



Bruno Bytes
Fourth Quarter 2021
From Dr. [Richard L. Bruno, HD, PhD](#)
Bits and Tidbits from the Post-Polio Coffee House

4th Quarter 2021 Topics Include:

Slow Bellies, Back Support, Blood Sugar, Sleep Apnea, FDR, Heat Intolerance, Muscle Atrophy, Rotator Cuffs, SSDI and Muscle Overuse.

On the topic of Back Support

Question: I use a motorized chair the majority of the time. I have recently been unable to stand and walk longer than a few minutes, making it more difficult to do much cooking, which I love. I've noticed that besides my legs getting weaker, my core and back muscles are also weakening thus adding to my fatigue, pain, and reduced stamina. My husband bought me a back support brace from the pharmacy but it doesn't seem to be helping. Will a back support cause muscle atrophy?

Dr. Bruno's Response: Limited use of a back support -- for a few minutes to maybe half an hour -- probably won't cause muscle weakness or atrophy. But the need for a back support - being "unable to stand and walk longer than a few minutes" and "core and back muscles are also weakening" - is your body telling you you're overworking those muscles' motor neurons. Speak to your physician about having an occupational therapy evaluation in your home to help you find energy efficient ways to cook even while sitting. Remember: "Conserve to Preserve" remaining, poliovirus-damaged neurons is always the first step.

On the topic of Blood Sugar and Post-Polio Diabetes

Dr. Bruno's Original Post: Blood Sugar Can Be Too Low in Post-Polio Diabetics

In 2000, we measured polio survivors' blood sugar and gave them the same tests of attention and memory that we'd been using to study polio survivors with fatigue. We found that the lower polio survivors' blood sugar was, the worse they did on the most difficult attention tests. Attention was about 20% BELOW normal for those whose blood sugars were around 80, which is the bottom of the normal range for blood sugar. In fact, polio survivors' ability to pay attention with a blood sugar of 80 was actually WORSE THAN IN DIABETICS with a blood sugar of 65!

In terms of focusing attention, polio survivors' brains act as if they are hypoglycemic, with blood sugar levels in their brains about 15 points LOWER than the measurement from their doctors' lab.

This [NY TIMES article, "When Diabetes Treatment Goes Too Far"](#) shows the danger of one-size-fits-all treating of older diabetics that can cause hypoglycemia, brain brownouts, accidents and even death. How much more should this warning apply to diabetic polio survivors whose brain may already be hypoglycemic!

When Diabetes Treatment Goes Too Far

By Kasia Lipska

"ONE of my elderly patients has Type 2 diabetes and heart disease. He takes a number of medications, including insulin to control his blood sugar levels. A few years ago, he was driving when his blood sugar suddenly dropped. He felt lightheaded for a moment, and then ran into a tree.

There are roughly 11 million Americans over age 65 with diabetes. Most of them take medications to reduce their blood sugar levels. The majority reach an average blood sugar

target, or “hemoglobin A1C,” of less than 7 percent. Why? Early studies showed that this can reduce the risk of diabetes complications, including eye, kidney and nerve problems. As a result, for more than a decade, medical societies, pharmaceutical companies and diabetes groups have campaigned with a simple, concrete message — to get below seven. Many patients carry report cards with their scores to clinic appointments. Doctors are often rewarded based on how many of their patients hit the target.

All of this sounds great. But, at least for older people, there are serious problems with the below-seven paradigm.

To begin with, the health benefits of this strategy are uncertain for older people. Those early studies that were the rationale for going below seven were conducted in people with Type 1 diabetes or with younger patients with newly diagnosed Type 2 diabetes. Subsequent trials of older patients raised doubts about the benefits.”

Talk to your doctor about allowing your sugars to run a little higher.

