



Frederick M. Maynard, MD

## Ask Dr. Maynard

Send your questions for Dr. Maynard to [info@post-polio.org](mailto:info@post-polio.org).

See other questions at [www.post-polio.org/living-with-polio/articles-post-polio-health#AskDrMaynard](http://www.post-polio.org/living-with-polio/articles-post-polio-health#AskDrMaynard)

**Question:** *About 20 years ago at one of your conferences, the state of the art said “neurogenesis in muscles affected by polio was limited. The nerves died, new sprouts formed new nerves, but these new sprouts only had a 50-year life span, and thus, post-polio. Therefore, don’t overuse your affected muscles.”*

*I need new motor neurons in my left calf. I’m studying neuroscience this semester and read that adult neurogenesis occurs in the dentate gyrus, subventricular zone, striatum and cerebellum. The striatum has motor function.*

*Is there new data? Is it still true that overuse will kill those original sprouts and therefore the new nerves? Is exercise now recommended, or is stem cell injection the only way to form new motor neurons in degraded muscle?*

**Dr. Maynard:** Thank you for your thoughtful questions concerning neurogenesis after paralytic polio. The leading theory for post-polio syndrome remains distal degeneration of enlarged motor units many years later after the initial polio infection with nerve damage. There is little new data to explain what triggers the late degeneration. Compared to 20 years ago, most clinicians who see many polio survivors recognize that “exercise” remains important for preventing further weakening and that too much exercise (as manifest by transient overuse weakness) is likely to hasten weakening from further denervation of enlarged motor units.

I recommend careful individual evaluation to consider possible exercise prescriptions to meet realistic goals and to be compatible with one’s past and current (examination-based) capabilities and functional demands (intensity and duration of daily activities).

Stem cell injections have shown some promise for neurogenesis in the central nervous system but NOT in motor nerve cells of the spinal cord whose long axons reach voluntary muscle and are the basis of the peripheral nervous system.

**Question:** *I have recently been diagnosed with post-polio syndrome by a neurologist. I am 76 years old now and contracted polio when I was four. I remember my mom putting hot mustard plasters on my neck and shoulder. I read about Sister Kenny and her methods of treating polio. What can I do to reduce muscle tightness and poor mobility in my affected left leg? I find it hard to sleep. When I go to bed the muscle gets tighter, and I keep waking up with pain. Should I use heat? I take a muscle relaxant, and it helps slightly. I would appreciate your input.*

**Dr. Maynard:** Painful nighttime tightness in weakening polio-affected legs can usually be helped by both stretching exercises, especially before retiring for the night, as well as by careful consideration of options for reducing overuse of weak or weakening muscles. Both options require careful evaluation by knowledgeable rehabilitation professionals (doctors and therapists) and electromyographic testing (EMG) may be helpful in

confirming your diagnosis of PPS, as well as the extent and severity of nerve loss in your symptomatic extremity. Mild oral analgesic medication and/or analgesic topical creams can be of additional help for pain control but are rarely sufficient for lasting relief/resolution of symptoms without the former actions.

**Question:** *I am a 74-year-old polio survivor. I have facial nerve involvement with paralysis of the right side of my face. Now I have problems with chewing, so I have to use a hand under my mandible to push it up. I have also started having laryngospasms with severe inspiratory stridor which has resulted in calling the EMS twice. Have you seen or heard of patients with these problems with post-polio syndrome? Could you advise me on how to deal with these problems?*

**Dr. Maynard:** Facial nerve weakness from polio is a well-known, although not common, aspect of bulbar polio. New later-life problems with chewing might be from further weakening of facial muscles but laryngospasms are a sign of aspiration from weakness of the throat muscles that protect the larynx and airways during swallowing. Dysphagia, or trouble swallowing, is a common new symptom among bulbar polio survivors. Given the severity of your laryngospasms, you urgently need a swallowing study (barium videofluoroscopy) and evaluation by a speech language pathologist and ENT physician to determine your best options for management to prevent choking complications, such as aspiration pneumonia or life-threatening laryngospasms. ■

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