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1: [Med Hypotheses](#). 2003 Nov-Dec;61(5-6):543-60.

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**A moderately low phosphate intake may provide health benefits analogous to those conferred by UV light - a further advantage of vegan diets.**

[McCarty MF.](#)

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Although exposure to ultraviolet light is often viewed as pathogenic owing to its role in the genesis of skin cancer and skin aging, there is growing epidemiological evidence that such exposure may decrease risk for a number of more serious cancers, may have a favorable impact on blood pressure and vascular health, and may help to prevent certain autoimmune disorders - in addition to its well-known influence on bone density. Most likely, these health benefits are reflective of improved vitamin D status. Increased synthesis or intake of vitamin D can be expected to down-regulate parathyroid hormone (PTH), and to increase autocrine synthesis of its active metabolite calcitriol in certain tissues; these effects, in turn, may impact cancer risk, vascular health, immune regulation, and bone density through a variety of mechanisms. Presumably, a truly adequate supplemental intake of vitamin D - manyfold higher than the grossly inadequate current RDA - could replicate the benefits of optimal UV exposure, without however damaging the skin. Diets moderately low in bioavailable phosphate - like many vegan diets - might be expected to have a complementary impact on disease risks, inasmuch as serum phosphate suppresses renal calcitriol synthesis while up-regulating that of PTH. A proviso is that the impact of dietary phosphorus on bone health is more equivocal than that of vitamin D. Increased intakes of calcium, on the other hand, down-regulate the production of both PTH and calcitriol - the latter effect may explain why the impact of dietary calcium on cancer risk (excepting colon cancer), hypertension, and autoimmunity is not clearly positive. An overview suggests that a vegan diet supplemented with high-dose vitamin D should increase both systemic and autocrine calcitriol production while suppressing PTH secretion, and thus should represent a highly effective way to achieve the wide-ranging

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