

active folate and anemia

LIFETIME SUPPORT

Anemia is a global public health problem, affecting 571 million women and 269 million young children worldwide.

It is a serious global public health problem that particularly affects young generations, menstruating adolescent girls and women, and pregnant and postpartum women. WHO estimates that 40% of children 6–59 months of age, 37% of pregnant women, and 30% of women 15–49 years of age worldwide should be anemic. It is more prevalent in low- and middle-income countries.

The WHO Global Nutrition Target 2025 aims to reduce anemia in women of reproductive age by 50% by 2025.

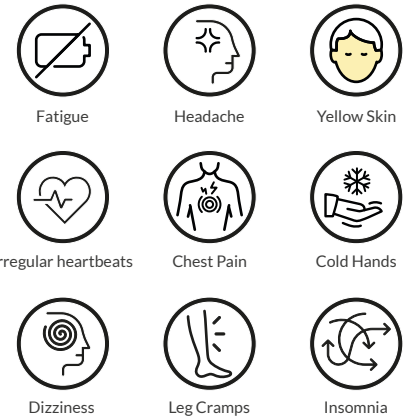
Prevalence of anemia in women of reproductive age (15-49)

Risk Factors

Certain factors can increase the risk for anemia, which includes a poor diet, intestinal problems such as celiac disease and Crohn's disease, menstruation and menopause, pregnancy, chronic disease -cancer and kidney failure, genetic factors, alcoholism, and exposure to toxic chemicals.

Symptoms

The signs and symptoms of anemia differ depending on the causes. Symptoms of anemia get worse as the condition becomes more severe.



www.who.int/data/gho/data/themes/topics/anaemia_in_women_and_children

Gnosis by Lesaffre

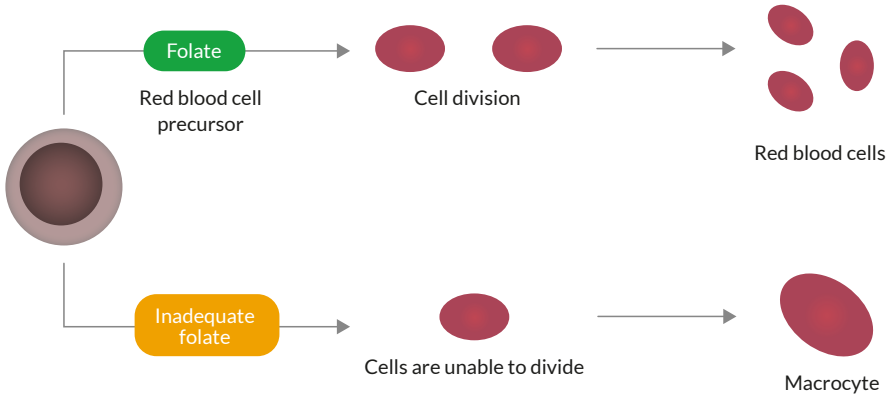
The Different Kind of Anemia – Role of Folate

Anemia is a decrease in circulating red blood cells or hemoglobin, insufficient to meet physiologic needs. This leads to a consequent decrease in the amount of oxygen delivered to tissues.

The optimal hemoglobin concentration required to meet physiologic needs varies by age, sex, residence elevation, smoking habits, and pregnancy status. The causes of nutrient deficiencies include (i) **inadequate dietary intake**, (ii) **increased nutrient losses** (blood loss from parasites, bleeding associated with childbirth, heavy menstrual losses), or (iii) **altered nutrient metabolism**.

Among the various types of anemia, the most common cause of anemia includes nutritional deficiencies, where concentrations of hematopoietic nutrients involved in Red Blood Cell production or maintenance – iron and vitamins - are insufficient to meet those demands.

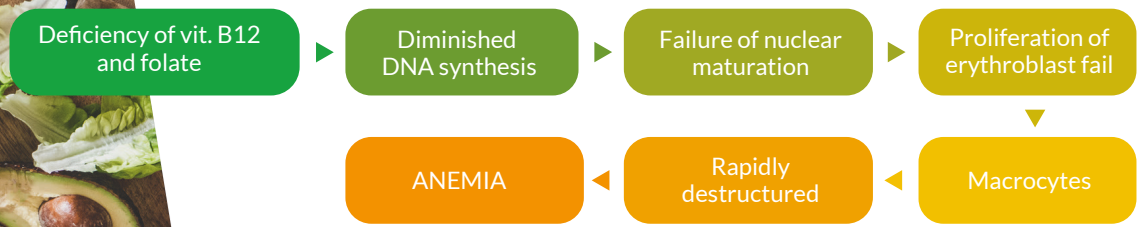
Iron deficiency is the most common cause of anemia associated with **folate or vitamin B12 deficiencies, representing approximately 12% of all anemia.**
In folate-deficiency anemia, the red blood cells are abnormally large. Such cells are called macrocytes. They are also called megaloblasts when they are seen in the bone marrow. That is why this anemia is also called megaloblastic anemia.



