We then brought polio survivors into our laboratory. ***We measured blood sugar and attention and found that the lower the blood sugar, the worse polio survivors' did on attention tests. Attention was about 20% below normal even though their blood sugar was in the normal range. In fact, polio survivors' ability to pay attention was actually worse than in diabetics who had been given too much insulin! So, polio survivors' brains act as if they were hypoglycaemic.***

Why might this be true? There are receptors on the surface of the neurons that latch onto sugar molecules to pull them inside. These receptors are vital because blood sugar is the neurons only fuel. And here's where the problem likely lies. Sugar receptors are made of protein. Recent studies have found that protein factories inside neurons are breaking apart in polio survivors who have new muscle weakness. So polio survivors may not make enough protein to manufacture all the blood sugar receptors they need to take in the amounts of sugar required for neurons to function properly.

What should polio survivors do to treat their hidden hypoglycaemia? They need to eat three to five times a day and have protein at every meal, especially at breakfast. We recommend that polio survivors eat immediately after they get up, since they need to break their fast and fill their tanks for the day ahead before stressing hungry neurons by bathing and dressing.

Our patients do worry that eating protein, stopping exercise and resting more will cause them to gain weight. One patient proved the exact opposite. Abby, a programming whiz at AT&T, charted on his computer the number of grams of protein he ate and weighed himself once a week. We had given him braces, crutches, a scooter and told him to rest. He religiously ate protein at breakfast and for snacks, limited portion sizes and reduced fats. Abby lost 1 1/2 pounds each week. Other patients have had similar results, or their weight has not increased when they slowed down. (But please check with your doctor and have your cholesterol, thyroid and blood sugar measured before changing your eating habits and trying to lose weight.)

Protein: It's what's for breakfast. Just a reminder that exercise isn't the answer for polio survivors wanting to lose weight. Folks don't realize how many calories they burn by doing everyday things. Look how many calories those without polio burn during 20 minutes of activity: sleeping or watching TV (21); talking or writing (42); typing (54); dressing or washing (74); walking slowly (80); preparing a meal (92). Washing and dressing, walking around the house, answering e-mail, napping, making three meals, talking to a friend, balancing your check book and watching TV burns 500 calories each day — exactly the amount you must lose each day to drop one pound.

See separate sheet for breakfast suggestions and food information.

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Protein Power Diet for Polio Survivors

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Polio Survivors v's Breakfast.
One group of people with disabilities shows the consequences of poor eating habits: North America's 1.8 million polio survivors. Nearly 76 percent of polio survivors experience Post-Polio Sequelae (PPS). PPS are requiring polio survivors to use new assistive devices or aids they discarded years ago, like braces, canes, crutches, wheelchairs and scooters, to slow down and to rest during the day. The problem is, polio survivors are Type A, hardworking, pressured, perfectionistic super achievers, who have pushed themselves beyond their physical limits and allow no time for self-indulgent luxuries, like food.

Polio survivors don't want to slow down or rest, not only because they're afraid if they are less Type A, people won't like them. But also because they are afraid of gaining weight if they become more sedentary. But they shouldn't be afraid. Food is good! Eating properly doesn't lead to becoming fat, it actually reduces PPS symptoms. Dr Susan Creange at the Post-Polio Institute discovered that polio survivors with blood sugar levels in the low normal range have as much difficulty paying attention and concentrating as would diabetics with blood sugars as low as if they have taken too much insulin. "Polio survivors " Type A diet' ……three cups of coffee for breakfast, skipping lunch and eating pizza for dinner …….is actually starving their nervous systems" says Creange. The relationship between diet and PPS was seen in our 1998 International Post-Polio Survey, the less polio survivors had at breakfast, the more severe were their daily weakness and fatigue.

Why do polio survivors function as if they have low blood sugar and report more symptoms when they don't eat protein at breakfast? Because polio survivors are running their nervous systems on "half a tank of gas." About 50 percent of all brain stem and motor neurons were killed decades ago by the poliovirus. What's worse, the metabolic apparatus, the internal power plant, of the neurons that survived the original poliovirus was severely damaged. So polio survivors who have been running their full-tilt, Type A lives, on half the normal number of neurons, neurons that are less able to use their only source of fuel, blood sugar. Dr Creange found that even normal levels of blood sugar were not enough to fuel the remaining poliovirus-damaged, metabolically impaired neurons. And that's where **protein at breakfast comes in.**

Protein: the fuel that keeps on giving. Protein provided a long lasting, "slow- release" supply of blood sugar throughout the day. Polio survivors who had protein for breakfast reported less PPS symptoms because their fuel tank stayed full longer. They didn't need to "fill up" throughout the day with short-lasting sugar fixes, like soda or candy bars.

Mom was right about one thing: breakfast is the most important meal of the day. Since many polio survivors use more energy just getting showered and dressed than does a non-disabled person who runs a marathon, you need protein early and often. It's a good idea to eat breakfast before showering to "break your fast" and fill your tank before your neurons need the fuel. When we ask our post-polio patient to eat protein every day at breakfast, and have small, non-carbohydrate snacks throughout the day, they report and almost immediate reduction in nearly all the symptoms of PPS, especially fatigue. But the "protein power" diet is neither a fad nor a miracle: it's just common sense. No engine can be expected to run without fuel.

Our patients worry that using a wheelchair, resting more and having breakfast will cause them to get fat and have more PPS symptoms. A four year follow up study found the US and Swedish polio survivor, living their typical Type A, "use it or lose it" lifestyles without using new assistive devices or resting, lost equal amounts of leg muscle strength, about 2% per year. However, when subject from the two countries were looked at separately, the `Swedes gained only 6 ounces per year, while the American gained over 2punds; that's 220% more weight! Although weight gain alone is not responsible for the progression of muscle weakness in polio survivors, it is Americans' high fat, Big Mac diet that causes them to get fat. You can fuel your neurons, feel stronger and less fatigued without gaining weight. If you choose low fat, low cholesterol sources of protein. In fact, many of our patients, even as they slow down more, and use a scooter, lose weight (about a pound per week) if they eat protein, reduce portion size and limit carbohydrate.

We aren't recommending one of those "all protein, no carbohydrate" diets. We aren't recommending a "diet" at all but a method but for polio survivors to take in the amount of protein their bodies need to function properly. What is needed are foods that have more grams of protein than they do fat.

Breakfast suggestions and food information about protein and fat content is shown on separate insert.

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