

Understanding the Complete Blood Count (CBC) and Common Blood Deficiencies

Below you'll find information to help you understand your complete blood count. You'll also learn about neutropenia, anemia, and thrombocytopenia — 3 kinds of blood deficiencies.

What is a complete blood count?

A complete blood count (CBC) is a common blood test. A CBC gives doctors information about 3 types of cells in your blood:

- Red blood cells
- White blood cells
- Platelets

Each type of blood cell plays an important role in how your body works.

What does a CBC measure?

A complete blood count includes 5 major parts. Each time you have a CBC, you'll find numbers for each part in your results. Keep in mind that normal ranges may be slightly different for men and women. The 5 parts of a CBC are:

- **White blood cell (WBC) count**
White blood cells help your body fight off infections. The normal range for WBC is 5 to 10 K/uL. Your CBC will also measure what's called the ANC (absolute neutrophil count) That's the specific number of white blood cells in your blood that fight infection.
- **Red blood cell (RBC) count**
Red blood cells carry oxygen and remove waste from your body. These cells also have a protein in them called hemoglobin, which is what makes red blood cells red. The normal range for RBC is 4 to 5.5 M/uL.
- **Hemoglobin (HGB) value**
Hemoglobin carries oxygen from your lungs to the rest of your body, and also moves carbon dioxide (waste) to your lungs so you breathe it out. The normal range for HGB is 12 to 17.4 g/dL.

- **Hematocrit (HCT) value**

The hematocrit value measures how much of your total blood count is made up of red blood cells. The normal range for HCT is 36 to 52%.

- **Platelet count**

Platelets help stop bleeding by sticking together to form blood clots, which “plug” cuts. A normal platelet count range is 140 to 400 K/uL.

Blood Disorders

Sometimes, your CBC may show that your counts or values are too low. For example, you might not have enough white blood cells, or your platelet count could be lower than normal. When this happens, it can cause health problems.

Below you’ll learn about 3 different conditions that develop when your level of specific blood cells is too low.

Neutropenia (low white blood cell count)

If you have neutropenia (“NEW-troh-PEE-nee-uh”), it means you don’t have enough of the white blood cells (called neutrophils) that fight off infection. In other words, your ANC (absolute neutrophil count) is too low.

The lower your ANC is, the more likely you are to have health problems:

- If your ANC is lower than 1000 (1.0K/uL), you have a higher risk of getting an infection.
- When your ANC is lower than 500, you have high risk of more serious infections.

The good news is, there’s a lot you can do to prevent infections if you have neutropenia.

How can I prevent infections?

To prevent infections, you need to keep germs (like bacteria and viruses) out of your body. You can pick up germs through:

- The air (breathing in germs that someone has sneezed or coughed out)
- Blood
- Sweat
- Saliva (spit)

Some germs can get in your body when you touch something with germs on it, and then touch your eyes, nose, or mouth.

The steps below will help you avoid germs — and help keep you safe while your white blood cell count is low.

- Wash your hands often — before you eat and after you:
 - Use the bathroom
 - Cough, sneeze, or blow your nose
 - Shake someone’s hand
 - Touch anything handled by others
- Take a shower or bath every day.
- If your skin gets dry, use unscented lotion or oils. This will help stop your skin from cracking, which can let in germs that could make you sick.
- If you cut or scrape yourself, clean the area with soap and warm water right away. Then cover it with a bandage.
- Always wear shoes in the hospital and at home.

Did you know?

Hand washing is the single most important thing you can do to protect yourself from infections.

Pay attention to your oral health (your mouth and teeth):

- Rinse your mouth out with water after you eat and before you go to bed.
- Use an ultra-soft toothbrush so you don’t make your gums bleed.
- Only floss if your ANC is higher than 500, and your platelet count is 50,000 or higher. Flossing may make your gums to bleed.
- Use lip balm (like ChapStick) on your lips to prevent chapping.
- If you wear dentures, make sure they fit well.
- Check with your doctor before you see the dentist — getting dental work can expose you to germs

Avoid germs around the house:

- Ask someone else to clean — especially areas that could have germs or mold that could make you sick (like showers and toilets).
- Always ask someone else to clean litter boxes, birdcages, and fish tanks.
- Try not to touch fresh flowers, houseplants, dirt or soil, or stagnant (still) water, which can all hide germs. Don’t keep any plants (even dried flowers) in your home.
- Wash your hands with soap and warm water right away if you touch something that might have germs.

