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Prenatal vitamin D and chronic disease: A review

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Background: Vitamin D status has recently been linked to a variety of chronic diseases – multiple sclerosis, type 1 and 2 diabetes, various cancers, osteoporosis, psychiatric illness and cardiovascular diseases. Most work has focussed on current or immediately antecedent vitamin D status or latitude of residence (thought to be a proxy for vitamin D levels). Here we review evidence of the importance of prenatal vitamin D to chronic disease susceptibility.

Method: A systematic review of the literature.

Results: Low vitamin D intake during pregnancy and the first year of life is a risk factor for later development of osteoporosis, type 1 diabetes, schizophrenia (males only) and possibly, MS and type 1 diabetes (based on season of birth studies suggesting a critical window of exposure). There is limited evidence for a role in later risk of type 2 diabetes, cardiovascular diseases and prostate cancer. Low prenatal vitamin D may have specific target organ effects and/or work via changes to the developing immune system, prenatally or in the early postnatal period.

Implications: Maternal vitamin D supplementation could be an important public health measure to decrease risk for a range of chronic diseases. Further research is required, using innovative study methods to limit recall error of an exposure that may occur many years before disease onset.