Pilates for Low Back Pain Relief

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Abstract

This paper outlines the research and looks at Pilates as a form of rehabilitation for low back pain. Low back pain affects most people at some point in their life. It is one of the most commonly described problems that people seek help to minimize their pain and to restore functional movement in their activities of daily living. Without learning proper movement techniques, people might cause other injuries in their body by compensating for their lack of a strong, stable core. Pilates focuses on helping people learn to activate the transverse abdominis, obliques, pelvic floor, multifidus, and the deep erector spinae muscles. By leaning this activation, low back pain can be lessened.
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The lower back region that most people refer to when describing their low back pain is the lumbar region consisting of 5 vertebrae (L1-L5). The area connects to the sacrum, which can also cause pain in the lower back, such as sciatica. The lumbar spine is the natural curve that most people have in the low back region. When people have poor posture and weak abdominal muscles, the area can become unstable and cause for compensations that adds strain to the area. Over time this will cause the vertebraes and intervertebral discs to compress.
possibly causing herniated and/or bulging discs.

Without strengthening the surrounding supporting muscles, low back pain will occur. By strengthening the trunk muscles (transverse abdominis, internal and external obliques, rectus abdominis), the back will be more supported in all activities.

As well as the muscles on the front of the body, attention much be given to the posterior muscles too (spinal erectors and multifidus).
When all these muscles are trained to work properly, low back pain can be minimized.

Introduction:

Low back pain is a common complaint by many people. At some point in their lives, most will suffer some form of it. The condition can become chronic if proper attention is not paid to how we move and function in our daily lives. One method that has been gaining support in the research is how Pilates can be used to treat the problem. Back pain has been associated with the weakness and dysfunction of the ‘core muscles’ also known as the deeper abdominal muscles. These include the transverses abdominus (TA), multifidus (MF), pelvic floor muscles and the diaphragm muscle. The Pilates method aims to increase the strength and endurance of these ‘core muscles’, to lengthen and stretch the lumbar spine, which in turn decreases the compression of the joints, which causes an alteration in the tilt of the pelvis, which can lead to low back pain (Gladwell et. al, 2006). A study conducted by Gladwell et.al (2006) showed that subjects with non-specific low back pain who participated in a six week Pilates program experienced an improvement
in their back pain symptoms, compared to the control group who did not participate in Pilates. The Pilates group had improvements in general health, pain levels, sports functioning, flexibility, and proprioception. Another study showed that subjects who participated in a Pilates based exercise program to address lower back pain showed equal improvements in measures of pain, function and core stability that were equal to the subjects that participated in traditional lumbar stabilization exercises that are provided for rehabilitating low back pain (Horvath, 2005). Pilates based principles and exercises play a significant role in the Back RX. A study was conducted that showed that 70% of subjects who participated in the Back RX program reported a successful outcome with their back pain at the one year mark compared to only 33% in the control group, who did not participate in the program (Vad, Bhat, & Tarabichi, 2007). Another study showed that spinal stabilization exercises, such as Pilates, are beneficial in managing back and neck pain (Moffett & McLean, 2006). Back pain has been associated with the weakness of ‘core stabilizers’, such as the multifidus and transverse abdominus. Re-educating the postural (stabilizing) muscles of the spine and shoulder girdle, with Pilates, has been shown to improve back pain and function (Moffett & McLean, 2006). Patients suffering from low back pain, who partake in programs that are designed to improve their flexibility experience better function and fewer symptoms than their baseline measurements (Segal, Hein & Basford, 2004). The study conducted by Segal et al (2004) showed that just one hour of Pilates per week improved the flexibility of their subjects that was
similar to changes achieved by 10 sessions of intensive physiotherapy. The benefits of Pilates include the development of strength, flexibility, proprioception, muscle balance and symmetry, balance, control, and improved posture and body awareness. The increased strength of the ‘core’ muscles allows for more efficient movement of the extremities. Thus, functional activities that require balance and control are performed more efficiently and safer (Bryan & Hawson, 2003). Machine based Pilates allow muscles to work concentrically and eccentrically using springs as resistance. Muscles also co-contract and stabilize to control movements and the path of the equipment. Exercises can also be modified to suite a person’s capabilities by changing the resistance of the springs or altering the range of motion of an exercise (Bryan & Hawson, 2003).
Case Study