Protect yourself when you’re away from home:

- Avoid crowded places.
- Stay away from people who are sick.

- Never swim in lakes, ponds, rivers, or oceans. If you want to swim, talk it over with your doctor or nurse first and swim only in a pool that's treated with chlorine to kill germs. Also, stay out of hot tubs and Jacuzzis.
- Keep away from construction sites, since germs can hide in dirt and dust.

Make safe choices for personal care:

- Use an electric shaver instead of a razor. You'll be less likely to cut yourself.
- Never get a manicure, pedicure, or fake nails (or nail tips).
- Prevent cuts and tears in your rectum — avoid enemas, rectal thermometers, or suppositories (medicines that you put in your anus).
- Women need to avoid tampons, vaginal suppositories (like for a yeast infection), and douches.
- Be sure not to get any vaccines (like a flu shot) unless your doctor tells you to.

Take steps to stay safe during sex:

- Use a water-based lubricant during sex. This will keep you from getting small cuts or tears caused by too much friction (rubbing).
- Avoid anal sex. It's more likely than vaginal sex to cause cuts and tears.

Remember, always ask your doctor or nurse if it's safe for you to have sex.

How will I know if I might have an infection?

When you have neutropenia, you need to watch for signs of infection.

- Check your temperature at least once a day. Your doctor or nurse may tell you to check it more often. If you have a fever, that's a sign you might have an infection.
- Call your doctor or nurse right away if:
 - Your temperature is between 100.4 and 100.9 °F (degrees Fahrenheit) two or more times in one day
 - Your temperature ever reaches 101.0 °F (degrees Fahrenheit) or above

Prevent catheter infections

You'll need to check for infections if you have a catheter (a special tube that helps you get medicine or nutrients).

Look around the area where the catheter goes into your body. Also check your mouth and groin, since these areas have lots of germs that can cause infections.

You'll need to call your doctor or nurse right away if you notice:

- Redness
- Swelling
- Pain or tenderness
- Drainage (liquid coming from the place where the tube goes in)
- A bad smell

Always call your doctor right away if you have other signs or symptoms of infection like:

- Shortness of breath or chest pain
- Chills
- Flushed skin
- Sweating
- Having to urinate (pee) often
- Burning when you urinate
- Redness, tenderness, or pain anywhere on your body
- Feeling run down or having other flu-like symptoms, like:
 - Sore throat
 - Sneezing
 - Runny nose
 - Coughing
 - Stomach problems (feeling sick, throwing up, diarrhea)

Your doctor and nurse can look for signs of infection by testing your blood and urine. They may also do a chest x-ray. If you have an infection, your doctor will give you medicine to fight it.

Anemia

If you have anemia, you don't have enough red blood cells in your blood. In other words, your hematocrit and hemoglobin levels are too low. Lots of different things — like medicines, low vitamin levels, and diseases — can cause anemia. Your doctor will run tests to find out the cause and figure out the best treatment. People with serious cases of anemia may need a blood transfusion to keep them safe.

When you're anemic, you may feel weak and tired. You may also experience:

- Dizziness
- Shortness of breath
- Racing heartbeat (heart palpitations)
- Pounding in your head
- Ringing in your ears

To prevent symptoms of anemia:

- Rest often during the day, especially between activities.
- Make sure you get enough sleep at night.
- Get up slowly if you've been sitting or lying down. This can help you feel less dizzy.

Thrombocytopenia

If you have thrombocytopenia (“THROM-boh-SY-toh-PEEN-ee-uh”), it means you don’t have enough platelets in your blood. Your blood won’t clot normally.

