Vitamins and Minerals

Vitamins are organic molecules that control many body functions. Minerals are inorganic molecules that control many body functions. There are 13 essential vitamins and 18 minerals that humans need on a regular basis. The human body does not make any vitamins or minerals. They must be consumed. If a human does not receive the necessary vitamins or minerals, certain body functions will not work correctly.

Vitamins and Minerals

(3116, 3117)

At the end of this unit of study, you should be able to do the following.

1. Explain the function of vitamins in a human.
2. Explain the role of minerals in a human.
3. Explain how humans get vitamins and minerals.
4. List and explain the function of three important vitamins.
5. List and explain the function of three important minerals.
6. Compare and contrast vitamins and minerals.
7. Be able to show your understanding of the following words

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Calcium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral</td>
<td>Magnesium</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Potassium</td>
</tr>
<tr>
<td>Vitamin K</td>
<td>Iron</td>
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<tr>
<td>Vitamin D</td>
<td></td>
</tr>
</tbody>
</table>
Vitamins and Minerals (3116,3117)

**Vitamins**
You have probably heard of vitamins. Many people take them in pill form every day. **Vitamins are important because they control many body functions by helping enzymes to function.** Sometimes they are called co-enzymes. Since most vitamins cannot be made by livings things, including you, they have to be consumed. In a normal balanced diet, you will consume all of the **13 essential vitamins** that you need to remain healthy. Vitamins differ from minerals because vitamins are organic compounds; minerals are inorganic compounds.

There are 13 essential vitamins. You will need to remember the following vitamins and their function.

1. **Vitamin C** - helps to heal wounds
2. **Vitamin K** - essential for blood clotting to stop bleeding
3. **Vitamin D** - bone growth, strong teeth, good muscle tone

**REMEMBER THIS !!!**
Vitamins control many body functions. Most have to be eaten since the body cannot make them.

**Question 1.** Why are vitamins considered to be organic?

**Question 2.** What is one difference between vitamins and minerals?

**Question 3.** Without looking, list the three vitamins you were asked to remember and write their function.

**Question 4.** How many essential vitamins are there?

**Interesting Scientific Fact:** Vitamin D comes from milk and dairy products, but sunlight also helps your body to produce vitamin D as well.
Minerals are inorganic compounds that living things need in small amounts to remain healthy. Even in small amounts, they control several body functions. The human body does not make minerals. Minerals are normally consumed in a balanced diet. Like vitamins, some people take them in pill form as a supplement.

Although there are 18 minerals needed to remain healthy, you will only need to remember 3. They are listed below along with their function.

1. calcium – strong bones and teeth
2. magnesium – strong bones and teeth, used to make protein
3. potassium – regulate heartbeat and produce muscle movement

REMEMBER THIS !!!
The human body does not make minerals. They must be consumed as part of the diet.

Interesting Scientific Fact: Iron is a mineral that is needed for the production of red blood cells. You may become anemic if you do not have enough iron in your body.

Question 5. What is the main function for minerals in the human body?

Question 6. Why are minerals not considered to be organic compounds?

Question 7. Without looking, list the three minerals that you are to remember and explain the function of each.

Question 8. How many essential minerals are there?
Summary

Vitamins and Minerals

Certain enzymes and hormones in a human body need vitamins or minerals to help them function correctly. For example, hemoglobin, a protein responsible for red blood cells, has to have the mineral iron before it can function correctly. Without a steady supply of iron, your body will become anemic.

Vitamins are organic molecules because they contain carbon atoms. Minerals are inorganic because they do not contain any carbon atoms. Both vitamins and minerals are found in food. People who eat a balanced diet get enough vitamins and minerals through their normal eating.

The importance of vitamins and minerals becomes evident when people develop problems due to a lack of a vitamin or mineral in their diet. Only a small amount of vitamins and minerals are needed, but they cause a problem for the body if they are not present. They all must be present in the body.

It is well known that Vitamin C is very important in wound healing. Vitamin K is essential for blood clotting, so you are able to stop bleeding after an injury. Vitamin K also helps in the formation of a scab after you have been cut. Vitamin D helps build strong teeth and bones. Strong bones and teeth are made early in life. There are many other vitamins and minerals and you need all of them. Good health requires that they all be part of your diet.
Vitamins and Minerals

Test Yourself

Matching

_____ 1. vitamins a. mineral need to make hemoglobin
_____ 2. minerals b. vitamin needed for bones to form properly
_____ 3. iron c. vitamin important in wound healing
_____ 4. organic d. vitamin important in blood clotting
_____ 5. inorganic e. organic molecules needed to make some
______ 6. Vitamin C f. inorganic molecules that control
      enzymes function correctly
______ 7. Vitamin D g. molecules containing carbon
    many body functions
______ 8. Vitamin K h. molecules without carbon

True or False

_____ 1. Vitamins are inorganic.
_____ 2. Minerals are inorganic.
_____ 3. Hemoglobin is partly made of the mineral iron.
_____ 4. Without Vitamin C, proper bone formation will not occur.
_____ 5. Without Vitamin D, proper bone formation will not occur.
_____ 6. Vitamin K is essential for blood clotting.
_____ 7. Vitamins and minerals are found in food.
_____ 8. Vitamins are needed in large amounts, minerals are needed in small amounts.
_____ 9. Both vitamins and minerals are needed in small amounts.
Fill in the Blank

vitamins          minerals          iron
Vitamin K        Vitamin C        Vitamin D

1. ___________________________ are organic structures needed to make other molecules complete.
2. ___________________________ are inorganic structures needed to make other molecules complete.
3. ___________________________ is an example of a mineral needed to complete the protein hemoglobin.
4. ___________________________ is an example of vitamin that is needed for blood to clot properly.
5. ___________________________ is an example of a vitamin that is needed for proper bone formation.
6. ___________________________ is an example of a vitamin that is needed wound healing.

Answer the following.

1. What is the role of vitamins and minerals in general?

2. Why are vitamins considered organic and minerals considered inorganic?

3. List and explain the function of three minerals.

4. List and explain the function of three vitamins.
Question 1. Why are vitamins considered to be organic?

Question 2. What is one difference between vitamins and minerals?

Question 3. Without looking, list the three vitamins you were asked to remember and write their function.

Question 4. How many essential vitamins are there?

Question 5. What is the main function for minerals in the human body?

Question 6. Why are minerals not considered to be organic compounds?
**Question 7.** Without looking, list the three minerals that you are to remember and explain the function of each.

**Question 8.** How many essential minerals are there?