

**Practice Sheet: Vitamin and Mineral Summary for Vegetarian Athletes**

	Dietary Reference Intake		Tolerable Upper Intake Limit	Athlete-Specific Considerations	Vegetarian-Specific Considerations	Absorption Affected by Phytate
	Men Aged 19 to 50	Women Aged 19 to 50				
<b>Vitamins</b>						
B <sub>6</sub> *	1.3 mg	1.3 mg	100 mg			
B <sub>12</sub> *^	2.4 mcg	2.4 mcg	NA		Vegans need a supplement or fortified foods. <sup>1</sup>	
Biotin*	30 mcg	30 mcg	NA			
C*	90 mg	75 mg	2,000 mg	Target of 100 to 1,000 mg has been suggested for repeated, sustained strenuous exercise. <sup>2</sup>		
D*^	600 IU	600 IU	4,000 IU	Supplements are recommended for anyone for whom sunlight exposure and fortified foods aren't meeting needs. <sup>1</sup> If female athlete triad is present, a 400- to 800-IU supplement is recommended. <sup>2</sup>		
E*	15 mg	15 mg	1,000 mg			
Folate*	400 mcg	400 mcg	1,000 mcg			
Niacin*	16 mg	14 mg	35 mg			
Pantothenic acid*	5 mg	5 mg	NA			
Riboflavin*	1.3 mg	1.1 mg	NA			
Thiamin*	1.2 mg	1.1 mg	NA			
<b>Minerals</b>						
Calcium*^	1,000 mg	1,000 mg	2,500 mg		Vegans may benefit from a supplement and fortified foods. <sup>1,3</sup>	X
				Female vegetarian athletes should aim for substantial calcium intake. <sup>1</sup> If the female athlete triad is present, a 1,500-mg elemental calcium supplement is recommended. <sup>2</sup>		

Iodine <sup>^</sup>	150 mcg	150 mcg	1,100 mcg		Some vegans may not get enough without consuming iodized salt or sea vegetables. <sup>1</sup>	
Iron <sup>*^</sup>	8 mg	8 to 18 mg	45 mg	Increased need for athletes by a factor of 1.3 to 1.7. <sup>4</sup>	Increased need for vegetarians by a factor of 1.8. <sup>4</sup>	X
				Female vegetarian athletes should aim for substantial iron intake. <sup>1</sup>		
Magnesium <sup>*</sup>	400 to 420 mg	310 to 320 mg	350 mg (for supplemental magnesium)			
Selenium <sup>*</sup>	55 mcg	55 mcg	400 mcg			
Zinc <sup>*^</sup>	11 mg	8 mg	40 mg		Possible that needs are higher, especially for vegans, by factor of 1.5 to 2. <sup>5</sup>	X

<sup>\*</sup>*Micronutrients of concern for athletes*<sup>2</sup>

<sup>^</sup>*Micronutrients of concern for vegetarians*<sup>1</sup>

— Source: Institute of Medicine Dietary Reference Intakes

### Additional Considerations

- The primary goal for athletes is to reach at least the Recommended Dietary Allowance for vitamins and minerals. Overall micronutrient needs for athletes may be higher, but often they can be met with higher energy intake. As long as energy needs are met with a variety of foods, supplements aren't needed unless individual circumstances necessitate it.<sup>2</sup>
- Consideration also should be given to other supplement recommendations for the general population besides those for athletes and vegetarians.<sup>2</sup>
- Sodium, potassium, and chloride also are important for athletes, but meeting needs generally isn't difficult. Endurance athletes may have needs for sodium and chloride above the Tolerable Upper Intake Level.<sup>2</sup>
- The Dietary Reference Intakes, based on information from the Institute of Medicine publications, are for men and women aged 19 to 50. Requirements will vary for age groups outside this range.
- When assessing overall micronutrient status, it's best to confirm that intake of a particular nutrient from diet, supplements, and fortified foods doesn't exceed the Tolerable Upper Intake Level.

- For vegetarians, it's important to ensure the ingredients and substances used in processing supplements are vegetarian and/or vegan.<sup>6</sup> For example, vitamin D<sub>2</sub> is acceptable to vegans but D<sub>3</sub> isn't because it's derived from an animal source.<sup>1,6</sup>

## References

1. Craig WJ, Mangels AR. Position of the American Dietetic Association: vegetarian diets. *J Am Diet Assoc*. 2009;109(7):1266-1282.
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3. Britten P, Cleveland LE, Koegel KL, Kuczynski KJ, Nickols-Richardson SM. Updated US Department of Agriculture food patterns meet goals of the 2010 Dietary Guidelines. *J Acad Nutr Diet*. 2012;112(10):1648-1655.
4. Iron. In: Otten JJ, Hellwig JP, Meyers LD, eds. *Dietary Reference Intakes: The Essential Guide to Nutrient Requirements*. Washington, DC: National Academies Press; 2006:328-339.
5. Zinc. In: *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. Washington DC: National Academies Press; 2001:442-501.
6. Larson-Meyer DE. *Vegetarian Sports Nutrition*. Champaign, IL: Human Kinetics; 2007.