When you have thrombocytopenia, you may bruise easily. You may also experience:

- Tiny red or purple spots on your skin (petechiae)
- Nose bleeds
- Bleeding gums
- Cuts that keep on bleeding
- Black or bloody stool (poop)
- Brown or red urine (pee)
- Heavy periods (increased bleeding from the vagina)

The good news is, there are things you can do to take care of yourself if you have thrombocytopenia:

Ask your doctor before you take any over-the-counter medicine.

There are lots of over-the-counter (OTC) medicines that can keep your platelets from working the way they’re supposed to — especially medicines that have aspirin in them. So when your platelet count is low, talk with your doctor or nurse before you take any new medicines.

- Never take any medicine that has aspirin in it. Check the list at the end of this fact sheet for names of common medicines that have aspirin in them.
- You’ll also need to avoid some other common OTC medicines, including:
 - Ibuprofen (Motrin, Advil, Midol, Pediacare Fever)
 - Naproxen (Naprosyn, Naprelan, Aleve, Anaprox)

Make safe choices for personal care:

- Use an ultra-soft toothbrush to keep your gums from bleeding. If your gums bleed when you brush your teeth, use Toothettes (special mouth swabs) instead of a toothbrush.
- Only floss your teeth if your platelet count is 50,000 or higher.
- Use an electric shaver rather than a razor, especially if your platelet count is lower than 20,000. You’ll be less likely to cut yourself.
- When you blow your nose, be gentle.
- Never using enemas, rectal thermometers (thermometers that go in the anus), and suppositories.
- Women should not douche or use tampons or vaginal suppositories (like for a yeast infection).
- If you have sex, use water-based lubricants. This can help prevent small cuts or tears from friction (rubbing) during sex.

If your platelet count is too low, sex may not be safe. Check with your doctor.

Pay attention to what you eat:

- Eat a balanced diet, so you don't become constipated
- Avoid eating foods that might upset your stomach, like popcorn or apple peels.

Dress appropriately:

- Choose loose-fitting clothing and avoid anything with tight waistbands.
- Wear shoes in the hospital and at home.
- Wear gloves when gardening. This will protect you from germs in dirt or soil.

Avoid certain activities, including:

- Using sharp knives or blades
- Contact sports (like football and hockey)

Call your doctor or nurse right away if you have any of the following symptoms:

- New tiny red or purple spots on your skin (about the size of a pinpoint or larger)
- New bruises on your body
- Nosebleeds
- Bleeding gums
- Bleeding from an area where you had a procedure (like where you got a catheter)
- Blood in your urine or stool
- Headaches
- Feeling very tired
- Confusion
- Falling down

Common products that have aspirin in them:

Acetylsalicylic acid	Carisoprodol compound	PAC Analgesic
ASA	Combiflex	PAC tablets and capsules
Adprin-B	Cope	Painaid products
Adult Analgesic Pain Reliever	Durabac	Pain Reliever
Aggrenox	Easprin	Pamprin products
Alka Seltzer products	Ecotrin	Panasal 5/500
Alor 5/500	Emagrin Forte	Pepto-Bismol
Anacin products	Emagrin	Percodan

Arthritis Foundation Pain Reliever
Arthritis Pain Formula
Ascomp with codeine
Ascriptin products
Aspercin
Aspergum
Aspirin
Aspirtab
Aspir-mox
Back-Quell
Bayer products
BC Powder
BC products
Buffasal
Bufferin products
Butalbital compound

Empirin
Empirin with codeine
Equagesic
Excedrin products
Fiorinal tablets and capsules
Goody's Extra Strength
Goody's Headache Powder
Goody's Body Pain Powder
Halfprin
Heartline
Levacet
Lortab ASA
Momentum
Orphengesic products
Norgesic
Norgesic Forte
Norwich products

Robaxisal
Saletol
Sodol compound
Soma compound
Soma compound with codeine
St. Joseph Low Dose Adult Aspirin
Stanback powder and tablets
Synalgos-DC
Talwin compound
Vanquish
Zee-Seltzer
Zorprin

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