimated to be somewhere between 24% and 33% and in recent decades chronic low back pain (pain lasting 3 months or more) has been on the rise.

In recent decades, chronic low back pain (lasting three or more months) has been on the rise.

'At age 50 80% of asymptomatic individuals presented with disk degeneration on MRI' (3)

RISK FACTORS FOR LOW BACK PAIN



To an extent, normal changes will happen throughout the spine as we age. This may play a role in back pain, but the current literature does not support a definitive cause for initial episodes of low back pain. However, there are some risk factors in our daily lives that we can help mediate.



1) Physical Inactivity: We are always on the move, and often prioritize work before our health. This leads to minimal, if any, time for physical activity. In addition, many jobs require the same repetitive movements, and we never expose our bodies to new positions and challenges.

2) High Levels of Physical Activity: The fitness craze of recent years is great as a step to help combat the major obesity epidemic and general poor health of the United States, which has led to skyrocketing healthcare costs. However, many people may jump into high intensity activities without having the proper preparation, or knowledge, and stress their body too much. This can lead to a pain response by the body telling you , "Hey, you're doing too much."

3) Mobility: Current literature is unclear on the effect of mobility, and strength of different body areas, and how these relate to low back pain. However, what we do know is that if one area of the body does not have adequate mobility to complete a task the body will have to compensate to achieve the goal you are asking it to. We know that improving mobility of the hips, lumbar spine and thoracic spine, can help to improve movement quality and allow the body to adapt to greater movement capacity.

4) Fear and Distress: Strong evidence suggests that avoiding movement out of fear, and increased distress during the early stages of low back pain are correlated with higher rates of persistent pain.

Move Well, Move Often



Let's Talk About Pain



You finally get to go on that safari you have always wanted to when the truck you are in breaks down, and the lion across the plain is hungry and not happy. You hop out of the truck to run away and you fall and fracture your ankle.

You feel no pain as you sprint as fast as you can to safety. Luckily the lion found a gazelle to prey on instead and you are safe, but now you can barely walk and have intense pain.

So what happened? Did you cause more damage standing there, looking back at the what had just happened? Probably not, however your body prioritized not getting eaten over telling you there was damage to your ankle, but now that the threat is gone your brain takes the information from your nervous system regarding the damage in your foot, and you experience pain in your ankle.

The important thing to take from this story is that if the only variable that influenced pain was tissue damage, you would have had pain immediately. Sometimes our bodies are great at suppressing pain in emergencies, however our bodies aren't perfect.

If we think of pain as a fire alarm, we realize that when a fire alarm goes off in a building, it doesn't tell us the whole story. Was it an accident? Is the fire bad? Is it just burnt food? It's impossible to know, but with further investigation we may be able to have a better idea of the cause.

Something similar to this phenomenon can be seen during heart attacks. Do some people get chest pain? Yes, but for others they may have jaw pain, left arm pain, headaches, and more while the real problem has to do with the heart!

A person in a grey and yellow athletic outfit performing a yoga pose (Triangle Pose) against a background of a blue sky and ocean.

Let's Talk About Pain

Similarly, physical pain can be affected by non-physical variables including fear, past experience, beliefs, anxiety, stress and more. Low back pain could be coming directly from an injured structure, however often this is not the entire story. Recent studies have shown, just how many people have common 'pathologies' but don't have any symptoms.

A 2015 study of 3110 individuals without any back pain found that 37% of 20 year olds and 96% of 80 year olds had 'disk degeneration' on MRI (Brinkiji, 2015). Similarly, another study found over 70% of individuals aged 20-70 years had MRI findings that indicated cervical spine (neck) 'disk bulging'.

To better understand how pain and the nervous system work, think of pain as a home alarm.

If you had a home alarm system that went off when a bug flew past a sensor, we would say that this system is too sensitive. This can happen to the human nervous system, this is known as sensitization. When the nervous system is sensitized, it's ability to deal with potentially harmful stressors is decreased and normally pain free inputs can cause pain. Sensitization can occur in different degrees and for many different causes, but luckily many different techniques may be appropriate to help your body to become desensitized and it's important to find what works best for you.

Pain is an output that is part of a complex experience.

I Have Low Back Pain, What Should I Do?



If you have been dealing with low back pain, this is a guide that can help you return to function. If you are pain free, this guide can help you stay that way. This guide is meant for educational purposes and does not replace your local physical therapist. We urge you to seek the appropriate medical provider if you have/are dealing with pain.

