

Coenzyme Q10 helps veterans battle Gulf War illness symptoms

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Roughly one-third of the 700,000 United States troops who fought in the 1990-1991 Persian Gulf War have subsequently developed a distinct set of chronic health problems, dubbed Gulf War illness. Their symptoms, from fatigue, muscle pain and weakness to decreased cognitive function and gastrointestinal and skin problems, persist decades after the conflict.

In a study published in the Nov. 1 issue of *Neural Computation*, researchers at the University of California, San Diego School of Medicine report that a high quality brand of coenzyme Q10 (CoQ10) – a compound commonly sold as a dietary supplement – provides health benefits to persons suffering from Gulf War illness symptoms.

Forty-six United States Gulf War veterans participated in the randomized, double-blind, placebo-controlled study. Each veteran had been diagnosed with Gulf War illness.

"Gulf War illness is not the same as [post-traumatic stress disorder](#) or [traumatic brain injury](#), signature illnesses of later deployments, which are caused by psychological and mechanical injury, respectively," said Beatrice Golomb, MD, PhD, professor of medicine at UC San Diego School of Medicine and principal investigator on the study. "Evidence instead links Gulf War illness to chemical exposures, such as pesticides or pills given to soldiers to protect them from possible nerve agents. These chemicals can damage mitochondria, which generate the energy our cells need to do their jobs. When these powerhouses of the cells are disrupted, it can produce symptoms compatible with those seen in Gulf

War illness."

The connection to chemical and toxin exposures is fortified by evidence of mitochondrial problems in affected veterans, said Golomb, as well as evidence showing those veterans who became ill are significantly more likely than others to harbor genetic variants that render their enzymes less effective at detoxifying these chemicals.

CoQ10 is a fat-soluble antioxidant made by the body to support basic cell functions, including directly assisting mitochondrial energy production. Over a course of three and a half months, the veterans in the study received a pill form of either CoQ10 or a placebo. Researchers found 80 percent of those who received 100mg of CoQ10 had improvement in physical function. The degree of improvement correlated to the degree in which CoQ10 levels in the blood increased.

The researchers reported that Gulf War illness symptoms like headaches, fatigue with exertion, irritability, recall problems and [muscle pain](#) also improved.

"The statistical significance of these benefits, despite the small sample size, underscores the large magnitude of the effects," Golomb said.

"Mounting evidence suggests findings in Gulf War illness are relevant to toxin-induced health problems in the civilian sector, so what we learn by studying health challenges of these veterans, will likely benefit others."

Golomb and colleagues are seeking additional funding to test a more complete "mitochondrial cocktail," which combines CoQ10 with additional nutrients that support cell energy and reduce oxidative damage to cells.

Provided by University of California - San Diego

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