

Chronic fatigue syndrome flare-ups caused by straining muscles and nerves

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Credit: University of Alabama at Birmingham

A recent study conducted by researchers at the University of Alabama at Birmingham and Johns Hopkins University School of Medicine published in *PLOS ONE* shows that symptoms of chronic fatigue syndrome, a complex and disabling multisystem disorder, can be provoked by imposing a mild to moderate strain to the muscles and

nerves.

Eighty individuals, 60 with CFS and 20 without CFS, reported their levels of fatigue, body pain, lightheadedness, concentration difficulties and headache every five minutes while undergoing 15 minutes of either a passive supine straight leg raise—the raising and holding up of one of an individual's legs while they lie on their back on an exam table—or a sham leg raise that did not cause strain.

Participants were contacted 24 hours later and again reported their [symptoms](#). Compared to those with CFS who underwent the sham leg raise, individuals with CFS who underwent the passive leg raise that actually strained their muscles and nerves reported significantly increased body pain and concentration difficulties during the procedure. After 24 hours, these same individuals who underwent the true strain also reported greater symptom intensity for lightheadedness and the overall combined score for symptoms. The individuals with CFS who underwent the true strain also reported more symptoms during, and 24 hours after, the true strain compared to individuals without CFS.

"These findings have practical implications for understanding why exercise and the activities of daily living might be capable of provoking CFS symptoms," said Kevin Fontaine, Ph.D., professor and chair of the UAB School of Public Health Department of Health Behavior and a co-author of the paper. "If simply holding up the leg of someone with CFS to a degree that produces a mild to moderate strain is capable of provoking their symptoms, prolonged or excessive muscle strain beyond the usual range of motion that occurs during daily activities might also produce symptom flares."

As Peter Rowe, M.D., lead author and director of Johns Hopkins Children's Center Chronic Fatigue Clinic, noted in the article, "The lengthwise strain applied to the nerves and muscles of the lower limb is

capable of increasing symptom intensity in [individuals](#) with CFS for up to 24 hours, indicating that increased mechanical sensitivity may be a contributor to the provocation of symptoms in this disorder."

Rowe and Fontaine, and their physical therapist collaborator Rick Violand, intend to extend this work to further understand the effects that strains to the muscles and nerves have on CFS, as well as whether specific physical therapy methods could be used to improve neuromuscular function to reduce symptoms.

More information: Peter C. Rowe et al, Neuromuscular Strain Increases Symptom Intensity in Chronic Fatigue Syndrome, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0159386](https://doi.org/10.1371/journal.pone.0159386)

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