Matt is a 47-year-old male who does a lot of sitting in his job. He has started to incorporate a standing desk some of the time to help with his chronic low back pain. He also carries gear required for his job around his waist that adds additional weight to support. His hobbies include woodworking and gardening, which has him standing and bending over a lot. His exercise in the past has included weight lifting and running, but lately he has been attending classes at Orangetheory Fitness. He has seen some improvement in his health, but would like to include Pilates in his routine to hopefully improve his low back pain. Matt has weak abdominal muscles, and tight hip flexors and hamstrings. He suffers from sciatic on the left side of his body sometimes. Goals for Matt are to strengthen the weak areas of his body (core and upper back stabilizers), and to stretch and lengthen the tight areas (hip flexors and hamstrings).
## Conditioning Program

<table>
<thead>
<tr>
<th>Block/Equipment</th>
<th>Exercises</th>
<th>Purpose/ Desired Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm Up/ Mat</td>
<td>Pelvic Curl, Spine Twist Supine, Chest Lift, Chest Lift with Rotation</td>
<td>Pelvic lumbar stability, spinal rotation, abdominal strength</td>
</tr>
<tr>
<td>Footwork/Reformer</td>
<td>Parallel Heels, Parallel Toes, V- position Toes, Open V Heels, Open V Toes, Calf Raises, Prances, Single Leg Heels, Single Leg Toes</td>
<td>Hip/Knee extensor strength, hamstrings, quads, ankle plantar strength, ankle dorsiflexion</td>
</tr>
<tr>
<td>Abdominals/Reformer</td>
<td>100 Prep, Coordination</td>
<td>Abdominal strength, shoulder extensor control, pelvic lumbar stabilization</td>
</tr>
<tr>
<td>Hip Work/Reformer</td>
<td>Supine Leg Series: Frog, Circles Down/Up, Openings</td>
<td>Hip adductor strength, knee extensor control, adductor stretch &amp; strength, pelvic lumbar stabilization</td>
</tr>
<tr>
<td>Spinal Articulation/Reformer</td>
<td>Bottom Lift</td>
<td>Hamstrings, hip extensor control, spinal stability and articulation</td>
</tr>
<tr>
<td>Stretches/Reformer</td>
<td>Standing Lunge</td>
<td>Hip flexor &amp; hamstring stretch</td>
</tr>
<tr>
<td>Full Body Integration 1/Reformer</td>
<td>Elephant, Downstretch</td>
<td>Trunk/shoulder stability, hamstring and shoulder stretch, hip flexor stretch, abs, shoulder extensor control</td>
</tr>
<tr>
<td>Arm Work/Reformer</td>
<td>Supine Series: Extension, adduction, circles up/down, triceps</td>
<td>Scapular stabilization, shoulder extensor and adductor strength, shoulder mobility, elbow extensor strength</td>
</tr>
<tr>
<td>Full Body Integration 2</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Leg Work/ Wunda Chair</td>
<td>Leg Press Standing, Backward Step Down</td>
<td>Hip/knee extensor control, hip adductor control, gluteal work</td>
</tr>
<tr>
<td>Lateral Flexion &amp; Rotation/ Wunda Chair</td>
<td>Side Kneeling Stretch</td>
<td>Oblique stretch/control</td>
</tr>
<tr>
<td>Back Extension/ Wunda Chair</td>
<td>Swan Basic, Back Extension Single Arm</td>
<td>Scapular stability, back extension strength, abdominal control, pelvic lumbar</td>
</tr>
</tbody>
</table>
Conclusion

Low back pain will affect most people over their lifetime at some point. Proper training and recruitment of muscles in a Pilate’s program can help alleviate the pain. By doing Pilates Matt feels more awareness in his body, and has increased his knowledge of posture and proper positioning/alignment in doing his exercises. He is gaining abdominal and back extensor strength, and is lengthening his tight hip flexors and hamstrings. He is better able to maintain a neutral spine and feels the difference in his activities of daily living. He is looking forward to continuing on his Pilates journey and hoping to continue making progress on alleviating his back pain totally.
Bibliography


Picture 1 – [www.backhurts.net](http://www.backhurts.net)

Picture 2,3 & 4 – [www.pinterest.com](http://www.pinterest.com)