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BRIEF QUESTIONS AND ANSWERS ON CURRENT CLINICAL CONTROVERSIES

Q: Are strict vegetarians at risk of vitamin B_{12} deficiency?

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A: THE ADEQUACY of a vegetarian's diet should be assessed on an individual basis, because people who call themselves vegetarians differ widely in the types of foods they eat.

Lacto-ovo vegetarians follow a less-restrictive diet that includes dairy products and eggs along with grains, vegetables, fruits, legumes, seeds, and nuts, while excluding meat, fish, and fowl.

Vegans (or "strict" vegetarians), in contrast, eat no animal products whatsoever: no dairy products, no eggs, no meat.

Between these two groups are many subgroups, often following diets based on philosophy or religion.

WHO IS AT RISK?

Vegans are at greater risk of vitamin B_{12} deficiency than are lacto-ovo vegetarians. Even so, people who consume animal products can build up considerable stores of vitamin B_{12}, so that someone who has recently become a vegan may have enough to last as much as 20 to 30 years.[1] On the other hand, long-term vegans should be especially careful to get enough vitamin B_{12}, as should infants, children, and pregnant and lactating women. Several reported cases of vitamin B_{12} deficiency causing neurologic disturbances occurred in infants whose nursing mothers were vegans.[2,3] (Deficiency of vitamin B_{12}, which is required for cell division and blood formation, may result in anemia, fatigue, and nerve damage.)

HOW MUCH VITAMIN B_{12} IS NEEDED AND WHERE IS IT FOUND?

The Recommended Dietary Allowance (RDA) for vitamin B_{12} is 2.0 µg/day for adults, 2.2 µg/day during pregnancy, and 2.6 µg/day during breast-feeding.

TABLE 1

Vitamin B_{12} content of some foods

FOOD	VITAMIN B_{12} (µg)
Salmon, cooked (3 ounces)	2.6
Low fat yogurt (1 cup)	2.2
Shrimp, cooked (3 ounces)	1.3
Ready-to-eat breakfast cereals, (3/4 cup)	1.5–6.0
Vegetarian burger patties (1 burger or 1 serving)	2.0–7.0
Fortified soy milks (1 cup)	3.0
Nutritional yeast (Red Star Vegetarian Support Formula), 1 Tbsp	4.0

Vitamin B_{12} is predominantly found in animal products: meat, fish, poultry, eggs, milk, and other dairy foods. Plant foods do not contain vitamin B_{12}, except from soil contamination with microorganisms, an unreliable source.

Vegans can easily meet their need for vitamin B_{12} by eating fortified foods or taking vitamin supplements.

Fortified food products include breakfast cereals, soy milk products, and vegetarian burger patties. Patients should be instructed to read the food label carefully, because fortification amounts may vary. Nutritional yeast can also serve as a source of vitamin B_{12} if it is grown on a medium that is enriched with vitamin B_{12}.

Although foods such as seaweed, algae, spirulina, tempeh, and miso may claim to contain vitamin B_{12} on the food label, it is in the inactive B_{12} analogue rather than the active

Vegans should take B_{12} supplements or eat fortified foods

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vitamin. TABLE 1 lists the B_{12} content of some vegetarian foods.

Nearly all common multivitamins contain 100% of the RDA for vitamin B_{12}. Vitamin B_{12} injections are not indicated unless the patient has pernicious anemia or has had part or all of his or her stomach removed, thereby reducing or eliminating the intrinsic factor needed for vitamin B_{12} absorption.

ADVICE TO PATIENTS

Vegetarian diets, if appropriately planned, can be healthful and nutritionally adequate, and help prevent and treat certain diseases and conditions.[4] Patients who avoid or limit animal products in their diets, however, should be encouraged to take supplements or eat fortified foods.[5]

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