

## **Could vitamin D save us from radiation?**

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Radiological health expert Daniel Hayes, Ph.D., of the New York City Department of Health and Mental Hygiene suggests that a form of vitamin D could be one of our body's main protections against damage from low levels of radiation. Writing in the *International Journal of Low Radiation*, Hayes explains that calcitriol, the active form of vitamin D, may protect us from background radiation and could be used as a safe protective agent before or after a low-level nuclear incident.

Biologists and pharmacologists who specialize in radiation and health are keen to find an effective agent that could be given by mouth, have few side effects and would protect us against a suspected or impending nuclear event, whether an accident, terrorist attack, or other incident.

In terms of protecting people from the long-term effects of radiation, cancer formation would be the main focus. The ideal agent would act by blocking DNA damage or by halting the progression of damaged cells that might eventually grow into cancers.

While a drug is yet to be found with such ideal radio-protective properties, other researchers have demonstrated that certain dietary supplements have at least some of the desired properties. Hayes argues that vitamin D, and in particular its biologically active form, could be the key ingredient in radiological protection.

"Our general understanding and appreciation of the multifaceted protective actions of vitamin D have recently entered a new era," says Hayes, "It is now becoming recognized that its most active molecular



form, 1,25-dihydroxyvitamin D3, may offer protection against a variety of radiation- and otherwise-induced damages."

Hayes has reviewed the various biochemical mechanisms by which vitamin D protects users\_ from the low levels of natural radiation released by the rocks on which we stand and the skies above us. He points out that calcitriol is involved in cell cycle regulation and control of proliferation, cellular differentiation and communication between cells, as well as programmed cell death (apoptosis and autophagy) and antiangiogenesis.

Calcitriol is the form of vitamin D that activates the body's Vitamin D Receptor (VDR), which allows gene transcription to take place and the activation of the innate immune response.

It is possible that several of the transcribed by the VDR will help transcribe proteins that protect the body against radiation.

"Vitamin D by its preventive/ameliorating actions should be given serious consideration as a protective agent against sublethal radiation injury, and in particular that induced by low-level radiation," concludes Hayes.

Source: Inderscience Publishers

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