

UNDERSTANDING DUFFY-NULL ASSOCIATED NEUTROPHIL COUNT PATTERN

A brief guide for patients with DANC

Some people naturally have a lower neutrophil count because of a normal genetic variation called the **Duffy-null pattern**. This is not a disease. It reflects how neutrophils move between the bloodstream and the tissues. The pattern is common and is thought to have offered protection against certain types of malaria in regions where malaria was historically widespread. The older term “benign ethnic neutropenia” is no longer used because it inaccurately links the pattern to ethnicity rather than genetics

What are neutrophils?

Neutrophils are white blood cells that help protect the body from infections. They circulate in the bloodstream and also move into tissues, where they do most of their work. A blood test measures how many neutrophils are present in the blood at the time of the draw, not how many exist in the body overall.

What is the Duffy-null neutrophil count pattern?

The Duffy-null pattern occurs when a person inherits the Duffy-null genetic variant from both parents. This affects how neutrophils move between the blood and the tissues. More neutrophils remain in tissues, so fewer are measured in the bloodstream. The immune system still responds normally to stress and infection, and people with this pattern are healthy. This finding does not indicate immune weakness, bone marrow disease, or increased infection risk.

Common causes

- **genetic variation** inheriting two Duffy-null gene variants leads to this normal pattern
- **evolutionary adaptation** the Duffy-null type became common in areas where malaria was widespread
- **stable low-normal count** the blood count reflects normal neutrophil distribution, not low production

Does it cause symptoms?

No. People with the Duffy-null pattern do not have symptoms from it. They do not have a history of frequent, severe, or unusual infections. Most people learn about this pattern only after routine blood testing shows a lower-than-average neutrophil count.

Is it dangerous?

No. This pattern is not associated with short- or long-term health problems. The neutrophil count typically remains stable over time and does not progress to bone marrow disease or immune system disorders. People with this pattern live normal, healthy lives.

How is it evaluated?

Your doctor considers your overall health, your infection history, and whether the neutrophil count has remained stable over time. A consistently low but stable count in someone who feels well strongly

supports this pattern. Once recognized, additional testing is usually unnecessary. Some people keep documentation of their usual neutrophil range so unfamiliar providers understand the finding.

Do I need a bone marrow biopsy?

No. A bone marrow biopsy is not needed to diagnose this pattern. The stability of the count, absence of symptoms, and normal health history clearly distinguish it from other causes of neutropenia.

How is it treated?

No treatment is needed. Growth factors or medications that raise neutrophil counts do not provide benefit in this pattern. No special monitoring or lifestyle changes are required.

When should I contact my doctor?

Contact your doctor if you develop symptoms that would concern anyone, such as fever, chills, or signs of infection. These symptoms are uncommon in this pattern, but they should always be evaluated when they occur.

What is the usual plan going forward?

Your doctor may recheck your blood count as part of routine care, but no special follow-up is required. The neutrophil count usually remains stable throughout life. If questions arise about family patterns or genetics, your doctor can guide appropriate discussion.

Key points to remember

- **normal genetic pattern:** your neutrophil count is naturally lower but healthy
- **not a disease:** it does not weaken immunity or increase infection risk
- **stable over time:** the count typically remains steady throughout life
- **evolutionary trait** common in areas historically affected by malaria
- **no treatment needed:** medications or growth factors are not helpful
- **simple evaluation:** doctors focus on symptoms and long-term stability, not a single number