Macrocytes typically carry oxygen but are not as pliable as normal red blood cells (RBCs), and their lifespan is decreased by 30-50%. The flexibility of RBCs is essential to pass through small capillaries during microcirculation.
The appearance of substantial red blood cells marks megaloblastic anemia. This disorder is caused by the incomplete formation of red blood cells, resulting in large numbers of immature and incompletely developed cells.



Folate plays a key role: without enough folate in the body, the number of red blood cells will be depleted and lead to anemia.



Crucial Role of Folate in Anemia in Pregnancy



Pregnant Women *NON-Pregnant Women (reproductive age)*

Recent studies show a high prevalence of anemia among pregnant women worldwide. The prevalence of anemia in the third trimester was higher than in the first and second trimesters. Anemia in pregnant women in developing countries is significantly higher than in developed countries due to pregnancy's economic, sociological, and health factors.

Pregnant women need more oxygen to support the growing baby and they are more likely to get iron-deficiency anemia during pregnancy.

Iron and folate deficiency are among the most common conditions among gynecological patients of reproductive age and in pregnant women. Low folate and iron levels can lead to several diseases, including pregnancy complications, fetal malformations, and delayed mental development of the neonate.

A recent Russian study confirms that the right combination of these components — active folate and iron — can make up for fundamental micronutrient deficiencies in women of reproductive age. Researchers assessed clinical and laboratory efficacy (the absence of objective anemia signs and the changes in hemoglobin level, folate, and ferritin blood tests over time) and tolerability (the rate of adverse events, tolerability of the taken product evaluated using the visual analog scale) at days 30, 60 and 90 after the beginning of treatment.

The result confirms maintaining iron and active folate, such as Quatrefolic®, homeostasis by oral intake during three months in the preconception period and early stages of pregnancy is a feasible option based on its high efficacy and good tolerability with the minimal risk of side effects.

Studies compared iron-folate supplementation* versus placebo or no supplementation during pregnancy.

Folate supplementation is recommended in pregnant women with iron-deficiency anemia, irrespective of the serum levels of folate.



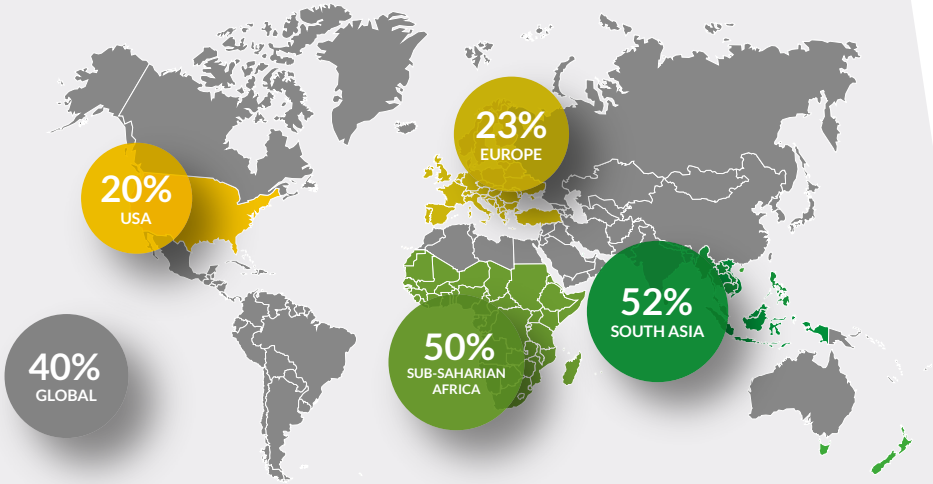
Iron and folate work together for the production of healthy Red Blood Cells that function properly, guaranteeing hemoglobin production and oxygen transport within the body.

- **Reduced maternal anemia by 69%**
- **Reduced risk of premature birth**
- **Greater mean birth weight**

Folate has been recognized by the European Food Safety Authority (EFSA) for its beneficial effects in supporting normal blood formation and in the reduction of fatigue and tiredness.

Anemia and Children – Folate Support

An estimated 600 million children worldwide suffer from anemia, which impairs physical and cognitive development and weakens the immune system. Anemia seriously affects child growth, development, and survival, and is associated with poor cognitive and motor development.



Many children in low- and middle-income countries have limited access to iron-rich foods, but rigorous research shows that weekly iron and **folic acid (IFA) supplementation is highly effective in reducing iron-deficiency anemia.**

Inexpensive, safe, and recommended by the World Health Organization, IFA supplementation has been shown to reduce the risk of anemia in children by 49%.

