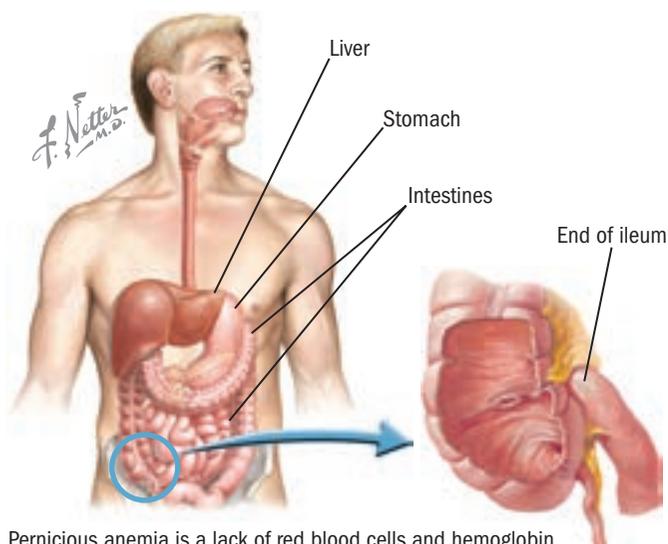
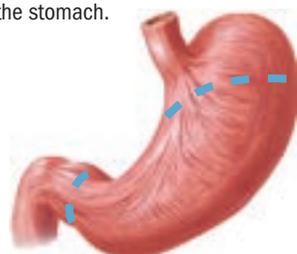


MANAGING YOUR PERNICIOUS ANEMIA



Pernicious anemia is a lack of red blood cells and hemoglobin because the body doesn't have enough of the essential vitamin B₁₂ (also called cobalamin). The part of the small intestine called the ileum absorbs vitamin B₁₂. Absorption needs a specific protein (intrinsic factor) made in the stomach.



Absence of intrinsic factor is the usual cause. Cells lining the stomach can't make enough of this factor. Other causes include absence of part of the stomach after surgery for ulcers or cancer, as well as certain stomach and small intestinal diseases.

Dashed lines show the part removed during stomach surgery for some stomach cancers or ulcers.

Symptoms of anemia include fatigue and memory impairment. In severe cases, shortness of breath and rapid heartbeat occur.



Your health care provider makes a diagnosis with blood tests.

What Is Pernicious Anemia?

Pernicious anemia is a lack of sufficient red blood cells and hemoglobin because the body doesn't have enough cobalamin (vitamin B₁₂). This vitamin is essential for normal growth and development of red blood cells, other blood cells, and cells in the nervous system. Absorption of vitamin B₁₂ occurs in the part of the small intestine called the ileum. Absorption needs a specific protein (intrinsic factor) made in the stomach.

Pernicious anemia is uncommon. Both sexes are affected equally, most often after age 30. It's more common among people of northern European descent.

What Causes Pernicious Anemia?

Most often, absence of intrinsic factor is the cause, not poor intake of the vitamin. The immune system attacks cells lining the stomach and prevents them from making intrinsic factor. Other ways that people may not have intrinsic factor include absence of part of the stomach after surgery for ulcers or cancer, and certain stomach diseases that interfere with how vitamin B₁₂ is made. Diseases of the small intestine (where vitamin B₁₂ is absorbed), such as tapeworm infestation, Crohn's disease, or tropical sprue, can also cause lack of vitamin B₁₂.

What Are the Symptoms of Pernicious Anemia?

Symptoms of anemia include fatigue and neurological problems. In severe cases, memory impairment, sensory impairment, shortness of breath, and rapid heartbeat occur. Lack of vitamin B₁₂ can also cause problems with feeling and numbness in feet and hands. Severe deficiency can result in severe neurological problems, such as confusion and being disoriented.

How Is Pernicious Anemia Diagnosed?

The health care provider makes a diagnosis with blood tests. Special tests (such as the Schilling test) may be done in rare cases to check for abnormal absorption of the vitamin and the presence of specific antibodies.



Therapy is injection of vitamin B₁₂ under the skin or into a muscle (upper arm, thigh, buttock). Depending on how severe the anemia is, injections may be given daily, weekly, or monthly, usually lifelong. People with low vitamin B₁₂ due to diet and poor intake can take oral vitamin B₁₂ supplements.



Eat a well-balanced diet, rich in folic acid (another vitamin important for blood cells) and other essential nutrients. Such foods may include oranges, bananas, broccoli, and peas, but ask your health care provider for guidelines.



How Is Pernicious Anemia Treated?

Therapy is injection of vitamin B₁₂ under the skin or into a muscle. Treatment of severe deficiency first involves daily injections followed by weekly and then monthly injections. It takes 4 to 8 weeks to see increased hemoglobin concentration. Treatment is lifelong.

People with low vitamin B₁₂ levels due to poor intake due to special diets can take oral vitamin B₁₂ supplements. These oral supplements are inexpensive and well tolerated.

A gel solution of vitamin B₁₂ can also be given by the nose via a metered dose nasal inhaler, once weekly instead of monthly injections. This method is much more expensive and should be used only after first giving vitamin B₁₂ injections until levels are normal.

Vitamin B₁₂ replacement leads to full correction of anemia. People who cannot absorb the vitamin need long-term treatment with injection.

DOs and DON'Ts in Managing Pernicious Anemia:

- ✓ **DO** continue monthly injections, even if anemia is corrected.
- ✓ **DO** talk with your health care provider if you're pregnant.
- ✓ **DO** eat a well-balanced diet, rich in folic acid (another vitamin important for the blood cells) and other essential nutrients.
- ✓ **DO** supplement your diet with oral vitamins if you eat a special diet, such as a vegetarian (especially vegan) diet.
- ✓ **DO** call your health care provider if you have signs of severe anemia, such as chest pain, palpitations, or shortness of breath.
- ⊘ **DON'T** stop treatment. This lets anemia and all symptoms return.

FROM THE DESK OF

NOTES

FOR MORE INFORMATION

Contact the following source:

- National Heart, Lung, and Blood Institute
Tel: (301) 592-8573
Website: <http://www.nhlbi.nih.gov>