



Bruno Bytes

Fourth Quarter 2022

From [Richard L. Bruno, HD, PhD](#)

Bits and Tidbits from the Post-Polio Coffee House

4th Quarter 2022 Topics Include:

Antibody Testing, Balance, Braces, Bulbar Polio, FDR, Psychedelics and the Vagus Nerve

On the topic of a \$100,000 Brace

THE \$100,000 BRACE!

Question: I am considering buying a computerized full leg brace called the C brace made by Ottobock. The price tag is close to \$100,000 and is not covered by insurance. They claim I would be able to walk almost normally and not have to depend on crutches.

Dr. Bruno's Response: The company can't possibly know whether you will need to use crutches or not without your ~~first~~ being evaluated by a rehabilitation doctor and having manual muscle testing. The C brace is an offshoot of Ottobock's computerized knee used in above the knee amputees' prosthetics. In amputees the principal concern is learning how to use the prosthetic; polio survivors not only have to learn to use the brace, but also have to deal with muscle weakness in the opposite leg, hips, low back and core muscles.

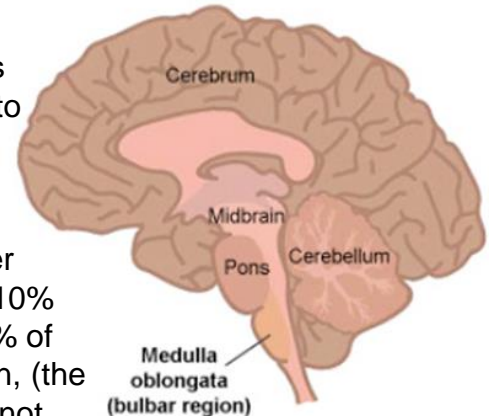
They appear to be asking for a lot of money that I think could be better spent elsewhere.

On the topic of Bulbar Polio causing death

Question: According to the WHO and CDC, most polio deaths stemmed from paralytic breathing difficulty/suffocation. Is that right?

Dr. Bruno's Response: No. The frightening image of the iron lung causes people who aren't familiar with the physiology and history of bulbar polio to assume breathing failure was "the killer". While the numbers varied from outbreak to outbreak, about 70% of those who were in an iron lung died. But those with breathing problems could have had the two other bulbar symptoms: impaired swallowing and cardiovascular dysfunction. Just over 50% with bulbar polio had trouble swallowing, 5% of whom died. Almost 10% had trouble controlling their heart rate and blood pressure, more than 80% of whom died. Since polioviruses always affected the bulbar part of the brain, (the brain stem), everyone had bulbar polio whether there were symptoms or not.

The brain stem controls many automatic functions (e.g., breathing, swallowing, intestinal movement, blood pressure, heart rate). So, polio survivors having abnormalities with these functions today are showing evidence of poliovirus-damage to the "bulb" of the brain from the acute polio attack.



On the topic of Balance

Question: "Why do I have such poor balance"?

Dr. Bruno's Response: When you rule out neurological problems causing impaired equilibrium, my simple answer is "look for hip muscle weakness". But, it's more than just hip muscles that keep you balanced. The core muscles - hips, pelvis, low back and stomach - work together in concert, which leads to better balance and stability.

So if you have your balance evaluated by a rehabilitation doctor or physical therapist, make sure that all of your muscles - including core muscles - are included in manual muscle testing.

continued . . .

On the topic of FDR having Polio

Question: Did FDR have PPS in his later years?

Dr. Bruno's Response: FDR's son, James, attended the first PPS conference in Warm Springs. We had a conversation about the presentations and James declared, "My father had the late effects of polio".

James' conclusion is probably the most significant reminder that PPS is a diagnosis of exclusion. FDR smoked, had severe, uncontrolled hypertension, an enlarged heart with episodes of congestive heart failure and probably a malignant melanoma seen over his left eye.

Fatigue was described in early 1944: FDR "seemed strangely tired, even in the morning hours; he occasionally nodded off during a conversation; once, he blacked out half-way through signing his name to a letter, leaving a long scrawl".

FDR did appear nigh unto death while attending the Yalta summit, understandable given his medical conditions and the overwhelming stress of years spent fighting the Depression and then World War II.

Did FDR have PPS? How could he not? But, given all of his other diagnoses, how can we ever know?

On the topic of Poliovirus Antibody Testing

From Dr. Bruno: Since poliovirus has appeared in the UK and the US, I have had scores of polio survivors, especially those who were not vaccinated, asking if they should be tested for antibodies to the three polioviruses, since those who had polio *but are unvaccinated* are only protected against the poliovirus type(s) that had infected them.

In the US, commercial laboratories - including the Mayo Clinic, Quest and ARUP - test for the presence of poliovirus antibodies, but they only test for Type 1 and Type 3 polio, since the wild Type 2 poliovirus is no longer circulating. Unfortunately it is a *mutated Type 2 oral vaccine strain* that currently is circulating and is not just being found in wastewater in the US, Canada, the UK and Israel. This *Type 2* strain paralyzed a young, unvaccinated man in southern New York State. So, even if you had commercial poliovirus antibody testing, it wouldn't reveal whether you had antibodies to the Type 2 virus that unfortunately is making the rounds.

