



Cardiac Rehabilitation: Should Polio Survivors Just Say No?

Dr. Richard L. Bruno, HD, PhD

Director, International Centre for Polio Education

www.postpolioinfo.com

Let me begin with the conclusion: in nearly 37 years of evaluating, treating and studying polio survivors I have never seen one who has had a heart attack, heart bypass surgery or heart failure who has 1) been able to do exercise required for cardiac rehabilitation or 2) suffered as a result of their inability to do cardiac rehabilitation.

Cardiac rehabilitation exercises the heart muscle and the "skeletal" (limb and diaphragm) muscles. The purpose is not only to exercise the heart but also to exercise skeletal muscles in order to treat "muscle deconditioning" to improve muscle strength and endurance and to reduce fatigue and shortness of breath.

First, polio survivors' muscle weakness is *not* due to deconditioning or muscle atrophy but results from a reduced number of remaining, poliovirus-damaged neurons losing their ability to function as a result of decades of overuse. Adding cardiac rehabilitation exercise -- swimming, trying to work out on a treadmill, exercise bicycle or upper extremity exercise "bike" – on top of the overuse polio survivors experience just doing their daily activities - will *decrease* muscle strength and endurance. Second, polio survivors' reduced muscle strength and endurance make it nearly impossible for them to raise their heart rate into the "cardiac conditioning zone" and keep it there.

There are few studies of heart exercise in polio survivors. In one, polio survivors did five minutes of bicycle exercise followed by a 60-minute exercise class twice a week for 5 months. (Obviously any polio survivor who was able to do five minutes of bicycle exercise followed by a 60-minute exercise class twice a week for 5 months did not have Post-Polio muscle weakness or fatigue and did not have PPS!) In this torturous study, polio survivors' legs became 4% *weaker* while their maximum heart rate during exercise increased only by 12 beats per minute. This study demonstrates the trade-off: there is no benefit to exercising your heart slightly if you thereby stress and kill off poliovirus-damaged motor neurons.

All that being said, it's important to note that cardiac rehabilitation is not just exercise. It involves working with your doctor and a nutritionist to use medication and diet to manage cholesterol and weight, reduce blood pressure, eliminate smoking and, perhaps most important, reduce stress!

So, talk to your doctor about "Conserving to Preserve" your remaining, poliovirus-damaged neurons to treat PPS while, at the same time, helping your heart be the best pump it can be.

[The Encyclopedia of Polio and Post-Polio Sequelae](https://www.papolionetwork.org/encyclopedia.html)

contains all of Dr. Richard Bruno's articles, monographs, commentaries, videos and "Bruno Bytes"

<https://www.papolionetwork.org/encyclopedia.html>

Are you looking for a specific topic?

The Encyclopedia Index (By Subject) is available by clicking [HERE](#)