

## Anemia: A curable Problem

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### Introduction

Anemia occurs when the number of red blood cells circulating in the body decreases. It is the most common blood disorder. According to a 2015 article published in The Lancet Trusted Source around one-third of the world's population has a form of anemia. Other health conditions, such as those that interfere with the body's production of healthy red blood cells (RBCs) or increase the rate of the breakdown or loss of these cells, can cause anemia. Anemia can lead to symptoms including fatigue, shortness of breath, and light headedness. In this article, we explain the types, symptoms, and causes of anemia, as well as the treatments available.

### Symptoms

The most common symptom of anemia is fatigue. Other common symptoms include

- Pallid complexion
- A fast or irregular heartbeat
- Shortness of breath
- Chest pain
- Headache
- Light-headedness

However, symptoms vary from person to person. Some people with mild anemia may experience few or no symptoms

### Types

There are many forms of anemia. Some common types of anemia include:

- Iron deficiency anemia
- Vitamin B12 deficiency anemia
- Aplastic anemia
- Haemolytic anemia

### **Iron deficiency anemia**

The most common form of anemia, iron deficiency anemia involves the body producing too few RBCs due to a lack of iron in the body. It may develop as a result of:

- A diet low in iron
- Heavy menstruation
- Frequent blood donation
- Endurance training
- Certain digestive conditions, such as Crohn's disease
- Medications that irritate the gut lining, such as ibuprofen



### **Vitamin B12 deficiency anemia**

Vitamin B12 is essential for the production of RBCs. If a person does not consume or absorb enough B12, their RBC count may be low.

### **Aplastic anemia**

This rare blood condition happens when the bone marrow cannot produce enough new RBCs. It is most often a result of an autoimmune disease that damages stem cells. This occurs despite having normal iron levels.

### **Haemolytic anemia**

This type of anemia happens when RBCs are destroyed faster than the body can produce new ones. A variety of conditions can cause this, such as autoimmune diseases, infections, bone marrow problems, and inherited conditions such as sickle cell disease and thalassemia.

### **Causes**

The body needs RBCs to survive. They transport haemoglobin, a complex protein that attaches to iron molecules. These molecules carry oxygen from the lungs to the rest of the body. Various health conditions can result in low levels of RBCs and cause anemia. There are many types of anemia and no single cause. In some people, it can be difficult to identify what is causing a low RBC count.

The three main causes of anemia are:

#### **1. Blood loss**

Iron deficiency anemia is the most common form of anemia, and blood loss is often the cause. Blood loss can lead to low levels of iron in the blood, causing anemia. When the body loses blood, it draws water from tissues beyond the bloodstream to help keep the blood vessels full. This additional water dilutes the blood, reducing the RBC count. Blood loss can be acute (short term) or chronic (long term). Some causes of acute blood loss include surgery, childbirth, and trauma. However, chronic blood loss is more often responsible for anemia. Chronic blood loss may result from conditions such as a stomach ulcer, endometriosis, cancer, or another type of tumour.

Other causes of anemia due to blood loss include:

- Gastrointestinal conditions, such as haemorrhoids, cancer, or gastritis
- The use of nonsteroidal anti-inflammatory drugs, such as aspirin and ibuprofen
- Heavy menstrual bleeding

## **2. Decreased or impaired RBCs**

Bone marrow is the soft, spongy tissue at the center of bones, and it plays an essential role in creating RBCs. The marrow produces stem cells, which develop into RBCs, white blood cells, and platelets. A number of diseases can affect the bone marrow. One of these is leukaemia, a type of cancer that triggers the production of excessive and abnormal white blood cells. This disrupts the production of RBCs. Problems with bone marrow can also cause anemia. Aplastic anemia, for example, occurs when few or no stem cells are present in the marrow. In some cases, anemia happens when RBCs do not grow and mature as usual. This happens in people with thalassemia, a hereditary form of anemia.

## **3. Destruction of RBCs**

RBCs typically have a life span of 120 days. However, the body may destroy or remove them before they complete their natural life cycle in the bloodstream. Autoimmune haemolytic anemia is caused by the destruction of RBCs. It occurs when the immune system mistakes RBCs for a foreign substance and attacks them.

## **Treatments**

There is a range of treatments for anemia. Each aims to increase a person's RBC count, which increases the amount of oxygen in the blood. The required treatment depends on the type of anemia a person has. Treatments for common forms of anemia include the following:

- Iron-deficiency anemia: Iron supplements and dietary changes can help, and a doctor will identify and address the cause of any excessive bleeding if present.
- Vitamin deficiency anemia: Treatments can include dietary supplements and vitamin B12 injections.
- Thalassemia: Treatments include folic acid supplements, iron chelation, and, for some people, blood transfusions and bone marrow transplants.
- Anemia due to chronic disease: The doctor will focus on managing the underlying condition.
- Aplastic anemia: Treatment for aplastic anemia involves blood transfusions or bone marrow transplants.
- Sickle cell anemia: Doctors treat this with oxygen therapy, pain relief medication, and intravenous fluids. They may also prescribe antibiotics, folic acid supplements, blood transfusions, and a cancer drug called hydroxyurea.
- Haemolytic anemia: The treatment plan may include immunosuppressant drugs, treatments for infections, and plasmapheresis, which filters the blood.

### Risk factors

Anemia can occur in people of all ages, sexes, and ethnicities. However, the following factors increase a person's risk of developing a form of the condition:

- Being born prematurely
- Being 6–24 months old
- Menstruating
- Being pregnant and giving birth
- Consuming a diet low in vitamins, minerals, and iron
- Taking medications that inflame the stomach lining, such as NSAIDs
- Having a family history of inherited anemia
- Having an intestinal disorder that affects the absorption of nutrients

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#### Top 10 Foods Highest in Iron

18mg of Iron = 100% of the Daily Value (%DV)

<b>1 Fortified Cereals</b>  109% DV (19.6mg) per 3/4 cup 113 calories	<b>2 Beef (Skirt Steak)</b>  52% DV (9.3mg) per 6oz steak 456 calories
<b>3 Shellfish (Oysters)</b>  43% DV (7.8mg) per 3oz serving 139 calories	<b>4 Dried Fruit (Apricots)</b>  42% DV (7.5mg) per cup 381 calories
<b>5 Large White Beans</b>  37% DV (6.6mg) per cup 249 calories	<b>6 Spinach</b>  36% DV (6.4mg) per cup cooked 41 calories
<b>7 Baking Chocolate (Unsweetened)</b>  28% DV (5mg) per 1oz square 186 calories	<b>8 Quinoa</b>  15% DV (2.8mg) per cup 222 calories
<b>9 White Button Mushrooms</b>  15% DV (2.7mg) per cup cooked 44 calories	<b>10 Squash and Pumpkin Seeds</b>  14% DV (2.5mg) per 1oz handful 159 calories

- Losing blood
- Having a chronic illness such as AIDS, diabetes, kidney disease, cancer, rheumatoid arthritis, heart failure, or liver disease

### Summary

Anemia occurs when a low number of RBCs are circulating in the body. This reduces the person's oxygen levels and can lead to symptoms such as fatigue, pale skin, chest pain, and breathlessness. Common causes are blood loss, reduced or impaired RBC production, and the destruction of RBCs. A doctor can use a CBC test to help detect anemia. Treatment varies depending on the type, but it may include dietary changes, supplements, medications, blood transfusions, and bone marrow transplants.

