

White Blood Cell Count and Diet



Question:

Is there anything that can be changed in the diet to bring up white blood cell count?

Answer:

Low white blood cell counts (WBC's) or leukopenia, can occur at certain times throughout chemotherapy. Most of the time, blood counts will return to normal before a person starts the next round of chemotherapy, and also after cancer therapy is completed.

WBCs and all other blood cells are made in the bone marrow, so radiation to bones, especially as a child, can cause chronic suppression of blood cell production and low counts (1). Most cancer patients, however, will recover their WBC much more quickly. Keep in mind that the amount of time it takes for WBC to return to normal varies from person to person.

While no specific foods or diet changes are proven to increase production of white blood cells, if you have low WBC (leukopenia), it is very important to practice good hygiene, hand-washing, and food safety practices. Neutrophils are the cells that fight bacterial infection. Neutropenia, which simply means low levels of neutrophils, occurs when Absolute neutrophil count (ANC) falls below 1500 (2). When this happens, a person is more susceptible to infections.

If your ANC is low, you can minimize your risk of infection by using an anti-bacterial soap and warm water, and scrubbing your hands for 15-30 seconds several times per day, and every time before you prepare food (4). If you have neutropenia, you should avoid raw meat, eggs and fish, moldy or expired food, unwashed or moldy fruit and vegetables, and unpasteurized beverages, including fruit and vegetable juice, beer, milk, as well as unpasteurized honey. You do not need to avoid fresh fruit and vegetables, because this practice has not been shown to reduce the number of major infections (5). However, you should wash these foods thoroughly before you eat them. The American Cancer Society's recommendations for foods to avoid for neutropenia are available online, at:

<http://www.cancer.org/Treatment/TreatmentsandSideEffects/PhysicalSideEffects/InfectionsinPeoplewithCancer/InfectionsinPeoplewithCancer/infections-in-people-with-cancer-precautions?docSelected=infections-in-people-with-cancer-neutropenia-and-infection-risk> (6).

Good quality protein is important for cancer patients to include in their diet, because our bodies need the building blocks (amino acids) from the protein we eat to make the new WBCs.

If possible, consult with a Registered Dietitian (RD) at your cancer center for an individualized nutrition plan to address your needs during cancer treatment. The dietitian can review your food intake and ensure you are getting adequate protein and other nutrients during and after treatment.

If your diet is poor, or you are having a lot of trouble eating during treatment, you may benefit from taking a multivitamin and mineral supplement with vitamin B12 and folate. The body needs these two vitamins to make white blood cells (7). However, always talk to your doctor or dietitian before you take any dietary supplements, because some of these products should not be taken with certain chemotherapy treatments.

This information is not intended to take the place of consultation with a qualified health care practitioner. Always consult your doctor if you intend to change your diet or use of dietary supplements.

The original question and answer were generously donated by Diana Dyer, MS, RD a cancer survivor, registered dietitian, organic garlic farmer, and the author of "A Dietitian's Cancer Story: Information & Inspiration for Recovery & Healing from a 3-time Cancer Survivor."

Question and Answer updated on behalf of the ON DPG by Jennifer McIver, April 2013, Kristy Gibbons MS, RD, CSP, CSO, LDN, April 2016

References, Websites, and Resources:

1. Ghosh SP, et al. "Amelioration of radiation-induced hematopoietic and gastrointestinal damage by Ex-RAD(R) in mice. *J Radiat Res.* 2012; 53(4): 526-36.

2. Thirumala, R, Ramaswamy, M, and Chawla, S. "Diagnosis and Management of Infectious Complications in Critically Ill Patients with Cancer." *Critical Care Clinics*. 2010; 26(1), 59-91.
3. Grant, B and Byron, J. "Nutritional Implications of Chemotherapy." In: Elliot, Laura, et al. *The Clinical Guide to Oncology Nutrition 2nd ed*, Chicago, Ill: American Dietetic Association, 2006: 74-75.
4. Neutropenia (low neutrophil count). University of Pennsylvania Medical Center. Available from <http://www.upmc.com/patients-visitors/education/cancer/Pages/neutropenia.aspx>. Accessed 9/18/2012.
5. Gardner, A, et al. "Randomized comparison of cooked and non-cooked diets in patients undergoing remission induction therapy for acute myeloid leukemia." *J Clin Oncol*. 2008; 26(35): 5684-8.
6. Infections in People with Cancer. American Cancer Society. Available from <http://www.cancer.org/Treatment/TreatmentsandSideEffects/PhysicalSideEffects/InfectionsinPeoplewithCancer/InfectionsinPeoplewithCancer/infections-in-people-with-cancer-precautions?docSelected=infections-in-people-with-cancer-neutropenia-and-infection-risk>. Accessed 9/18/2012.
7. Koiso, H, et al. "Chronic myelogenous leukemia accompanied by megaloblastic anemia showing atypical clinical features." *Rinsho Ketsueki*. 2011; 52(11): 1772-6.