[On the topic of a Bowel Program and Slow Polio Bellies](#)

Dr. Bruno’s Original Post: A Coffee House member wrote that he was about to have a colonoscopy to diagnose the cause of chronic constipation. Constipation is *very* common in polio survivors because of poliovirus damage to the vagus nerve. Polio survivors should rule out causes of constipation that are not related to “slow polio bellies.”

Constipated polio survivors should be on a bowel program. A bowel program is the use of a low dose of a gentle laxative, like Miralax, every evening and adding roughage to your diet, like a big iceberg lettuce salad for dinner. You then keep a daily log of the amount of poo (none, small, moderate, big). We always recommend that if you haven’t had a moderate bowel movement in two days, you increase the amount of laxative on the evening of the second day to help you have a good bowel movement on day number three.

Search “constipation” in the ARTICLES, “BRUNO BYTES” and INDEX of the ENCYCLOPEDIA of POLIO & PPS at <https://www.papolionetwork.org/brunoarticles.html>

[On the topic of Devices for Sleep Apnea](#)

Question: Has anyone with sleep apnea tried the new INSPIRE device? It works internally, sending signals to intake air (inspiresleep.com).

Dr. Bruno’s Response: The INSPIRE device doesn’t send signals to intake air. It only opens the airway in OBSTRUCTIVE APNEA and does not treat central apnea or hypopneas. The device also needs to stimulate the hypoglossal nerve to move the tongue and open the airway. The hypoglossal nerve’s origin in the bulb of the brain can be damaged by polio, which may affect nerve stimulation. Polio survivors would need to see an expert in using the INSPIRE, who had implanted hundreds of the devices and could assess hypoglossal nerve functioning, BEFORE surgical implantation.

[On the topic of FDR having \(or not\) having had Polio](#)

I was interviewed about “researchers” saying FDR had, not polio, but Guillain-Barre Syndrome (GBS) because he was an adult, had facial paralysis, “skin pain” in his legs, bowel and bladder problems – symptoms that are “statistically more common” in GBS. I reviewed FDR’s medical records from before and during his time at Warm Springs:

Facial Paralysis:

- Many polio survivors had some damage to the facial nerve, especially “bulbar” polio survivors.

- FDR's facial paralysis resolved.

Bowel and Bladder Problems:

A 1949 study found that 2% of polio survivors had urinary retention - were unable to urinate - right after they had polio. But anecdotal reports from the 1940's indicated that 65% of patients in some epidemics couldn't empty their bladders:

- A 1988 survey found that 11% of 203 polio survivors remembered having retention during the polio attack.
- In "bulbar" polio survivors who needed respirators retention was even more common.
- Constipation wasn't unusual in polio patients (nor is it unusual today in polio survivors).

Additional Observations:'

- FDR had a high fever which is not a GBS symptom.
- FDR's leg paralysis wasn't symmetrical, as paralysis usually is in GBS. His one leg was affected before the other.
- 70% of GBS patients recover completely. FDR? Not so much.

Could FDR have had GBS? Sure. Did he? I think it was highly unlikely.

These researchers' "GBS diagnosis" just shows you shouldn't use "statistics" to diagnose a patient dead for more than 76 years. Oh, and it also shows that you should know something about polio before you write an article saying FDR didn't have it.

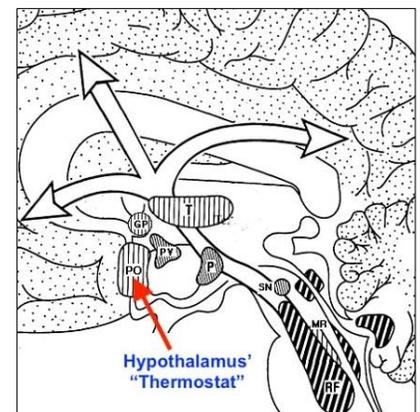
On the topic of Heat Intolerance

Question: When the temperature goes up I feel so hot, even indoors in the winter, that I sweat and soak my clothes. But sweating doesn't cool me down and, in spite of my frozen "polio feet" staying ice cold, I feel like I'm cooking inside. Is my problem with temperature a post-polio thing?

