



Frederick M. Maynard, MD

**Question:** *I read about muscle wasting in people who age (sarcopenia) in the syndicated column of “Dr. Donohue.” As a 78-year-old polio survivor who is getting weaker, I am not sure if it is post-polio weakness or aging weakness. Is there a way to tell the difference? Does it matter? Are the management recommendations different for each cause?*

**A:** Sarcopenia is a descriptive term for reduced muscle mass and is observed in aging people. While there is undoubtedly a “genetic programming” component to age-related sarcopenia, much of it is related to the reduced activity levels that are common among older people for many reasons and that result in disuse atrophy of muscle.

There is no reliable way to differentiate age-related (genetic) sarcopenia from underactivity-related sarcopenia; and both can be improved through strengthening exercise. The amount of increased muscle mass and strength achieved may be limited by the genetic component. The amount of effort will limit results to reverse the underactivity component.

Polio survivors have lived with sarcopenia as a result of nerve cell loss after acute polio viral infection. While rehabilitative exercise efforts led to increased strength in the early post-polio years, the amount of nerve cell loss limited the maximal strength that could be achieved. Aging survivors are vulnerable to genetic-related, as well as underactivity-related sarcopenia. Additionally, they are probably vulnerable to an accelerated age-related loss of motor nerve cells and a “shrinking back to normal size” of motor units (the total amount of muscle tissue

connected to and supplied by one motor nerve cell). Again, exercise and activity can at least slow down declining strength from these causes.

In answer to your practical questions, there is no reliable way for individuals who had polio to differentiate new neurogenic weakness (neuropenia) from new muscle weakness (sarcopenia). It probably does not really matter because both can be slowed down or partially reversed through strengthening exercise and/or increased activity. The challenges of successfully achieving these theoretical benefits are also the same: how to avoid overuse pain and/or strain to muscle, joints, tendons, ligaments and other musculoskeletal structures as a result of exercise.

To the extent a post-polio person’s new weakness is largely neurogenic, the more challenging it will be to find the optimal level of exercise that is sufficient for strengthening without producing pain/injury. ▲

Please see PHI’s “*Recommendations on Exercise for Post-Polios*” ([www.post-polio.org/edu/pphnews/pph19-2a.html](http://www.post-polio.org/edu/pphnews/pph19-2a.html)) to learn more about these challenges.

SEND YOUR QUESTIONS  
FOR DR. MAYNARD TO  
[INFO@POST-POLIO.ORG](mailto:INFO@POST-POLIO.ORG).