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MERGE
Energising ME Research

Oxidative Stress, Symptoms and Genes

The body contains highly reactive molecules called free radicals. These are normally kept under control by natural processes which remove them from the circulation. However, when an imbalance occurs they can be left unchecked to cause damage. This damage is called oxidative stress. In particular, free radicals can change our normal "good" cholesterol into something more harmful, leadir to heart and circulation problems.

A recent issue of the scientific journal *Free Radical Biology & Medicine* has published results of a MERGE-funded study showing — for the first time in ME CFS patients — raised levels of F_2-isoprostanes, which are a standard indicator of oxidative stress. Increased isoprostanes were also associated with clinical symptoms such as joint pain and post-exercise illness.

These are important findings because they suggest that normal processes which control free radicals are not working properly in patients with ME/CFS. Increased oxidative stress is implicated in a range of disorders, including neurological diseases, as well as in ageing. These new results might well be relevant to the symptoms that characterise ME/CFS, and might also help to explain some of the peripheral vascular consequences of being upright, as recently discussed in our review in the magazine *Biologist*.

The importance of the work is underscored by new studies on the genes o people with ME/CFS. In the past few months, scientists have reported upregulation of the genes ABCD4 and PEX16 (suggesting improved defence against oxidative stress), and alterations to genes involved in the formation of isoprostanes. Clearly, biomedical research into ME/CFS is entering an exciting phase. ●