

## Vitamins, Minerals and Micronutrients

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### Abstract

This study aims to throw light on the importance of minerals, vitamins and micronutrients in our body. Micronutrients play crucial roles in human nutrition, including the prevention and treatment of various diseases and conditions, as well as the optimization of physical and mental functioning. Understanding micronutrients is critical for anyone seeking to maintain or improve his or her health. Though they are only needed in small amounts, they play important roles in human development and well-being, including the regulation of metabolism, heartbeat, cellular pH, and bone density. Lack of micronutrients can lead to stunted growth in children and increased risk for various diseases in adulthood.

**Keywords:** vitamins, minerals, micronutrient, health, diet, health

### Introduction

A large number of different nutrients are needed in small amounts to keep the body healthy. These micronutrients, mostly vitamins and minerals, are found in tiny amounts in a wide range of foods, which is why it is best to eat a variety of foods every day. An adequate intake of all of these nutrients is essential for good health.

Vitamins are usually classified into two groups: those that are soluble in water and those that are soluble in fats.

#### Water – Soluble Vitamins

There are two main types of water – soluble vitamins: the ‘B vitamins’ (including vitamin B1, B2, B3, B6, B12 and folic acid) and vitamin C.

- B Vitamins help the body use energy and nutrients from food. This is especially important for people taking part in sport and exercise. They have many different functions in

- The body. For example, riboflavin (vitamin B2) helps to keep skin, eyes and nervous system healthy, as well as making red blood cells.
- Vitamin C keeps the skin and gums healthy – vital for preventing infection.
- Water – soluble vitamins are found in many different foods, such as fruits and vegetables, wholegrain or fortified breakfast cereals, meat, fish and eggs.
- Fruits and vegetables are very high in water – soluble vitamins. New research into nutrition suggests that there are other important substances in fruits and vegetables. These include antioxidants and phytochemicals that can help the body to cope with the effects of training and exercise.
- Our bodies do not store water – soluble vitamins. Any extra is passed in the urine, so it is important to eat foods that contain these nutrients every day



Fig 1

#### Why Eat More Fruit and Vegetables?

Eating plenty of fruit and vegetables helps to prevent diabetes, stroke, heart disease and obesity. Current advice is to eat at least 5 ‘portions’ of fruit and vegetables as day, but only about a third of adults achieve this. Boys and girls aged 11 – 18 typically eat only about 3 portion a day. For more information, see:

One portion for an adult is:

- One medium sized piece of fruit, such as an apple (about 80 g)

- Half a handful of dried fruit (about 30g)
- 3 serving spoons of vegetables (about 80g) or cooked pulses (beans and lentils)
- 1 small, cereal bowl of salad
- 1 glass of 100% fruit juice (150 ml)

Steaming, stir frying or microwaving in a small amount of water helps keep the nutrients.

They don’t have to be fresh – frozen fruit and vegetables count, as do tinned or canned. Adding vegetables to soups, casseroles or stews counts too.

Children should also eat at least 5 portions a day. A portion for children is the amount they can fit in the palm of their hand.

### Smoothie recipe

Put into a blender or liquidizer:

- 125 ml low fat yogurt
- 125 ml low fat milk (or alternative non – dairy such as soy milk)
- 80 g frozen berries, such as blueberries or raspberries (or use fresh berries and add a handful of ice)
- 1 medium banana
- Runny honey to taste

Put on lid! Liquidise until smooth, Add extra liquid if too thick.

### Fat – Soluble Vitamins and Essential Fatty Acids

Fat – soluble vitamins (vitamins A, D, E and K) are found in margarines, oils, dairy products (milk, butter and cheese), liver, egg yolks and oily fish, as well as some vegetables. Vitamins are normally obtained from food, but a few can be made by the body, vitamin D is made by the skin when exposed to sunlight (See Section 7: Healthy Bones). Vitamin K can be made by bacteria which live in the gut. Even so, it is still possible to become deficient in these vitamins.

Extra fat – soluble vitamins are stored in the body and can become toxic if levels are too high, so it is important not to eat too much. For example, high doses of vitamin A can cause fatal liver damage. For this reason, pregnant women and women trying to conceive should avoid liver and liver – containing products as well as supplements containing Vitamin A or fish liver oils.

Essential fatty acids cannot be made by the body, so we need to eat them in our food. Omega – 6 fatty acids are found in some vegetable oils, including rapeseed or canola oil, and corn oil. Omega – 3 fatty acids are also found in vegetable oils, as well as in oily fish such as salmon, mackerel, sardines and herring. Aim for at least two portions of fish a week, including one portion of oily fish a week, including on portion of oily fish. You can choose from fresh, frozen or canned, but canned and smoked fish can be high in salt. Essential fatty acids are important to help fight inflammation and infection as well as reducing the risk of heart disease. For more practical advice, see

### Minerals

Iron deficiency is a cause of fatigue and reduced performance. Women and girls are particularly at risk because of increased iron requirements due to menstrual blood losses matched against a smaller intake of food. Iron – rich eating will help to reduce this risk.

### Conclusion

Our bodies cannot make all of these micro-nutrients, so they must be supplied through the diet. Different foods contain different levels of vitamins and minerals, so it's important that you eat a wide variety of foods from the different food groups and a variety within each food group, to make sure you get an adequate supply of all the micro-nutrients your body needs.

A healthy balanced diet, which includes a variety of foods containing iron, will help people achieve adequate iron status. Many breakfast cereals have iron added to them. Other minerals, such as magnesium and zinc, should be available in

adequate amounts from a varied, nutrient – rich diet. This should be based on fruits, vegetables, lean meats, beans and pulses, dairy foods, nuts and healthy oils.

People are at risk of deficiency if their diet lacks variety. This could be due to following a very strict diet to lose weight or eating only a few foods. If you need to restrict your diet for any reason, you should seek advice from a dietician or qualified sports nutritionist.

One therefore can conclude that minerals, vitamins and micronutrients are highly crucial for our body. Micronutrients play important roles in human nutrition, including the prevention and treatment of various diseases and conditions, as well as the optimization of physical and mental functioning. Appreciating the significance of micronutrients is essential for anyone who wants to maintain or improve his or her health.

### References

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