When assessing individuals with low back pain, we are assessing the entire body and person in front of us rather than just the spine itself. This also includes assessment of personal beliefs, breathing patterns, relaxation patterns, and much more.

This section of the guide will go through a set of exercises that we use as assessment tools as well as rehabilitation exercises. Not all of these exercises are appropriate for everyone, but as a general rule, **move in whatever way you like that doesn't make your pain worse after.**

Exercise List

- Cat-Camels
- Lumbar Cat-Camels
- Trail Leg 90/90 PAILs/RAILs
- Deadbugs with Foam Roller
- Sciatic Nerve Glides
- Bridging
- Thoracic Windmills
- Child's Pose With Rotation
- Hip Hinging
- Diaphragmatic Breathing
- Walking
- **Any Exercise You Enjoy that Doesn't Make Your Pain Worse!!!!**

Click the Video Titles if you would like to view a youtube video demonstration of the exercises

Low Back Pain is manageable. With a smart exercise routine and adequate mobility you have the opportunity to reduce the risk of low back pain.

Exercises Often Used



Cat-Camels

Execution: In quadruped position, arch your back up like an angry cat, then arch in the opposite direction as if to create the valley in between the humps on a camel's back.

Modify: If the end range of either motion causes pain, do not push into it. Want to try to isolate your Lumbar Spine? Place the top of your head on the table and repeat the exercise.

Reps: 15x Cat & 15x Camel

Video Demo: [Cat-Camel](#) ; [Lumbar Cat-Camel](#)



Exercises Often Used



Trail Leg Hip 90/90 PAILs/RAILs

Execution: In the 90/90 position (shown below) sit up as tall as possible and rotate your body towards your back foot. Think about bringing your sternum towards your foot. Then, drive your knee and ankle of the trail leg into the ground. Start with a 10% max effort contraction, and slowly build up tension until you can't push any harder or have pain. Hold this contraction for 10 seconds. After your 10 seconds is up, ATTEMPT to lift the leg off the floor - hold this contraction for 10 seconds.

Modify: If you are having trouble place a pillow under your hips.

Reps: 3 Rounds

Video Demo: [Hip 90/90 PAILs/RAILs](#)



Exercises Often Used



Deadbug With Foam Roller

Execution: Lie on your back with a short foam roller, yoga block or any similar sized object placed in between your right arm and left leg as shown below, create tension through your core by pushing your leg up and arm down. Then, simultaneously lower your right leg and left arm toward the ground while maintaining tension on the foam roller with your opposite limbs. Repeat on the opposite side.

Modify: If you get pain when your leg/arm are all the way out, only go through a partial range of motion and progress as tolerated.

Reps: 10x each side. Add 1-2 more sets as tolerated

Video Demo: [Deadbug With Foam Roller](#)



Exercises Often Used



Sciatic Nerve Glides

Execution: Lie on your back and hold the back of your legs at a 90 degree angle as shown below. Slowly kick up until you feel light tension. Once here, pull your toes up towards you, this should increase the tension felt. throughout the back of the thigh and or lower leg

Modify: If you experience pain, use a smaller range of motion and/or do not do the part of the exercise that involves ankle motion.

Reps: 15x on each leg. Stop if this exercise increases your pain.

Video Demo: [Sciatic Nerve Glides](#)



Exercises Often Used



Glute Bridging

Execution: Lie on your back with your feet flat on the floor as shown below. Lift your hips off the ground by squeezing your glutes. Want more of a challenge? Try it on one leg!

Modify: If you have pain when doing this exercise, don't lift your hips as high off the table. If you still have pain after doing this, start by just squeezing your glutes without lifting off the table.

Reps: x15 Add 1-2 sets as tolerated.

Video Demo: [Glute Bridge](#)



