

## Resistance Training and Polio

Fitness professionals understand the benefits of resistance training for their clients. But what about clients who have severe degenerative diseases such as Polio? Polio is also known as infantile paralysis as 50% of its sufferers are between ages three and five. It is a viral disease that enters the body orally. Infection initially occurs in the small intestine, then rapidly invades the nervous system.

Currently, Polio is almost exclusively a third world disease. It is unlikely many fitness trainers will be confronted with a true case of Polio. Rather, they may have a client who is suffering from Post-Polio syndrome.

Post-Polio is a condition experienced by those who have previously had Polio. Symptoms may appear up to 20-40 years after their initial infection. Symptoms include muscular weakness, pain, fatigue, memory problems and chronic fatigue-like symptoms.

The affects of Polio can range from muscular atrophy so complete no training is possible, to muscular weakness that may put the client at risk for an overuse injury. There are also cases where only low grade weakness is present and resistance training is safe.

Polio victims have the capability to compensate for their condition. This is done by two methods:

\*Muscle fiber hypertrophy. This most likely occurs when a load is placed on an already weakened muscle. The muscle responds similar to heavy lifting. Muscle fibers significantly increase in size but not in number.

\*Nerve fiber re-innervation. Nerves are capable of re-innervating four to ten times the number of muscle fibers they service. Polio sufferers can achieve this phenomena through resistance training.

While Polio victims are capable of enlarging their muscle fibers just like healthy people, endurance can be a problem as the mitochondria (power houses of the cells) don't increase simultaneously. Endurance training can result in a chronic fatigue-like syndrome and long lasting weakness.

Trainers should view moderate resistance training of debilitated limbs and musculature as the main goal. Moderate intensity resistance training has, indeed, been shown to improve muscle activation in Polio patients. The trainer should also attempt to do some endurance work as long as the patient is carefully monitored to ensure no undue, long lasting fatigue is incurred.

## About the Author

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