<table>
<thead>
<tr>
<th></th>
<th>Dietary Reference Intake</th>
<th>Tolerable Upper Intake Limit</th>
<th>Athlete-Specific Considerations</th>
<th>Vegetarian-Specific Considerations</th>
<th>Absorption Affected by Phytate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B₆*</td>
<td>1.3 mg</td>
<td>1.3 mg</td>
<td>100 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B₁₂**[^A]</td>
<td>2.4 mcg</td>
<td>2.4 mcg</td>
<td>NA</td>
<td>Vegans need a supplement or fortified foods.¹</td>
<td></td>
</tr>
<tr>
<td>Biotin*</td>
<td>30 mcg</td>
<td>30 mcg</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C*</td>
<td>90 mg</td>
<td>75 mg</td>
<td>2,000 mg</td>
<td>Target of 100 to 1,000 mg has been suggested for repeated, sustained strenuous exercise.²</td>
<td></td>
</tr>
<tr>
<td>D[^A]</td>
<td>600 IU</td>
<td>600 IU</td>
<td>4,000 IU</td>
<td>Supplements are recommended for anyone for whom sunlight exposure and fortified foods aren't meeting needs.¹ If female athlete triad is present, a 400- to 800-IU supplement is recommended.²</td>
<td></td>
</tr>
<tr>
<td>E*</td>
<td>15 mg</td>
<td>15 mg</td>
<td>1,000 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folate*</td>
<td>400 mcg</td>
<td>400 mcg</td>
<td>1,000 mcg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Niacin*</td>
<td>16 mg</td>
<td>14 mg</td>
<td>35 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pantothenic acid*</td>
<td>5 mg</td>
<td>5 mg</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riboflavin*</td>
<td>1.3 mg</td>
<td>1.1 mg</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thiamin*</td>
<td>1.2 mg</td>
<td>1.1 mg</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minerals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium[^A]</td>
<td>1,000 mg</td>
<td>1,000 mg</td>
<td>2,500 mg</td>
<td>Vegans may benefit from a supplement and fortified foods.¹,³</td>
<td>X</td>
</tr>
</tbody>
</table>

Female vegetarian athletes should aim for substantial calcium intake.¹ If the female athlete triad is present, a 1,500-mg elemental calcium supplement is recommended.²
### Micronutrients of concern for athletes

- **Iodine**
  - 150 mcg
  - 150 mcg
  - 1,100 mcg
  - Some vegans may not get enough without consuming iodized salt or sea vegetables.

- **Iron**
  - 8 mg
  - 8 to 18 mg
  - 45 mg
  - Increased need for athletes by a factor of 1.3 to 1.7.¹
  - Increased need for vegetarians by a factor of 1.8.⁴
  - Female vegetarian athletes should aim for substantial iron intake.

- **Magnesium**
  - 400 to 420 mg
  - 310 to 320 mg
  - 350 mg (for supplemental magnesium)

- **Selenium**
  - 55 mcg
  - 55 mcg
  - 400 mcg

- **Zinc**
  - 11 mg
  - 8 mg
  - 40 mg
  - Possible that needs are higher, especially for vegans, by a factor of 1.5 to 2.⁵

### Micronutrients of concern for vegetarians

- **Iodine**
  - 150 mcg
  - 150 mcg
  - 1,100 mcg
  - Some vegans may not get enough without consuming iodized salt or sea vegetables.

- **Iron**
  - 8 mg
  - 8 to 18 mg
  - 45 mg
  - Increased need for athletes by a factor of 1.3 to 1.7.¹
  - Increased need for vegetarians by a factor of 1.8.⁴
  - Female vegetarian athletes should aim for substantial iron intake.

- **Magnesium**
  - 400 to 420 mg
  - 310 to 320 mg
  - 350 mg (for supplemental magnesium)

- **Selenium**
  - 55 mcg
  - 55 mcg
  - 400 mcg

- **Zinc**
  - 11 mg
  - 8 mg
  - 40 mg
  - Possible that needs are higher, especially for vegans, by a factor of 1.5 to 2.⁵

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**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.²

- Consideration also should be given to other supplement recommendations for the general population besides those for athletes and vegetarians.²

- 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.²

- 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. For example, vitamin D₂ is acceptable to vegans but D₃ isn’t because it’s derived from an animal source.¹,⁶

References


