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About Vitamin D3, I said previously that it has nothing to do with brain or dementia. I found with further research that Vitamin D (cholecalciferol) does cross the blood-brain barrier and binds to abundant vitamin D receptors (VDRs) on neurons, and is converted to the active form, 1,25 di(OH)D. Activated vitamin D has a role in enabling synthesis of neurochemicals which determine function and protection against damage. It may also reduce accumulation of beta-amyloid (a cause of dementia) by enhancing its breakdown.

D deficiency, with levels less than 25 nmol/L and genetic mutations of the VDR are associated with β-amyloid accumulation and increased risk of cognitive impairment. In mouse models of Alzheimer's, supplements of the active form of vitamin D increased the process of removing beta amyloid from brain. Vitamin D supplements in **deficient** individuals reduce **risk** of senility, but only one study of a small number of Alzheimer's patients showed cognitive improvement with any D supplement. So, in the absence of dementia and known D deficiency, it seems logical that a D supplement might be prudent.