What's more, the CDC clearly states, "Demonstrating antibodies to poliovirus Types 1 and 3 does *not* reliably indicate protection against poliovirus Type 2. In the absence of the availability of testing for antibodies to all three serotypes, serologic testing is no longer recommended to assess immunity."(1)

Dr. Paul Offit, Director of the Vaccine Education Center at Children's Hospital of Philadelphia and internationally recognized as an expert in virology and immunology, says this about antibody testing: "If you were naturally infected and were never (fully) vaccinated, you should just get the whole series of polio vaccines. I wouldn't test. The test isn't very good; the test for polio antibodies also picks up antibodies for other enteroviruses (the family of viruses to which the polioviruses belong) which are common, and not just the poliovirus." (2)

Sources: (1) - www.cdc.gov/mmwr/volumes/66/wr/pdfs/mm6601a6.pdf

(2) - www.vimeo.com/762641842

continued . . .

On the topic of Psychedelics being used for the Treatment of PPS

Question: I've heard ayahuasca is possibly helping development of new neurons? Would this be a treatment for damaged and dead neurons causing PPS?

Dr. Bruno's Response: Ayahuasca is a psychedelic plant made into a tea that is used in religious ceremonies in South America. Ayahuasca tea is made from the plant's leaves, containing DMT (dimethyltryptamine), and the stem of a vine containing chemicals called beta-carbolines, which prevent the breakdown of DMT in the gut.

In 2020, researchers in Spain reported that beta-carbolines in ayahuasca stimulate the growth of neurons in laboratory mouse cell culture and that DMT stimulates neuron creation in live mice. (1)

Unfortunately, in a damaged central nervous system, you not only have to replace damaged neurons with new neurons, but also connect them to functioning neurons. While this may be "easier" in the brain, new neurons in the spinal cord would be of no use to polio survivors since they would have to connect upward with the brain and downward to the muscles for movement to be restored. (See "Stem Cells and PPS" under the topic Treatment: Non-Traditional, in the Encyclopedia of Polio and PPS. (2))

Some researchers worry that the creation of new neurons - chemically or through the injection of stem cells - would "disturb normal neuronal circuits" and "propose that the focus of research should be the preservation of neurons by prevention of damage, not their replacement." (3)

So, for polio survivors right now, the safest (and only) path is the "prevention of damage" to neurons or, as I've heard it called, "Conserve to Preserve" remaining, poliovirus-damaged neurons.

Sources:

- (1) www.nature.com/articles/s41398-020-01011-0#citeas
- (2) papolionetwork.org/uploads/9/9/7/0/99704804/stem_cells_and_pps.
- (3) link.springer.com/article/10.1007/s00429-019-01917-6

On the topic of the Vagus Nerve

Dr. Bruno's Original Post:

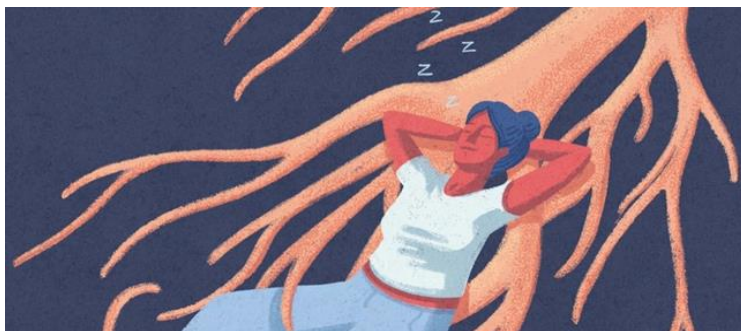
From [Science Focus](#): MORE THAN YOU EVER WANTED TO KNOW ABOUT THE VAGUS NERVE!

www.sciencefocus.com/the-human-body/vagus-nerve/

Article Summary:

What is the Vagus Nerve?

"Your brain is connected to your body through a set of 12 crucial nerve networks that descend through your spine and branch out into your body. Of these, the vagus nerve is probably one of the most important. Its tendrils influence digestion, your heart, your reflexes and your breathing.



So you can see why scientists are so interested in what the vagus nerve does – especially when you consider how all of the above affects your mood. You could call it a superhighway between our brains and bodies."

Vagus Nerve Function

"In contrast to the rapid 'fight or flight' responses that are under the control of the sympathetic arm of the nervous system, the vagus nerve is responsible for many of the slower, 'rest and digest' responses that we continued

collectively call the parasympathetic nervous system. The nerve itself is actually two thick bundles of individual neurons (nerve cells) that originate in the brain and pass out to the rest of the body through left - and right-sided openings at the bottom of the skull.”

“Most of the individual neurons that make up the vagus nerve are sensory ones – about 100,000 on each side of the body in humans – which pass messages from the organs to the brain, and are activated by sensory input from the environment. The remainder are motor neurons, which send messages in the opposite direction, from the brain to organs, and directly control . . . muscle movements”, for example in the intestines.

The article continues with:

Why is the vagus nerve so important?

How is the vagus nerve connected to our wellbeing?

The vagus nerve and the heart

What happens if the vagus nerve is damaged?

[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