

## MALNUTRITION

Malnutrition refers to getting too little or too much of certain nutrients. It can lead to serious health issues, including stunted growth, eye problems, diabetes and heart disease. Malnutrition affects billions of people worldwide. Some populations have a high risk of developing certain types of malnutrition depending on their environment, lifestyle and resources.

Malnutrition is a condition that results from nutrient deficiency or overconsumption. Types of malnutrition include:

- **Undernutrition:** This type of malnutrition results from not getting enough protein, calories or micronutrients. It leads to low weight-for-height (wasting), height-for-age (stunting) and weight-for-age (underweight).
- **Overnutrition:** Overconsumption of certain nutrients, such as protein, calories or fat, can also lead to malnutrition. This usually results in being overweight or obesity.

People who are undernourished often have deficiencies in vitamins and minerals, especially iron, zinc, vitamin A and iodine. However, micronutrient deficiencies can also occur with overnutrition. It's possible to be overweight or obese from excessive calorie consumption but not get enough vitamins and minerals at the same time. That's because foods that contribute to overnutrition, such as fried and sugary foods, tend to be high in calories and fat but low in other nutrients .

## **Signs and Symptoms**

The signs and symptoms of malnutrition depend on the type. Being able to recognize the effects of malnutrition can help people and healthcare providers identify and treat issues related to under- or overnutrition.

## **Undernutrition**

Undernutrition typically results from not getting enough nutrients in your diet. This can cause :

- Weight loss
- Loss of fat and muscle mass
- Hollow cheeks and sunken eyes
- A swollen stomach
- Dry hair and skin
- Delayed wound healing
- Fatigue
- Difficulty concentrating
- Irritability
- Depression and anxiety

People with undernutrition may have one or several of these symptoms. Some types of undernutrition have signature effects. Kwashiorkor, a severe protein deficiency, causes fluid retention and a protruding abdomen. On the other hand, the condition marasmus, which results from severe calorie deficiency, leads to wasting and significant fat and muscle loss .

Undernutrition can also result in micronutrient deficiencies. Some of the most common deficiencies and their symptoms include Vitamin A: Dry eyes, night blindness, increased risk of infection.

- Zinc: Loss of appetite, stunted growth, delayed healing of wounds, hair loss, diarrhea.
- Iron: Impaired brain function, issues with regulating body temperature, stomach problems Iodine: Enlarged thyroid glands (goiters), decreased production of thyroid hormone, growth and development issues.

Since undernutrition leads to serious physical issues and health problems, it can increase your risk of death.

In fact, it's estimated that stunting, wasting and zinc and vitamin A deficiencies contributed to up to 45% of all child deaths in 2011.

## **Overnutrition**

The main signs of overnutrition are overweight and obesity, but it can also lead to nutrient deficiencies. Research shows that people who are overweight or obese are more likely to have inadequate intakes and low blood levels of certain vitamins and minerals compared to those who are at a normal weight.

One study in 285 adolescents found that blood levels of vitamins A and E in obese people were 2–10% lower than those of normal-weight participants. This is likely because overweight and obesity can result from an overconsumption of fast and processed foods that are high in calories and fat but low in other nutrients. A study in over 17,000 adults and children found that those who ate fast food had significantly lower intakes of vitamins A and

C and higher calorie, fat and sodium consumption than those who abstained from this type of food.

## **Assessing Malnutrition**

Symptoms of malnutrition are assessed by healthcare providers when they screen for the condition. Tools that are used to identify malnutrition include weight loss and body mass index (BMI) charts, blood tests for micronutrient status and physical exams. If we have a history of weight loss and other symptoms associated with undernutrition, our doctor may order additional tests to identify micronutrient deficiencies. Identifying nutrient deficiencies that result from overnutrition, on the other hand, can be more difficult. If we are overweight or obese and eat mostly processed and fast foods, we may not get enough vitamins or minerals. To find out if we have nutrient deficiencies, consider discussing your dietary habits with our doctor.

## **Long-Term Effects**

Malnutrition can lead to the development of diseases and chronic health conditions. Long-term effects of undernutrition include a higher risk of obesity, heart disease and diabetes. One study in 50 adolescents in Brazil found that boys who had stunted growth as a result of undernutrition early in life gained 5% more fat mass over three years compared to their peers who did not have stunting. Additional research found that 21% of adolescents with stunted growth in Brazil had high blood pressure compared to less than 10% of adolescents without stunting. Researchers suspect that childhood undernutrition causes changes in metabolism that may lead to a higher likelihood of developing chronic diseases later in life. Overnutrition can also

contribute to the development of certain health issues. Specifically, overweight or obese children have a higher chance of heart disease and type 2 diabetes. A study in over 369,000 children found that those who were obese were more than four times as likely to develop type 2 diabetes compared to their peers who had a normal BMI. Since the long-term effects of malnutrition can increase your risk of certain diseases, preventing and treating malnutrition may help reduce the prevalence of chronic health conditions.

## **Common Causes of Malnutrition**

Malnutrition is a worldwide problem that can result from environmental, economic and medical conditions. The WHO estimates that over 460 million adults and 150 million children are undernourished, while more than two billion adults and children are overweight or obese. Common causes of malnutrition include:

- Food insecurity or a lack of access to sufficient and affordable food: Studies link food insecurity in both developing and developed nations to malnutrition
- Digestive problems and issues with nutrient absorption: Conditions that cause malabsorption, such as Crohn's disease, celiac disease and bacterial overgrowth in the intestines, can cause malnutrition.
- Excessive alcohol consumption: Heavy alcohol use can lead to inadequate intake of protein, calories and micronutrients
- Mental health disorders: Depression and other mental health conditions can increase malnutrition risk. One study found that the prevalence of malnutrition was 4% higher in people with depression compared to healthy individuals.

- Inability to obtain and prepare foods: Studies have identified being frail, having poor mobility and lacking muscle strength as risk factors for malnutrition. These issues impair food preparation skills.

## **Prevention and Treatment**

Preventing and treating malnutrition involves addressing the underlying causes. Government agencies, independent organizations and schools can play a role in preventing malnutrition. Research suggests that some of the most effective ways to prevent malnutrition include providing iron, zinc and iodine pills, food supplements and nutrition education to populations at risk of undernutrition. In addition, interventions that encourage healthy food choices and physical activity for children and adults at risk of overnutrition may help prevent overweight and obesity.

We can also help prevent malnutrition by eating a diet with a variety of foods that include enough carbs, proteins, fats, vitamins, minerals and water. Treating malnutrition, on the other hand, often involves more individualized approaches. If we suspect that you or someone you know is undernourished, talk to a doctor as soon as possible.

A healthcare provider can assess the signs and symptoms of undernutrition and recommend interventions, such as working with a dietitian to develop a feeding schedule that may include supplements.

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