Dr. Bruno's Response: The poliovirus damaged the neurons in the brain and spinal cord that control body temperature via the sympathetic nervous system. Your brain's thermostat (in the hypothalamus) should turn on sympathetic nerves to cause skin veins and arteries to constrict when it's cold, preventing loss of body heat. The reason polio survivors have cold and purple "polio feet" is that there isn't a signal from the brain thermostat that reaches blood vessels to tell them to constrict. So hot blood flows to the vessels near the surface of the skin, heat in the blood radiates away from your body and your skin gets cold, which passively makes the veins clamp down, trapping cold, purple blood in the little veins and, voilà, "polio feet."

But if the poliovirus damaged neurons that control body temperature, shouldn't polio survivors have trouble with heat as well as cold? Over the course of decades I had not heard one polio survivor report being overcome by heat, only that they were being frozen stiff by the cold. So while I studied blood flow and the effects of cold on polio survivors, I never studied the effects of heat. But I should have. Back in 1985, in our own first National Post-Polio Survey, about 1/3 of polio survivors said that they were adversely affected by the heat.

Why didn't I study heat intolerance? Truth be told, I think I was frightened off by the first polio survivor I studied. She said that her polio-affected foot was always much colder than the other foot, even when she was in a room where others were comfortable. I was shocked and worried when she removed her sock to reveal a reddish-purple calf and a deep purple foot. I was afraid she had a blood clot, maybe even a clogged artery. But her veins were clear and she had bounding pulses in both feet. The real shock came when I placed an electronic thermometer on her skin. The room temperature was 75°F (24°C). I watched as the numbers on the thermometer dropped and dropped, until they stopped at 72°F (22°C). Her foot was actually colder than the room temperature! I had to put her foot up on a stool and cover it with a hot pack for half an hour before it began to warm just slightly. And when it finally did heat up, the skin became as red as a lobster. It didn't take a rocket scientist to see that there was something



radically wrong with blood flow in this polio survivor's leg. So that's where our research focused, on the effects of cold.

Too Darn Hot. It's not that I wasn't interested in the effects of heat. The mechanism for sweating was one that I had studied fairly extensively when I was the autonomic nervous system fellow at Columbia-Presbyterian, before even seeing a polio survivor. The first paper I ever presented was on the mechanism of decreased sweating in Parkinson's patients. We knew that the brain's thermostat and sympathetic nerves not only control blood vessels but also control sweating, which cools your body by evaporation of sweat on your skin when opening blood vessels doesn't "dump" enough body heat via radiation. Given our finding of polio survivors' arteries not getting a signal to constrict, I would have expected poliovirus damage to the brain's thermostat and sympathetic nerves would cause polio survivors always to sweat too little. And I would have been wrong.

In a recent Internet survey, six-dozen polio survivors reported difficulties with temperature, specifically heat intolerance. When asked about sweating, a minority reported "little to no sweating" associated with heat intolerance, while three times as many reported "hot flash-like" sweating, especially about the neck and face. "Comfortable" temperatures were reported to range from 61°F (16°C) to 72°F (22°C), while heat intolerance symptoms began from 72°F (22°C) to 85°F (29°C). The most common symptoms of heat intolerance were "nausea," "feeling faint or dizzy," being "itchy," "fatigued" and even "anxious." Surprisingly, only three polio survivors reported that their skin became red when they felt overheated, suggesting an inability of blood vessels to open and dump enough body heat so that sweating wasn't necessary. Also surprising were polio survivors who reported having "hot flash-like" sweating from the neck up at the same time as they were experiencing painfully cold legs and feet.

With these findings we may have come full circle. We know that polio survivors have cold legs and feet ultimately because arteries clamp down and prevent hot blood from the body's core from heating the skin's surface. Perhaps the inability to get rid of excess body heat results from the same problem – skin surface arteries not opening - that leads to symptoms of heat intolerance and triggers sweating above the waist to try to cool the body.

