

Comment in:

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Clinical Science

## **Impaired oxygen delivery to muscle in chronic fatigue syndrome.**

**McCully KK, Natelson BH.**

Department of Medicine, Medical College of Pennsylvania and Hahnemann University, Philadelphia, PA 19129, USA. [kmccully@coe.uga.edu](mailto:kmccully@coe.uga.edu)

The purpose of this study was to determine if chronic fatigue syndrome (CFS) is associated with reduced oxygen delivery to muscles. Patients with CFS according to CDC (Center for Disease Control) criteria (n=20) were compared with normal sedentary subjects (n=12). Muscle oxygen delivery was measured as the rate of post-exercise and post-ischaemia oxygen-haem resaturation. Oxygen-haem resaturation was measured in the medial gastrocnemius muscle using continuous-wavelength near-IR spectroscopy. Phosphocreatine resynthesis was measured simultaneously using  $(31)\text{P}$  magnetic resonance spectroscopy. The time constant of oxygen delivery was significantly reduced in CFS patients after exercise ( $46.5 \pm 16$  s; mean  $\pm$  S.D.) compared with that in controls ( $29.4 \pm 6.9$  s). The time constant of oxygen delivery was also reduced ( $20.0 \pm 12$  s) compared with controls ( $12.0 \pm 2.8$  s) after cuff ischaemia. Oxidative metabolism was also reduced by 20% in CFS patients, and a significant correlation was found between oxidative metabolism and recovery of oxygen delivery. In conclusion, oxygen delivery was reduced in CFS patients compared with that in sedentary controls. This result is consistent with previous studies showing abnormal autonomic control of blood flow. Reduced oxidative delivery in CFS patients could be specifically related to CFS, or could be a non-specific effect of reduced activity levels in these patients. While these results suggest that reduced oxygen delivery could result in reduced oxidative metabolism and muscle fatigue, further studies will be needed to address this issue.

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