Post-Polio Syndrome
And
Pilates

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Abstract

Post poliomyelitis syndrome (PPS) comes about after up to 40 years of contracting the poliovirus. PPS is considered a chronic syndrome associated with progressive muscle weakness and fatigue. The BASI Block System works the body as a whole and can be beneficial for those with Post poliomyelitis syndrome. Pilates can be a good way to strengthen muscles affected by PPS without making the muscles any weaker or without causing fatigue.
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Atrophy of the calf musculature in Post-Polio Syndrome (Copyright: Lincolnshire Post-Polio Library)
In the early 1900’s poliomyelitis (polio) was a worldwide epidemic. “Polio was once one of the most feared diseases in America, responsible for paralysis and death (Mayo Clinic).” Although polio is not prevalent in the United States, “the polio virus still remains endemic in 10 countries: Afghanistan, Angola, Egypt, Ethiopia, India, Niger, Nigeria, Pakistan, Somalia, and Sudan (AFFA).” “Up to 40 years after contracting acute poliomyelitis during peak epidemic periods, at least one fourth of the affected population have developed symptoms similar to those of the initial onset of the disease (Birk 327).” People who were affected by the polio virus “reported late onset neuromuscular symptoms and a decline in functional abilities (Koopman).” These symptoms included muscle weakness, fatigue as well as muscle fatigue, muscle and joint pain, muscle cramps and intolerance to cold. The symptoms are “referred to as Post Poliomyelitis Syndrome (PPS) (Koopman).” “The original treatment protocol was to exercise aggressively (AFFA)” and to lift heavy weights to regain the strength that was lost. A study performed by neurophysiologist Alan McComas revealed that muscles affected by the poliovirus had “lost 60 percent of their motor neurons and that only 40 percent of motor neurons were lost in the muscles not affected by the virus.” McComas figured the reason the motor neurons were dying was due to the muscles being severely overused from lifting heavy weights (Bruno 118-121). “It is now known that exercise should be performed at no greater than sub-maximal levels (AFFA).”
“Carefully monitored, slowly increasing, non-fatiguing exercise can help polio survivors to regain muscle strength (Bruno 140).”

Pilates is a good low impact form of exercise that can help to increase strength in people with PPS without overloading the muscles like in weight training. “Several studies have found benefits of low-impact exercise programs in post-polio syndrome. The Pilates Method involves low-impact, non-fatiguing exercises, it can be an appropriate form of exercise for people with the syndrome, who are experiencing new muscle weakness and fatigue (Schulze,Negus).” The BASI Block System would work the client’s body as a whole. Concentrating on the muscles not affected by the poliovirus as they are still weak, and still giving some attention to the muscles affected by the virus.

**Case Study**

Marty is a 67 year old female who, about 7 years ago, was diagnosed with Post-Polio Syndrome. Marty presents with atrophy and weakness of her left leg with no other limitations. She has been active her entire life and started practicing Pilates about 5 years ago. She also takes the Zumba Gold class at her gym, which is primarily for active aging adults. Her goals are to maintain her weight, keep her muscles strong and stable, gain core strength, and be able to stay active.

The following Pilates workout is designed with Marty in mind. The exercises listed below will help Marty with her goals and will also give her muscles the appropriate workout.
<table>
<thead>
<tr>
<th>Warm Up</th>
<th>Fundamental Warm Up: Pelvic curl, Spine twist supine, Chest lift, Chest lift with Rotation.</th>
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<tbody>
<tr>
<td>Footwork</td>
<td>Reformer: Parallel heels, parallel toes, v-position toes, open v-position heels, open v-position toes, calf raises, prances, single leg heel, single leg toes</td>
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<tr>
<td>Abdominal Work</td>
<td>Reformer: Hundreds, coordination</td>
</tr>
<tr>
<td>Hip Work</td>
<td>Reformer: Frog, circles down, circles up, openings</td>
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<tr>
<td>Spinal Articulation</td>
<td>Reformer: Bottom lift</td>
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<tr>
<td>Stretches</td>
<td>Reformer: Standing lunge</td>
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<tr>
<td>Full Body Integration</td>
<td>Reformer: Stomach massage series: Round back, flat back, reaching</td>
</tr>
<tr>
<td>Arm Work</td>
<td>Cadillac: Arms Standing Series: Chest expansion, hug-a-tree, circles up, circles down, punching, biceps</td>
</tr>
<tr>
<td>Full Body Integration A/M</td>
<td>Omitted due to strength.</td>
</tr>
<tr>
<td>Leg Work</td>
<td>Magic Circle: Sitting Series: Ankles, below knees, above knees</td>
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<tr>
<td>Lateral Flexion/Rotation</td>
<td>Ladder Barrel: Side over prep</td>
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<td>--------------------------</td>
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<tr>
<td>Back Extension</td>
<td>Mat: Swimming</td>
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</tbody>
</table>

The exercises chosen for Marty were based on her goals while considering her condition of PPS. Since the exercises are low impact, they will help her regain some of the strength she has lost without causing further damage.
Conclusion

Post-Polio Syndrome causes fatigue and muscle weakness and may cause discomfort in joints. While there is no cure for PPS, there are ways to alleviate some of the symptoms. Pilates will not be the cure all for this disease. It may help those like Marty who are affected by it, by helping to strengthen the muscles that have been weakened by the virus.
Bibliography


