

## Up from the Chair - The Terry Wahls Story

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A few years ago, I wrote a column on the three stages of MS with secondary progressive MS (SPMS) being the final and most debilitating stage. The MS research community does not understand the adverse biochemical reactions which are driving SPMS. Currently, neurological degeneration, characterized by the death of nerve axons, is the most common view.

The nutritional strategies which are recommended by Direct-MS and the Best-Bet Diet Group were designed to counter inflammation caused by autoimmune reactions, the primary disease process in MS. However, inflammation does not seem to be a major part of SPMS and lesion activity is very low in this phase of MS. Thus, I would not expect the recommended nutritional strategies to have a major effect on SPMS although it seems some with SPMS have experienced noticeable improvement with the strategies.

In November, Dr Terry Wahls, the assistant chief of staff at the Veterans Administration Hospital in Iowa City Iowa and an Associate Professor of Medicine, sent me a link to a webcast of her presentation on the therapeutic strategies she designed and employed to combat her slow decline and loss of function due to SPMS. The subtitle of her presentation is “Up from the Chair” and is very apt given that in 9 months Dr Wahls has gone from a wheelchair/scooter to biking 25 kilometres. Her very informative webcast can be viewed at <http://www.int-med.uiowa.edu/Media/Wahls10-6-08/Wahls10-6-08.html> and I strongly recommend that everyone reading this column take 45 minutes to watch it.

To me, her story is the Roger MacDougall Story of this generation. There are a number of parallels between Roger MacDougall and Terry Wahls with both being very intelligent, accomplished professionals, both being diagnosed with MS in their early 40s, both soon progressing to SPMS, both realizing that they had to do something more than follow “doctors’ orders” to stop their debilitating decline, and both devising innovative and scientifically sound therapies which substantially restored their function and overall well being.

Dr Wahls' presentation discusses the interventions she has designed and used and it lays out the scientific data and logic for each of the interventions. In this article, I will summarize her remarkable accomplishments which bring new hope for those who are battling SPMS. Her recovery is a shining example of what can be achieved through solid science, innovative applications of the science and an unswerving dedication to devised therapies. Finally, her work also provides some new insight into the disease processes involved in SPMS.

Dr Wahls was diagnosed with MS 8 years ago when she was in her mid 40s. As is sometimes the case with such a late diagnosis, she soon progressed to SPMS. The MS disease process usually begins in childhood, becomes clinically apparent ~ 30, and can progress (50/50) to SPMS about 15 years later when one reaches the mid 40s. In cases such as Dr Wahls, her MS did not become clinically apparent until later but the progressive stage arrived on schedule. For 4 years, Dr Wahls used standard drug therapies but gained little relief from them. By 2007 she was using a scooter to get around and had substantial fatigue. She was slowly and steadily declining.

She devised three main therapies to help her battle SPMS. They are 1) neuromuscular electrical stimulation (NEMS), 2) specialized nutritional supplements and 3) exercise. Dr Wahls works with brain-injured veterans and thus closely associates with doctors and therapists who help to rehabilitate persons who have neurological damage and loss of muscular function. She noticed that neuromuscular electrical stimulation helped those with spinal chord injuries and simply asked if such a therapy would be of value for MS.

NEMS involves the application of electrodes and electrical input to various muscle groups over the body with goal of strengthening the muscles through such electrical stimulation. The technique was pioneered in the Soviet Union to improve athletic performance and is still commonly used by athletes, especially for healing muscle damage. Portable NEMS machines are available and it is a do-it-yourself therapy.

Dr Wahls uses the "Russian Protocol" which employs a high dose of electricity. Notably, there is pain involved in the application of the electricity and this is where the dedication to the therapy comes in. It also takes a considerable amount of time to stimulate all the required muscle groups. There is no doubt that such a technique can strengthen muscles and is thus one which can be a great benefit to persons with MS who have lost a lot of muscle strength.

A second arm of Dr Wahls' overall therapy is the use of a variety of supplements and a large intake of vegetables and fruit. The goal of such a nutrition-based strategy is to increase neuro-protection through the increased production of neurotrophic factors and the decreased occurrence of oxidative stress through increased availability of anti-oxidants. Such nutrition also increases energy production by mitochondria. Her recommended supplements include 200 mg B complex, 200 mg of Coenzyme Q 10, 1 g of Alpha Lipoic Acid, 600 mg of Acetyl L Carnitine, 120 mg of Gingko, 2 g of N Acetyl Cysteine, 2 g of Taurine, 2 g of Glutathione, 200 mg of Resveratrol and enough Lithium Orotate to yield 13 mg of elemental lithium.

Dr Wahls succinctly discusses the scientific rationale behind the use of these supplements. One thing I learned from the presentation was how mitochondria in cells produce energy and how various mitochondria nutrients help to ensure such a process is as efficient and effective as possible. Dr Wahls convincingly demonstrates that proper nutrition and adequate antioxidants can potentially have a major effect on the amount of energy mitochondria derive from glucose. It seems logical that the proper functioning of the mitochondria, so as to produce maximum energy from glucose, is a key factor in reducing or eliminating fatigue.

Dr Wahls also eats 4-6 cups of cruciferous vegetables (e.g. broccoli, cabbage, brussel sprouts, cauliflower, kale) as part of an overall intake of 9 cups of fruits and vegetables every day. I can only say bravo to such a high intake of fruits and vegetables which, like the supplements, have many positive effects on brain chemistry and the proper functioning many types of cells.

As the final part of her therapy, Dr Wahls has a good exercise regimen with swimming and biking being important elements. To support this, she discusses the results of various animal experiments that show that exercise increases neurotrophins which protect neurons and decreases free radicals which help to destroy neurons. Exercise also results in decreased production of inflammatory proteins. Overall, exercise, like nutrition, provides essential neuroprotection and increases the potential for myelin repair and the development of new neurological pathways.

Dr Wahls provides substantial detail of how her devised therapies can, and in her case have, result in increased muscle strength, increased energy, and improved neurological protection, healing and growth. All of these benefits

add up to greatly improved functioning and well being which are the overall goals of any MS therapy. Dr Wahls is currently making arrangements to test her therapeutic interventions on MS patients to provide the required documentation of their usefulness.

I cannot help but wonder if one combined the recommended therapies of Dr Wahls with those of Direct-MS if even greater benefits might be realized. There is some overlap between the two sets of recommendations especially regarding the value of antioxidants. However, Dr Wahls takes antioxidant input to a whole new level and to me this makes sense. Adequate vitamin D and omega 3 are obvious add-ons to her therapies given that both have numerous positive effects on the CNS. Also the avoidance of food proteins, which can initiate autoimmune reactions and yield protein fragments which can interfere with brain functioning, would fit nicely with her overall approach.

Finally, I would note that Dr Wahls' approach is not for sissies or the weak-willed. It requires incredible dedication and self-discipline but the results speak for themselves. It would be great if one could simply pop a pill to achieve such results but I doubt very much if that will ever happen. The effects of 40 years of the MS disease process are not easy to undo and it takes the use of a multi-pronged approach to achieve success. The science-based recommendations of Dr Wahls and Direct-MS are there for the taking. The rest is up to you.