So, at least for some polio survivors, cold feet cause hot heads.

(This [article](#) is easily available in PDF format in the [Encyclopedia of Polio and PPS](#) under the topic: "Temperature.")

[On the topic of Muscle Atrophy](#)

Question: What about muscles that have atrophied? During COVID I lost a lot of weight, was very inactive and now my "polio" hip swings out because the muscles are "gone". Exercise or wheelchair?

Dr. Bruno's Response: Disuse (like after having a leg in a cast) is the only circumstance where carefully prescribed, non-fatiguing exercise with a PPS-knowledgeable PT can be helpful for polio survivors. If muscles - and therefore motor neurons - are gone, no muscle strengthening will be possible. Two crutches and/or a wheelchair are options.

[On the topic of Rotator Cuffs](#)

Dr. Bruno's Original Post: Lots of polio survivors talk about rotator cuff problems. Here's a video on what rotator cuff is and how it works: www.youtube.com/watch?v=Ralt79pPfgE



[On the topic of applying for Social Security Disability](#)

Question: For polio survivors in the US, have you had experience with applying for Social Security Disability Income (SSDI) with Polio or PPS as your primary disability?

Dr. Bruno's Response: The entire SSA protocol (5 articles) for polio survivors applying for SSDI is under the topic "Social Security" in the [Articles](#) section of the [Encyclopedia of Polio and PPS](#):

continued . . .

[Social Security Disability - Applying for and Getting it.](#)

[Social Security Disability \(SSDI\): Procedure for Applying](#)

[SSDI Application Letter](#)

[SSDI Denial Letter](#)

[SSDI Online Application Form](#)

[SSDI Template for Physicians](#)

[Social Security Evaluation for Post-Polio Sequelae \(Current\)](#)

[Social Security Evaluation for Post-Polio Sequelae \(Original 2003\)](#)

[Social Security Ruling for Post-Polio Sequelae](#)

[On the topic of “Sprouts” in our Brain](#)

Question: I was reading about the neurons in your brain being damaged by the poliovirus, the same as for your muscles. The body in it's wisdom grew sprouts to connect some brain cells again, as damaged spinal cord motor neurons sprouted. Did the spinal cord sprouts all connect to motor neurons or is it possible they crossed over and connected to various other cells causing pain, feeling, etc.? Also would this be inherited by your off spring?

Dr. Bruno's Response: The sprouts we commonly talk about come out of polio-damaged, but surviving, spinal cord motor neurons and connect to the nearby muscle fibers that were orphaned when their motor neurons died, allowing them to contract again. The new sprouts stayed in their own lane and turned on nearby orphaned muscle fibers. The sprouts did not connect to sensory or pain neurons. What's more, any changes that occurred in your body cannot be passed on to your children.

[On the topic of Strain on Poliovirus affected Legs](#)

Question: Which is more strenuous, standing or walking?

Dr. Bruno's Response: In general standing is actually more strenuous than walking. It's more tiring to stand in one place because muscles in your feet, legs and back are continuously turned on by already tired, poliovirus-damaged motor neurons. When you're walking, the muscles aren't all activated at the same time but turn on and off as you walk. This prevents any given muscle(s) from staying turned on and getting exhausted. Standing also reduces blood flow to the muscles, causing muscle fibers to tire more easily and can produce pain in the feet, legs and back.

[The Encyclopedia of Polio and Post-Polio Sequelae](#)

contains all of [Dr. Richard Bruno's](#) articles, monographs, commentaries, “Bruno Bytes” (Questions & Answer articles) and his Video Library.

The Encyclopedia of Polio and PPS is also available by a direct link from: www.postpolioinfo.com

Are you looking for a specific topic?

The [Encyclopedia Index](#) (By Subject) is available.