Dear Alice,

My sister and I are both teenagers, and have recently become vegetarians. We were wondering how this will affect our growth and bones. Would it be better for us to eat poultry and fish, also? Thank you.

Concerned

Answer

Dear Concerned,

Just as there are healthy and unhealthy omnivores, there are healthy and unhealthy vegetarians, too. Teenagers are at a critical point in their lives in terms of height and bone development. Including nutritious foods in eating plans is of major importance in terms of reaching their full potential, both for height and bone density.

While adequate protein is essential for bone development and maximum growth, you can get enough protein by eating a varied and balanced vegetarian diet. Including eggs and dairy is an easy way to get protein in your diet, however plants and grains can be combined to give you the protein you need as well (check out Vegetarian wants to bulk up with protein foods for more info). Dairy and eggs contain complete proteins, meaning they have all the amino acids in the right proportions to be used by your body for growth and tissue repair. Dairy foods contain vitamin B12, which is only found in foods of animal origin. This vitamin is vital to your bone marrow, nervous system, and other life-sustaining functions. In addition to calcium, dairy products also contain phosphorous, the second largest component of bone. Look for dairy products fortified with vitamin D, which is needed to absorb calcium.

Whether you include poultry and fish is up to you. For many teens, it is easier to meet one's protein needs by including a wide variety of foods in their diet. Since you need sufficient protein every day, eating poultry or fish on some days can be a healthy option. On meatless days, including legumes, nuts, and/or soy foods can do the trick. Lots of other nutrients, many found in fruits and veggies, are also important for bone health. Can drinking milk prevent osteoporosis? in Go Ask Alice's Nutrition and Physical Activity archive lists some good food sources of bone building nutrients.

Everyone, teens included, must take in enough calories to meet their body's energy needs;
otherwise, the protein will be burned for energy, and will not be available for growth and development of strong bones and lean body mass. If a very low-calorie diet is what you have in mind, it would be a good idea to consult with your primary care provider before cutting back on your food intake. It is during adolescence when you reach your fullest potential in terms of bone development (called peak bone mass). If not reached by young adulthood, you can't make up for sub-optimal bone development later in life. So, taking in too few calories and/or protein during the teen years could have implications for your bone health later in life.

This info isn't meant to promote overeating, or under-eating, but rather to help you learn to take in the right amount of food to meet your body's needs. Look first to foods that contain nutrients, and try not to overdo the empty calorie foods, such as soda. Determining what you really need can be challenging, especially because your body is in a state of change.

Your protein and calorie requirements will depend on your stage of growth and physical activity. The Recommended Energy and Protein Allowances, from the RDA, do not take into account these extra amounts you may need. For teens, it's recommended to use height as a measure for calorie and protein needs, rather than weight. To figure out your height in centimeters (cm.), multiply inches by 2.5. Your minimum needs can then be calculated from this chart:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Calories per cm.</th>
<th>Grams of Protein per cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Females</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - 14</td>
<td>14.0</td>
<td>0.29</td>
</tr>
<tr>
<td>15 - 18</td>
<td>13.5</td>
<td>0.26</td>
</tr>
<tr>
<td>19 - 24</td>
<td>13.4</td>
<td>0.28</td>
</tr>
<tr>
<td><strong>Males</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - 14</td>
<td>16.0</td>
<td>0.28</td>
</tr>
<tr>
<td>15 - 18</td>
<td>17.0</td>
<td>0.33</td>
</tr>
<tr>
<td>19 - 24</td>
<td>16.4</td>
<td>0.33</td>
</tr>
</tbody>
</table>

You will need more calories and protein if you are very active and/or are in a rapid growth spurt.

Making healthy choices as you develop during your teen years can help you be healthy for the rest of your life. Kudos to you and your sister for beginning your healthy eating patterns now,

Alice!

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