

How the RBC or Heamoglobin Content in Women Helps to Become More Healthy

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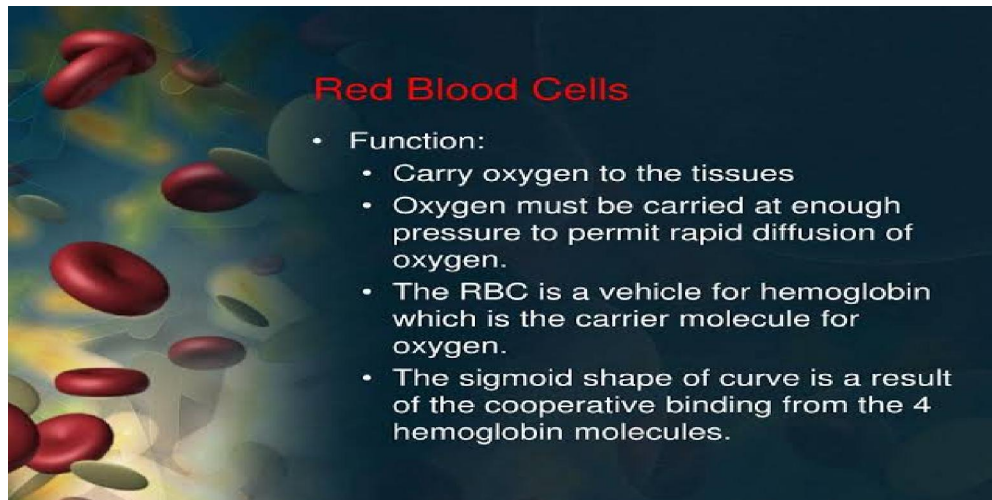
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Abstract: Red blood cells (RBCs) are special cells that carries oxygen, from the lungs to all parts of our body. RBCs owe their oxygen-carrying capacity to haemoglobin, an iron-rich protein. This protein grabs oxygen and takes it around the body via the bloodstream. But they don't just carry oxygen. They also help remove waste products, like carbon dioxide, from body tissues. Keeping up the right count of RBCs matters a lot for well-being. Without RBCs, our cells would lack the oxygen they need to survive. On top of that, carbon dioxide would rise inside our bodies which is deleterious to the body. Especially In women RBC levels are important for their health. In this blog, we're going to cover why RBC or heamoglobin levels are important of women to become more healthy by keeping physical and mental stability.

Keywords: Red blood cells, WBC, organized, disorganised, neurodiversity, impatient, hemoglobin, polycythaemia, oxygen carrier, pregnancy, chronic disorders, hemolysis, hemorrhage, etc

I. INTRODUCTION

Hemoglobin carries oxygen throughout the body, and ensure proper cell function and overall wellbeing. The normal hemoglobin levels can vary slightly depending on age, sex, and other factors, but generally, for adult males, a hemoglobin level below 13.5 grams per deciliter (g/dL) is considered low, and for adult females, a level below 12.0 g/dL is considered low.



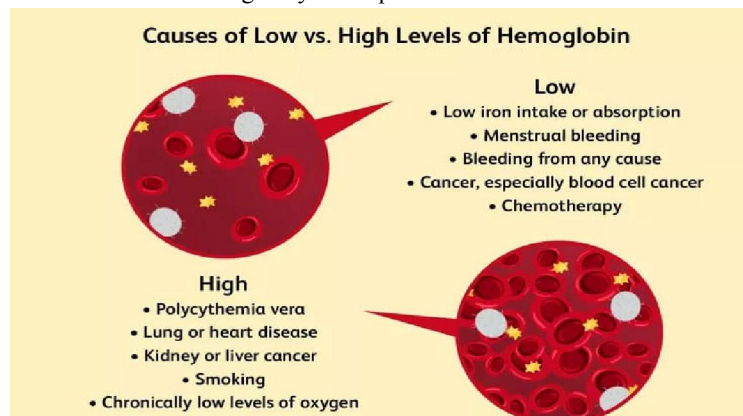
What happened if hemoglobin is low in female, Anemia, this is problem of not having enough healthy red cells or heamoglobin to carry oxygen to the body tissues. anemia can cause tiredness, weakness, shortness of breath. If the heamoglobin is high, it doesn't usually symptoms but, it can cause complications like blood clotting etc, it often indicator of disease (like polycythemia vera, cancer, heart disease, lung disease, kidney or liver diseases)

