

# An Introduction to Post Polio Syndrome

By *JACK TROMBADORE*

In an Introduction to Post Polio Syndrome, Dr. Richard L. Bruno, Ph.D., Kessler Institute for Rehabilitation, presented a wide-ranging overview of the physiology of polio, the nature of PPS, the causes of the late effects of polio, and the many newly-recognized methods of treatment that may minimize these late effects of polio.

Dr Bruno's lecture and materials were prepared for presentation to hospital staffs throughout New Jersey as a part of their "Grand Rounds" and continuing medical education. The workshop was one of several presented by the NJ Polio Network at its conference on Post-Polio Syndrome in April.

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It is estimated that there are 1.63 million polio survivors in the U.S. today including 50,000 in New Jersey.

The polio virus enters the body through the mouth and progresses to the throat, the gut and then through the wall of the gut, the intestine, into the blood vessels, the blood and then into the central nervous system, causing nerve damage in varying degrees in spinal paralytic, bulbar, or non-paralytic polio, the three main types of polio. Although the Federal health authorities did not keep records of the numbers of polio cases in earlier years, it is believed that 1952 was the peak year with 82,000 reported cases, with the number decreasing to 10,000 cases in 1962, although the Salk vaccine was available to some of the population in 1954.

The most frequently reported sequelae of PPS are fatigue, muscle weakness, muscle pain, joint pain, and intolerance to cold. With paralytic polio, 90% of the motor neurons are affected in some way, but one must typically lose 60% of the motor neurons in the spinal cord to have any weakness at all; with only 5% of the motor neurons remaining undamaged, some strength remains, and a polio survivor may still function for years with that degree of severe motor neuron damage.

In cold, motor nerves can be seriously affected causing limb stiffness, loss of strength, and loss of manual dexterity. The motor nerves of polio survivors typically function as if it were 20 degrees colder than the outside temperature, and there can be a 75% loss of strength at 65 degrees.

It is now known that physical over-exertion and emotional stress trigger muscle weakness. Strenuous exercise, intensive physical therapy, and similar "Sister Kenny" treatment are predictors of increased muscle weakness and fatigue in polio survivors who participated in such therapy and self-inflicted overexertion. Ironically, it is those survivors who were most paralyzed, who underwent intensive physical therapy and exercised, and recovered the most function, who now experience the severest post-polio sequelae.

Other causes of fatigue are sleep apnea, respiratory insufficiency, depression, and physical and emotional stress. Fatigue is thought to be caused by polio virus damage to the brain which produces loss of concentration, impaired memory and attention, and difficulty in staying awake.

Polio survivors are twice as sensitive to pain, and Dr Bruno stresses it is important to so advise your doctor in order to avoid problems that may arise from undermedication; your doctor should also know, well in advance of surgery, that polio survivors are easily anesthetized but very slow to come out of anesthesia. It must not be assumed that all doctors possess this knowledge.

Studies by Dr Bruno and his associates show that assistive devices such as braces for weak limbs,

crutches, and scooters can conserve energy and increase strength; bracing can save 300% of your energy. He asks, "Why beat up your body when you don't need to?" It is imperative to "slow down" to keep from needlessly expending what strength remains in bodies previously abused by overexertion. Pacing ones self by frequent rest periods at work or in daily tasks will increase efficiency and productivity. We must learn to take care of our bodies now or risk losing whatever motor function remains to us. Work simplification and stress management are critical, together with nonfatiguing strengthening exercise.

PPS can be slowed down, arrested, and sometimes reversed, by understanding the causes of weakness, fatigue, and pain, and by adhering to Dr Bruno's "Golden Rule" for PPS, "If it causes fatigue, weakness, or pain, DON'T DO IT!"

Dr Bruno urges all post-polio groups and individuals to inform their doctors that the PPS Grand Rounds Education Lecture is available to all hospitals throughout New Jersey without charge to the hospital, its staff, or the public. Dr Bruno may be reached at (201) 368-6057 for details.

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[Return to PPS Index](#)