

Restoration of Tensegrity Equilibrium Can Lead to Beneficial Modification of Parkinson Disease's Motor Symptoms

Ludmila Vucolova, MS

Independent researcher-practitioner / previous academic association: LETI, Russia
247 Johnson street Hackensack, NJ. Phone 201 2905359 email vucolova@gmail.com

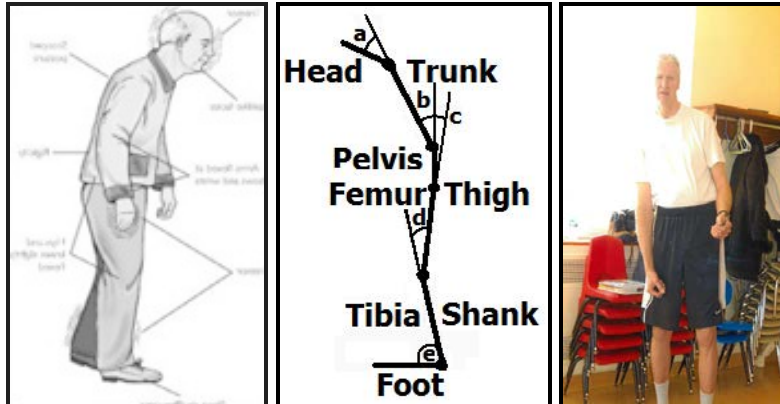
HYPOTHESIS: This approach is an extension to my earlier work, *Reversing of Parkinson's Disease (PD) Motor Symptoms*, which was presented at the XX World Congress on Parkinson's Disease and Related Disorders in Geneva, Switzerland, in December of 2013. We introduce the hypothesis that the disruption of tensegrity equilibrium of mechanical forces and geometrical form can lead to changes of mechanical behaviour, known as cardinal motor symptoms: rigidity, bradykinesia and postural impairments. We propose that abnormal posture becomes a primary and a perpetuating factor in the progression of motor symptoms in PD. Consequently, motor functions improved with the restoration of posture and tensegrity equilibrium. *The process itself may catalyse neurophysical properties via mechanotransduction under applied forces.*

METHODS: The proposed approach is a progressive therapeutic program for mild and moderate stages of the disease. Various methods and techniques integrate the ideas and principles from diverse disciplines including, mechanical engineering, mathematics, biology, neuroscience and other health-related fields. Restraints, resistance, scaffolding, traction, asymmetry, closed chain and mechanical pressure are applied towards the global release of the fascia envelope, to restore proper geometrical form and to balance internal forces. To accelerate the effect of mechanotransduction, mechanical pressure of a particular magnitude, duration and cycling rate is applied simultaneously to the selected members of the structure. To enhance patterns of dynamic motion the primary focus is on the restoration of the vector composition matrix, multisensory integration, proprioceptive awareness, and changes of intersegmental dynamics between structural members of fascia envelope. This practice requires the patient's cognitive interactive education with the continuing implementation of new skills in every day activities.

RESULTS: The preliminary findings demonstrate significantly improved results versus those seen over the previous 50 years. Under the combined regimens, the array of PD motor symptoms of a patient with PD for twelve years showed an 80% of reduction in: *static & dynamic balance, gait, posture, arm swing, akinesia and hypokinesia, and reduced degree of excessive muscle contractions*; improved speech, swallowing dysfunction, micrographia and facial expression. In addition, altered mental and physical attributes, including, *proprioception, body mechanics, flexibility, coordination, trunk rotation, sensorimotor agility, neuromuscular efficiency in functional and work related daily activities.*

CONCLUSION: Preliminary findings demonstrate that restoration of a posture and the tensegrity equilibrium can lead to beneficial changes of motor functions. This conceptual framework can advance our understanding of fascia, tensegrity, and have fundamental clinical implications in the research and therapy for a broad range of health-related fields.

Before



A common pattern of a structural deformation in Parkinson disease.

After 8 months:



Improved posture, balance, body awareness, as well as proper weight distribution over the body parts.



The patient is practicing in the corner. The entire routine requires great movement control, sensory-motor agility, coordination of a complex sequences of movements, the ongoing evaluation of environmental clues and contexts, the ability to quickly switch motor programs when the environmental conditions change, and the ability to maintain balance during multiple tasks. **(one year later)**



In a year patient was able to walk forwards and backwards in a straight line with a full arm swing.



Restoration of a tensegrity equilibrium: Video-stills demonstrate gains in control of movement and maneuverability, a non-fixed center of gravity, body awareness and strength, with athletic mechanics, coordination and fluidity. It shows improved static and dynamic balance, gait, posture and agility, and diminished rigidity. Patient has a general increase in energy level and endurance.