



## Disuse Muscle Atrophy?

A Bruno Byte

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Question: My doctor recommended a leg brace. Won't not using my muscle cause them to shrink?

Answer: Muscle atrophy (“shrinking”) is not common in polio survivors, even in those with post-polio muscle weakness. And using muscles less – like when you brace a weakened leg or use a wheelchair – doesn’t bring on muscle atrophy or more muscle weakness. Why? Because PPS muscle weakness has nothing to do with the muscles. PPS muscle weakness is caused by the limited number of remaining poliovirus-damaged spinal cord motor neurons “tiring out” and being unable to turn on muscle fibers. Polio survivors have been driving a car with five damaged cylinders, that used to have ten good cylinders, at 80 miles an hour for 40 years. Obviously the cylinders are going to give out. Exercise is like driving that car at 120 miles an hour!

Evaluating, treating and studying more than 7,000 polio survivors over 35 years, I have never seen disuse atrophy. But I have seen marked *increases* in strength with *reduced* use of overused, remaining, poliovirus-damaged motor neurons. Polio survivors are amazed when, just by using a brace, crutches or even a power wheelchair, their legs get stronger!

Why are muscles stronger *not with* exercise but *with* rest? Because poliovirus-damaged neurons are being given a rest. Hence the credo: **Conserve to Preserve!**

### **The Encyclopedia of Polio and Post-Polio Sequelae**

contains all of [Dr. Richard Bruno's](#) articles, monographs, commentaries and “Bruno Bytes”  
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