Here are some of the common reasons for low hemoglobin levels:

Reason	Explanation
Nutritional deficiencies	The most common cause of anemia is a lack of essential nutrients like iron, vitamin B12, and folate in the diet. These nutrients are crucial for the production of healthy red blood cells.
Blood loss	Anemia can occur due to significant blood loss from injuries, surgeries, gastrointestinal bleeding (ulcers, tumors, etc.), or heavy menstrual periods in women.
Chronic diseases	Certain chronic conditions like chronic kidney disease, inflammatory disorders, and some types of cancer can interfere with the body's ability to produce or maintain healthy red blood cells
Hemolysis	Hemolysis is the premature destruction of red blood cells, which can occur due to inherited conditions, infections, or certain medications
Bone marrow disorders	Diseases that affect the bone marrow's ability to produce red blood cells, such as aplastic anemia, myelodysplastic syndromes, and leukemia, can lead to low hemoglobin levels.
Pregnancy	During pregnancy, the body requires more iron to support the growing fetus, and if the dietary intake is insufficient, anemia can develop
Chronic infections	Some infections, such as malaria and certain parasitic infections, can lead to the destruction of red blood cells and cause anemia.
Autoimmune disorders:	Autoimmune diseases like rheumatoid arthritis and lupus can lead to anemia by causing the immune system to attack healthy red blood cells
Hemorrhage	Severe bleeding due to trauma or internal injuries can quickly lead to a drop in hemoglobin levels.
Certain medications:	Some medications can interfere with the production of red blood cells or cause hemolysis, leading to anemia as a side effect.

Mental health and peace:

Anaemia is defined as low haemoglobin blood levels, for men as well as women. In women less than 12g/dl. According to etiology, anaemia can be classified into nutritional anaemia such as iron deficiency. Iron deficiency anaemia in early life is related to altered behavioural and neural development .studies in human infants suggest that this is an irreversible effect that may be related to changes in chemistry of neurotransmitters, organization and morphology of neuronal networks and neurobiology of myelination. Some studies shows that there is significant correlation between the anaemia and the cognitive skills in the neurologically intact patients.



The anaemia not only negatively affects physical function but also the cognition, mood and quality of life in adults due to hypoxic condition as per its severity. And some studies emerging to suggest anaemia may be at the root of your anxiety and depression. According to the CVS Health , Harris poll survey they have given the following data.

Working moms' mental health crisis

42% of working mothers have been diagnosed with anxiety/depression

72% don't feel supported at work

Diabetes and Anemia :

In women due to menstrual cycle often cause blood loss. Women who have diabetes can contribute to anemia through reducing absorption of iron, gastrointestinal bleeding and through diabetic complications that cause anemia. Diabetes often leads to kidney damage, and failing kidneys can cause anemia. Healthy kidneys know when your body needs new red blood cells. They release a hormone called erythropoietin (EPO). Which signals your bone marrow to make more. Haemoglobin concentration is closely associated with diabetic profiles. Anemia in patients with diabetic increases susceptibility of the kidney to nephropathy, although the precise mechanism remains unknown. It is widely accepted that patients with diabetics are more vulnerable to the effects of anemia.

Complications:

If not treated, anaemia can cause many health problems, such as severe tiredness. Severe anaemia can make it impossible to do everyday tasks. Pregnancy complications. Pregnant people with folate deficiency anaemia may be more likely to have complications, such as premature birth. Heart problems. Anaemia can lead to a rapid or irregular heartbeat, called arrhythmia. With anaemia, the heart must pump more blood to make up for too little oxygen in the blood. This can lead to an enlarged heart or heart failure. Death. Some inherited anaemias, such as sickle cell anaemia, can lead to life-threatening complications. Losing a lot of blood quickly causes severe anaemia and can be fatal.

