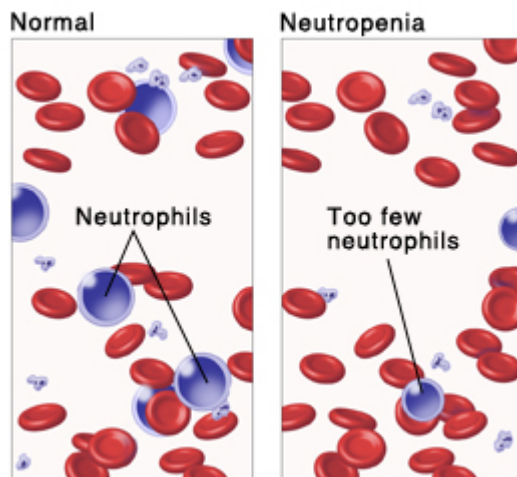


# Neutropenia

White blood cells (WBCs) help protect the body from infection. Neutrophils are a type of white blood cell. Their main job is to help the body fight bacterial and fungal infections. Neutropenia occurs when there are fewer neutrophils in the blood than normal. It can range from mild to severe. This depends on the number of neutrophils in the blood. Severe neutropenia puts a person at higher risk for having more infections. Bacterial and fungal infections are most common. Your healthcare provider can tell you more about your condition and whether it needs to be treated.



## What causes neutropenia?

There are two main types of neutropenia: congenital and acquired. Each type has many causes:

- **Congenital neutropenia.** These are the types that are present at birth. They are caused by certain rare genetic conditions, such as Kostmann syndrome. Most often the neutropenia is mild and normal for certain ethnic groups, including people of African, Middle Eastern, or Jewish descent.
- **Acquired neutropenia.** This type is not present at birth. Causes include:
  - Certain medicines, such as antibiotics and chemotherapy medicines
  - Certain autoimmune conditions
  - Certain viral, bacterial, or parasitic infections
  - Too little folate or vitamin B-12 in the diet
  - Underlying bone marrow problem, such as leukemia or myelodysplastic syndrome (MDS)
  - Other causes

## How is neutropenia diagnosed?

---

Your healthcare provider may check for neutropenia if you have frequent infections. Your provider may also check for neutropenia if you're having certain treatments, such as chemotherapy, which is known to cause a lower neutrophil count. Neutropenia is often found when a routine complete blood count is drawn. Tests will be done to confirm the problem. These may include:

- **A complete blood count (CBC).** This test measures the amounts of the different types of cells in your blood. This includes the WBCs. The WBC count can be broken down further to find the number of neutrophils and immature neutrophils (bands) in your blood. This is called an absolute neutrophil count (ANC).
- **A blood smear.** This test checks for the different types of blood cells in your blood and how they appear. A sample of your blood is spread on a glass slide and viewed under a microscope. A stain is used so the blood cells can be seen.
- **A bone marrow aspiration and biopsy.** This test checks for problems with how your bone marrow makes blood cells. A needle is used to remove a sample of the bone marrow in your hip bone. The sample is then sent to a lab to be tested for problems.

## How is neutropenia treated?

- If there is a clear cause of neutropenia, it is addressed. For instance, if a medicine is the cause, it may be stopped or changed.
- Often no treatment is needed for mild cases, such as those linked to ethnicity.
- For moderate to severe cases, treatment is likely needed. This may include:
  - G-CSF (granulocyte-colony stimulating factor). This is a special type of protein. It helps promote the growth and activity of neutrophils. G-CSF is given by injection.
  - Bone marrow transplant. This treatment replaces diseased bone marrow cells with healthy cells from a matched donor. This treatment is done only in specific severe cases.

## What is the long-term outcome of neutropenia?

The outcome of neutropenia varies for each person. For some people, neutropenia may resolve after a few weeks or months. For other people, it may be long-lasting. In these cases, ongoing care and treatment may be needed. Your healthcare provider will talk to you more about what to expect from your condition.

## When to call your healthcare provider

Call your healthcare provider right away if you have any of the following:

- Cold sweat or chills
- Chest pain or trouble breathing
- Sore throat
- Cough

- Extreme tiredness or fatigue
- Nausea and vomiting
- Redness, warmth, or drainage from any open cuts or wounds
- Pain or burning with urination; frequent urination
- Pain, burning, or bleeding in the rectum
- Severe constipation or diarrhea
- Bloody stool or urine

## Call 911

Fever of 100.4°F (38°C) or higher. Call 911 or go to the emergency room. This is especially important if you have severe neutropenia. This puts you at higher risk for a life-threatening infection.

## How can I prevent infections?

With neutropenia, take extra care to protect yourself from infection. Talk with your healthcare provider about what steps you need to take. What you do depends on how severe your neutropenia is. The following precautions help prevent infections:

- Wash your hands often, especially before eating and after using the bathroom. Use clean, running water and soap. Scrub for 20 seconds, or for as long as it takes to sing the Happy Birthday song from beginning to end, twice. Or use a hand gel that contains at least 60% alcohol.
- Stay away from crowds and close contact with others who may be ill.
- Cook meat and eggs all the way through to kill any germs.
- Carefully wash raw fruits and vegetables. Depending on how severe your neutropenia is, you may need to drop fresh fruits and vegetables from your diet.
- Clean items you use often with disinfectant wipes. This includes phones and computer keyboards.
- Don't touch your eyes, nose, and mouth, especially if your hands are not clean.
- Practice good oral hygiene. Use a soft toothbrush. Also, brush and floss your teeth gently.
- Always wipe from front to back after a bowel movement.
- Stay up to date on vaccines advised by your healthcare provider.
- Bathe every day and use an unscented lotion to prevent cracked skin.
- Keep cuts and scrapes clean and covered until they heal.
- Don't share items such as drinks, eating utensils, towels, toothbrushes, razors, clothing, and sports equipment.

- 
- Store and handle foods safely to prevent food-borne illness.
  - Protect yourself against pet waste (urine and stool) by using vinyl gloves when cleaning.
  - Always use gloves when gardening. You may have to avoid having live plants in your home.
  - Ask your healthcare provider if you need to take antibiotics before and after having any dental or medical procedures.
  - Ask your healthcare provider if you need to wear a special mask near construction sites or farm areas.