

SKILLED MANUAL PHYSICAL THERAPY
Chronic Fatigue Clinic at The Johns Hopkins Children's Center
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Over the past ten years, evaluation and treatment techniques developed largely in Australia by Robert Elvey and David Butler, have focused on nerve tissue as a source of spinal and limb pain and related symptoms. We have taken the principles of their methodology and applied them to persons with chronic fatigue syndrome (CFS). Recently we are finding that **many of the symptoms experienced by persons with CFS may be reproduced by selectively placing tension on the spinal cord and its coverings or on certain nerves in the arms and legs.** We have seen that fatigue, cognitive fogging, light-headedness, nausea, reflux, sweating and flushing, many types of vision changes, headache and facial symptoms and others may be aggravated, or in many cases eased, by changing the way tension is applied to nerves in the body. In CFS patients with symptoms that have not responded as completely as expected to medical treatment, and in patients who are not fully improved after surgery (such as for Chiari I malformation), these nerve tensions appear to contribute to the persistent symptoms.

Skilled manual physical therapy, in conjunction with comprehensive medical management, has become a new and essential treatment approach that we are undertaking to further reduce the frequency and intensity of the many symptoms in CFS. It is our expectation that as our early observations with neural tensions become more clearly delineated, specific treatment methodologies will evolve that will enable patients to better manage their symptoms more effectively and independently.

Our bodies are designed to move freely and comfortably through extensive arcs of motion without pain or other symptoms. As we move, our nervous system must be capable of moving independently of the skull and spine, as well as the other bones and muscles and joints around it. Similarly our bones, joints and muscles must be able to move into any position without excessively pulling on or compressing our nervous system. What this means is that the brain and spinal cord and all the nerves must be able to elongate and slide freely throughout the body without pain and yet, regardless of position, be able to conduct impulses properly to or from skin, joints, muscles and blood vessels. If the nerves lose this ability to adjust to angular changes at joints, the pain receptors in and around the coverings of the nerves cause reflex behaviors to be seen in the tissues innervated by those nerves. Most commonly, what is observed is that muscles crossing joints where the nerve is abnormally tensioned will reflexly shorten or guard. On careful clinical examination, the muscles will appear firm and unable to relax. They will usually be very tender to deep touch. The joints under these muscles will stiffen and contribute to reduced joint mobility. The range of motion of those joints will become limited and they too will become tender to touch and lack resilience. The skin and underlying soft tissues that are served by the involved nerve will become restricted in their ability to glide, will demonstrate temperature changes and changes in sweat activation. A person may feel very cold or may sweat profusely. These tissues will likewise lack resilience and will usually be tender to touch, even painful.

We are finding that **nerve tensions that produce these symptoms in most people appear to be especially sensitized in persons with CFS.** When these nerves are tensioned in the CFS group, instead of the responses just described, the responses that arise are the ones that constitute the myriad of complex symptoms for this diagnosis. The cranial tissues and the nerves to many internal organs appear to be pre-loaded and respond adversely when excessive tension is brought to bear or is sustained from the periphery.

We find that there are many common findings on physical exam in persons with Chronic Fatigue Syndrome. Most obvious is a stiff upper and middle thoracic spine with rounded shoulders and a forward head. Patients find that it is difficult to straighten up and tuck the chin. The rib cage is very tight and rotation range of motion is markedly limited. Pressure on the rib cage can give rise to diverse symptoms including vision changes and pre-syncopal and other sympathetic nervous system sensations. The abdomen is tense and tender to deep touch just above the umbilicus, usually on the left side. This area can give rise to nausea and reflux. Neural provocation tests are most often positive and relevant at or near the wrists and ankles. Tension on nerves in these regions is often associated with head and face pain, lightheadedness and cognitive fogging. Muscles of mastication are frequent sources of symptom reproduction and can give rise to nausea and to head pain.

The goals of physical therapy treatment are to minimize the influences of these areas of movement restriction and to actually restore normal physiologic movement and behaviors. Of the gentle manual treatment techniques we have found to be most helpful in moderating the symptoms are combinations of neuromobilization, positional release, myofascial release, and cranial work. Feldenkrais motor relearning, progressive return to repetitive and resistive activities, and certain modifications in daily activities are also essential.

As more information is gathered over time, it is anticipated that a skilled manual approach to assessment will provide enhanced predictors for many of the components of Chronic Fatigue Syndrome and that **a manual approach to treatment will continue to complement medical and surgical interventions and lead to more complete and lasting comfort and function.**

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