Pregnant women:

The pregnancy is a sensitive period in women life; pregnant women should avoid any risk factor that can affect their health as well as the growth and development of their baby. One of the critical problems that pregnant women may face is iron deficiency it represents a risk factor for preterm delivery, prematurity and small for gestational age, birth, and weight. The world health organization (WHO) estimates that an average of 56% of pregnant women in developing countries is anaemic.

Iron deficiency development is widely common among women especially pregnant ones since iron should be supported to the mother and her foetus which makes the intake crucial and important. And regarding that iron (heme and non-heme) has a low bioavailability, food enhancers and supplements are necessary for pregnant women especially in the beginning and end of their pregnant period for support and growth.

Severe anaemia did not detect in pregnant women. The haemoglobin levels in non anemic group showed a drop in the second trimester. Pregnant women with haemoglobin less than 10 g/dl, considered as anemic gave birth to neonates with birth weight of 2.6kg, while pregnant women with higher haemoglobin level (>10 g/dl), considered as normal gave birth to heavier and normal babies (3.3 kg). The severity of anaemia during three trimesters was closely associated with birth weight of newborns.

Trimesters haemoglobin	Classification of anaemia	Levels of haemoglobin concentration (g/dl)	Birth weight (grams)
First	Moderate	6.5 -8	2609 ± 431
	Mild	8.1-10	2701 ± 512
	Normal	>10.1	3216 ± 724
Second	Moderate	6.5 -8	2615 ±611
	Mild	8.1- 10	2697 ± 610
	Normal	>10.1	3271 ±504
Third	Moderate	6.5 – 8	2604 ± 634
	Mild	8.1 -10	2737 ± 701
	Normal	>10.1	3301±623

Recommended foods to maintain good RBC levels:

1. Iron-Rich Foods

Iron is a key nutrient for hemoglobin production, and including iron-rich foods in your diet is vital for increasing your hemoglobin count. Opt for foods such as lean meats, poultry, fish, legumes, leafy greens like spinach and kale, dried fruits like apricots and raisins, and fortified cereals. Combining these foods with a source of vitamin C, such as citrus fruits, enhances iron absorption. Additionally, cooking in cast-iron pots can enrich your food with small amounts of iron.

2. Increase Vitamin C Intake

Vitamin C plays a crucial role in enhancing iron absorption. Including foods rich in vitamin C, such as oranges, strawberries, bell peppers, kiwi, and broccoli, can significantly boost your hemoglobin levels. You can also consider taking vitamin C supplements after consulting with a healthcare professional.

3. Folate-Rich Foods

Folate, or vitamin B9, is essential for the production of red blood cells. Including folate-rich foods in your diet can help increase hemoglobin levels. Excellent sources of folate include green leafy vegetables, asparagus, citrus fruits, legumes, and fortified cereals. However, if you have a folate deficiency, it is advisable to consult with a healthcare professional to determine if a folate supplement is necessary.

4. Including Vitamin B12 Sources

Vitamin B12 is crucial for maintaining healthy hemoglobin levels. Animal products like fish, meat, poultry, eggs, and dairy are excellent sources of vitamin B12. For individuals following a vegetarian or vegan diet, fortified breakfast cereals, nutritional yeast, and plant-based milk alternatives fortified with vitamin B12 can be beneficial. If you have a vitamin B12 deficiency or follow a strict plant-based diet, a supplement may be necessary under medical supervision.

