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Rickets in children is caused by low levels of vitamin D
Dr. McDougall

Vitamin D Is Involved in Brain Development and Activity

Too many vitamin D receptors

We associate vitamin D with calcium metabolism and bone strength but, in fact, this molecule has many other roles in the organism from which we can enumerate: it controls tissue differentiation during development and immunity. More than 900 different genes can attach to the vitamin D receptor, which is the protein that mediates the effect of vitamin D in the protection against autoimmune diseases (like multiple sclerosis and type I diabetes) and cancer (like colorectal and breast). In a definitive critical review just published, scientists ask whether there is convincing biological or behavioral evidence linking vitamin D deficiency to brain dysfunction. In a meta-analysis published in the Federation of American Societies for Experimental Biology (FASEB) Journal, a team made of Dr. Joyce C. McCann, assistant staff scientist, and Dr. Bruce N. Ames, senior scientist at Children's Hospital Oakland Research Institute (CHORI) shows that there is a lot of biological evidence for the crucial role played by the vitamin D in brain development and function. "Drs. McCann and Ames deftly show that while vitamin D has an important role in the development and function of the brain, its exact effects on behavior remain unclear," said Dr. Gerald Weissmann, Editor-in-Chief of the FASEB Journal. Vitamin D is present in fatty fish, milk, dairy products and eggs, but most of our supply comes from the skin, being formed under the action of UV light, which turns a skin chemical into vitamin D, which the body later uses under the form of calcitriol. Light skin absorbs UV light easier than dark skin (which is adapted against sun burning in the tropics), forming 6 times more vitamin D. This explains why dark-skinned people in the Northern U.S., Canada or Europe display a higher risk for rickets, bone fractures and possibly cancers. The new review points that the role of vitamin D in brain function is the only thing to explain the high number of vitamin D receptors throughout the brain. Vitamin D could impact proteins involved in learning and memory, motor control, and perhaps even maternal and social behavior. Human and animal researches have come up with suggestive (but not definitive) proof of cognitive or behavioral effects of vitamin D scarcity. The review also points that the currently recommended dose of vitamin D is in fact much too low. Supplements of vitamin D should be taken by risk groups, those who have low levels of vitamin D, like infants, the elderly, and African Americans.