Folate as Quatrefolic® and Iron – the Importance of the Combination

Rigorous research shows that intermittent iron and folic acid (IFA) supplementation is highly effective at reducing iron-deficiency anemia:

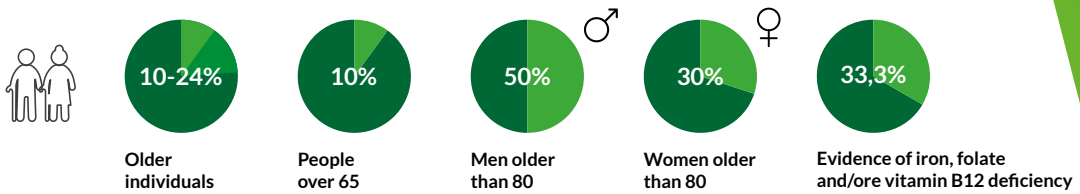
- **A meta-analysis from trials conducted in 20 countries** in Latin America, Africa, and Asia shows that intermittent supplementation **reduces the risk of anemia by 49% among children aged 0-12 years.**
- **A large-scale cohort study** in India combined weekly IFA supplementation with counseling and deworming for adolescent girls aged 10-19 years and found a **decrease in anemia rates from 73% to 25%.**
- **A pilot project** in Vietnam combined weekly IFA and deworming tablets for women aged 15 to 45. The prevalence of **iron-deficiency anemia fell from 18% at baseline to 3% at 12 months**, and remained at 4% at 54 months, confirming this condition had essentially been eliminated in this population.



Anemia and the Elderly: Why Quatrefolic® doesn't mask vitamin B12 deficiency

Vitamin B12 deficiency is common in older adults and may be hard to recognize.

Folate and vitamin B12 deficiency have common symptoms caused by either folate or vitamin B12 deficiency. The most common hematologic symptom is megaloblastic anemia, which disappears after supplementation with large amounts of folate, particularly in the elderly, where vitamin B12 deficiency remains undiagnosed.



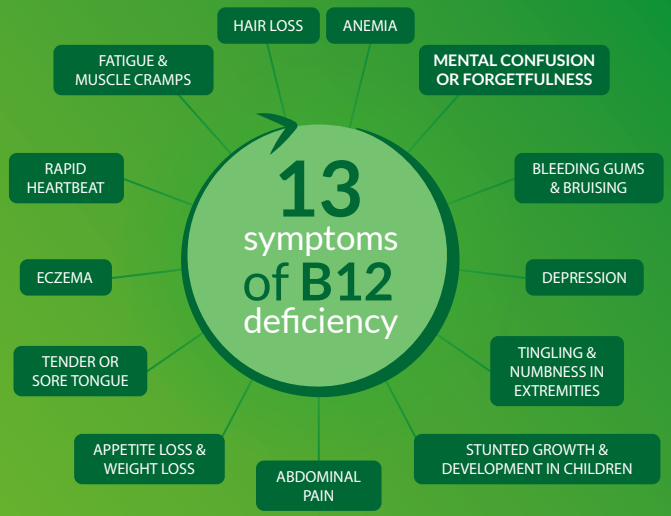
Anemia in older persons is common and relevant, with a complex etiology. Anemia will likely increase dramatically in the coming years because of an aging population in Western societies.

The National Institute of Health has found that large amounts of folic acid can mask the damaging effects of vitamin B12 deficiency. This means that current blood tests may not reveal the actual level of B12. Furthermore, folic acid can correct anemia caused by vitamin B12 deficiency without correcting the neurological damage that also occurs due to the vit B12 deficiency.

Concerns have been raised that high intake of folic acid from fortified food and dietary supplements might mask the macrocytic anemia of vitamin B12 deficiency, thereby eliminating an important diagnostic sign while allowing the progression of neurological symptoms.

Quatrefolic® supplementation is unlikely to mask vitamin B12, resulting in tangible advantages and a safer profile than folic acid.

Supplementation with the active form of folate, 5-MTHF, may be an interesting alternative to folic acid in vitamin-B12 deficient individuals as its metabolic pathway is vitamin-B12 dependent. It is also noted* that in comparison to folic acid, 5-MTHF would be unlikely to mask the clinical symptoms of vitamin-B12 deficiency.



Chaparro CM, Suchdev PS. Anemia epidemiology, pathophysiology, and etiology in low- and middle [1] income countries. Ann N Y Acad Sci 2019; 1450:15–31 • WHO/CDC. Assessing the iron status of populations: Including Literature Reviews. WHO/CDC. Assessing the Iron Status of Populations: Including Literature Reviews. WHO/CDC; Geneva, Switzerland: 2004. p. 112: Geneva, Switzerland, 2004. • Metz J. A high prevalence of biochemical evidence of vitamin B12 or folate deficiency does not translate into a comparable prevalence of anemia. Food Nutr Bull 2008; 29:S74-85; • Socha DS, DeSouza SI, Flagg A, Sekeres M, Rogers HJ. Severe megaloblastic anemia: Vitamin deficiency and other causes. Cleve Clin J Med 2020; 87:153–64; • Smelt et al. 2018 (20) Meta-analysis; Zec et al. 2020 ; Willoughby et al. 1967; Lassi et al. 2013 ; Mahomed 2006; • Quatrefolic® and iron form, Lipofer® article review: RMJ. • Mother and child. T. 5, № 1, 2022 / Russian Journal of Woman and Child Health. Vol. 5, № 1, 2022 • www.evidenceaction.org/programs/equal-vitamin-access

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