5. Embrace Iron Supplementation

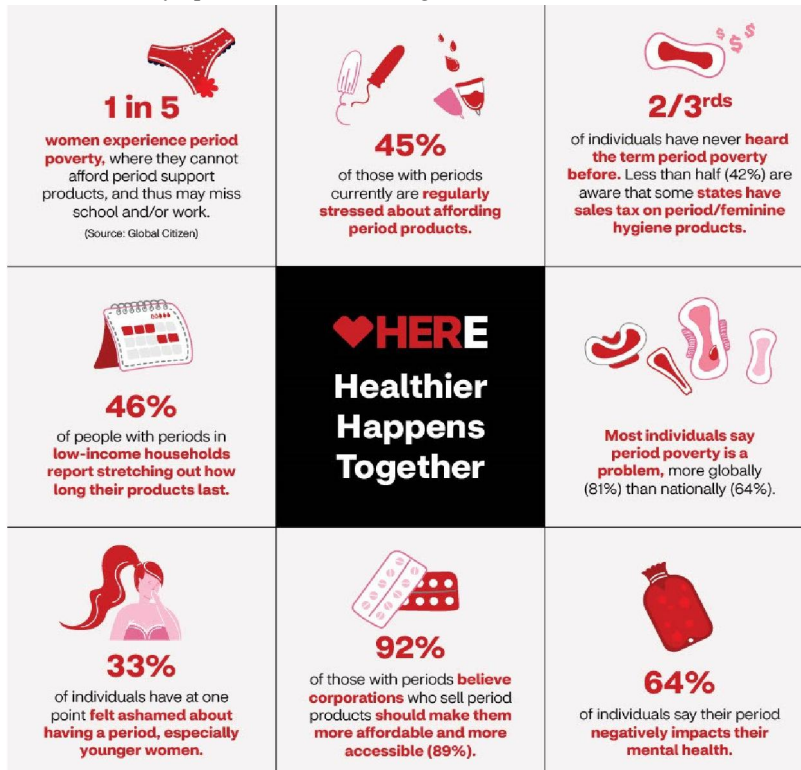
In cases of severe iron deficiency or when dietary changes are insufficient, iron supplementation may be recommended by a healthcare professional. It is essential to consult with a doctor before starting any iron supplements, as excessive iron levels can be harmful. Your doctor will guide you on the appropriate dosage and duration of supplementation.

6. Regular Exercise

Regular exercise helps stimulate red blood cell production, thereby increasing hemoglobin levels. Activities like brisk walking, jogging, cycling, or swimming for at least 30 minutes a day can have a positive impact. However, it is crucial to start gradually and listen to your body's needs to avoid overexertion.

EVOLVING ROLE OF PHARMACIST:

Women period stigma effects the social, economic, physical and mental wellbeing. There are certain conditions which manifest heavy, irregular, painful or irregular periods like blood clotting disorders, abnormal endometrial tissue growth outside the uterus, endometrial cancer etc.. when women are embarrassed to speak about their menstrual problem they can receive delayed diagnosis and treatment raises the like hood of more health problems later in life. This menstrual stigma preventing people from speaking about their medical related problems. So period stigma seems like socially unacceptable to discuss menstrual symptoms, so results in negative social and economic effects.



Pharmacists can have a significant impact on women’s health by providing education, counselling, and medication management services. women are more likely than men to develop certain health conditions, such as autoimmune diseases and urinary tract infections (UTIs). Women also more commonly experience mental health issues, such as anxiety and depression. Medication management means Through dispensing and clinical monitoring, pharmacists play a vital role in ensuring women receive appropriate medications and dosages. Preventive care like, They can provide information on routine immunizations, vitamins and dietary supplements, and smoking cessation. Contraception means Pharmacists can answer patients’ questions about various methods of contraception, including birth control pills, patches, injections, and intrauterine devices (IUDs). Hormone therapy like Pharmacists can educate women on the proper use of these medications and warn about potential side effects and drug interactions. Medication safety during pregnancy: Additionally, pharmacists can provide advice and counsel women on safe medications to take during pregnancy and breastfeeding.

II. SUMMERY AND CONCLUSION

Here we are concluding that our hemoglobin level reflects the number of red blood cells in our body and how efficiently they carry oxygen to your cells. This protein contains iron, which can be measured with a blood test. Specially in women due to menstrual cycle or other reasons like pregnancy etc, may cause low hemoglobin or in some cases high. They produce a variety of symptoms. Usually, the symptoms of low hemoglobin are more noticeable than of

high hemoglobin, its lead to complications. Most causes of hemoglobin abnormalities can be treated with medication. Sometimes a blood transfusion is necessary to correct very low hemoglobin levels.

According to the Women's Health Department surveys and Health & Human Services, anemia does affect more women than men. The risk of anemia is highest for women who are pregnant or who have heavy menstrual periods: The condition occurs in one of every six pregnant women, while up to 5 percent of women of childbearing age become anemic because of heavy menstrual bleeding.⁵ Having uterine fibroids can also cause anemia due to the heavy menstrual bleeding associated with the condition, the Cleveland Clinic reports.

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