Exercises Often Used



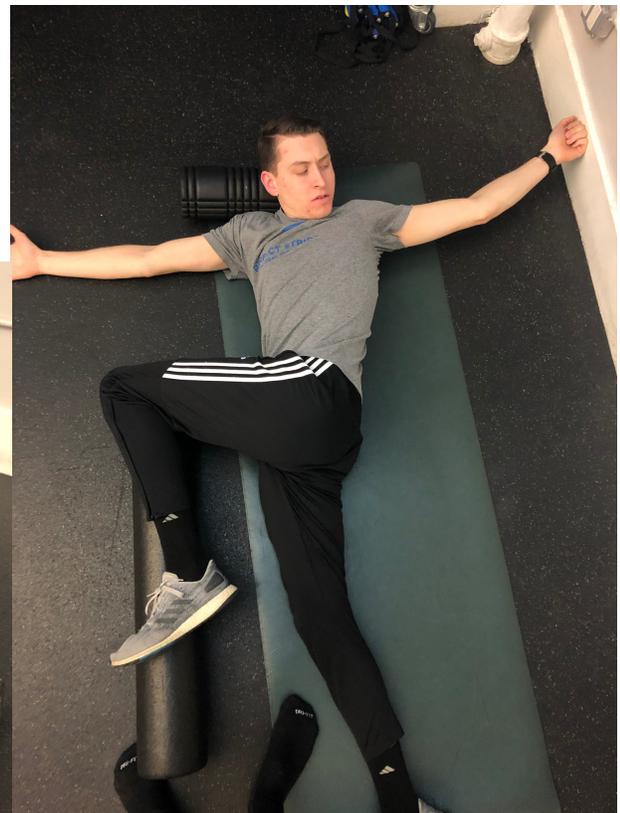
Thoracic Windmills

Execution: Start by lying on your right side with a foam roller under your left lower leg as shown below. Slowly bring your left arm up and around all the way over to the other side, driving your left shoulder to the ground, rotating through the trunk. Return to the starting position.

Modify: If you are having back pain, only rotate partially in a pain free range, if this hurts your shoulder keep your arm behind your head as if you were washing the back of your head.

Reps: x5 each side

Video Demo: [Thoracic Windmills](#)



Exercises Often Used



Child's Pose with Rotation

Execution: Sitting in child's pose, place your left arm behind your back and place your right forearm on the ground. Rotate towards your left side, make sure to rotate your neck as well!

Modify: If child's pose is painful, you can try this exercise kneeling upright first. If this bothers your shoulder, try this exercise with your hand behind your head instead.

Reps: x5 each side.

Video Demo: [Child's pose](#)



Exercises Often Used



Hip Hinge

Execution: Start in a comfortable standing position and push your hips back as if to sit in a deep chair, sliding your arms down the sides of your legs and keeping your upper back straight. Hinge until you feel tension in the back of your legs.

Modify: If you get pain when hinging, start with some kneeling hinges. Go from kneeling tall, to sitting back on your heels.

Reps: x10. Add 1-2 sets as tolerated and then weight when ready!

Video Demo: [Hip hinge](#)



Exercises Often Used



Diaphragmatic Breathing

Execution: You can practice breathing in any position, we recommend starting on your back with your feet flat on the floor. Place one hand on your stomach and one on your ribs. The hand on your stomach should rise and fall while the hand on your ribs should only display small amounts of movement. Breathe deep and slow. Inhale for two seconds and exhale for four seconds.

Modify: For more challenge try this out in different positions while maintaining a relaxed state.

Reps: Start with 3-5 minutes progress time as desired



Exercises Often Used



Walking

Execution: If walking is painful, start with only 15- 30 seconds at a time, then rest. Repeat as tolerated. It's better to use smaller intervals with rest than trying to go for one long walk that increases pain!

Modify: Decrease total time walking or increase rest breaks if needed

Reps: Start with 5 minutes or less. Progress time as tolerated.



Takeaways



Back Pain is common, remember that over 80% of individuals will experience back pain at some point in their lives.

Back Pain can be influenced by many different variables including physical inactivity, nutrition, physical and non-physical stress, sleep, fear and anxiety.

The causes of non-specific low back pain are not well defined throughout the literature.

90% of low back pain will resolve in 6 weeks.

Flexing is not bad for your back, however it may be temporarily aggravating during an episode of pain.

If you have low back pain, seek out a trusted provider to rule out serious pathology and guide you towards your goals.

Move Well, Move Often.



REFERENCES

1. Delitto A, George SZ, Dillen LVAN, et al. Clinical Practice Guidelines Linked to the International Classification of Functioning , Disability , and Health from the Orthopaedic Section of the American Physical Therapy Association. 2012. doi:10.2519/jospt.2012.0301.
2. Lehman, G. Reconciling Pain with Biomechanics. 2019.
3. 1. Brinjikji W, Luetmer PH, Comstock B, et al. Systematic Literature Review of Imaging Features of Spinal Degeneration in Asymptomatic Populations. 2015;36(4):811-816. doi:10.3174/ajnr.A4173.

Authors:

Tyler Denn-Thiele PT, DPT, CSCS
Vikash Sharma PT, DPT, OCS, COMT
Joseph Gambino PT, DPT, CSCS

Want More Information?

Perfect Stride Physical Therapy
(917)-494-4282
41 Union Square West
Suite 325
New York, NY 10003

perfectstridept.com