Note on Hemoglobin and Its Importance

Saswat Barpanda*

Department of Community Medicine and Public Health, Postgraduate Institute of Medical Education and Research, Delhi, India.

***Corresponding author:** Dr. Saswat Barpanda, Department of Community Medicine and Public Health, Postgraduate Institute of Medical Education and Research, Delhi, India, E-mail: saswatbarpandagp@gmail.com

Description

Hemoglobin is a protein produced by red blood cells that transports oxygen to organs and tissues and carbon dioxide from major organs back to the lungs. If a hemoglobin test shows that your hemoglobin level is lower than normal, this indicates that you have a low red blood cell count (anemia). Hemoglobin (Hb or Hgb) is a protein in the bloodstream that transports oxygen around the body. A low hemoglobin count is classified as having less than 13.5 grams of hemoglobin per deciliter (135 grams per liters) of blood for men and less than 12 grams per deciliter (120 grams per liters) for women.

• Consume beetroot and green vegetables daily.

• Tannin-containing foods include grapes, corn, and sorghum.

• Brown rice and whole-grain wheat products, for example, contain phytates or phytic acid.

• Oxalic acid-containing foods include peanuts, parsley, and chocolate.

Hemoglobin is a complex protein part of hemoglobin that includes an iron molecule. It is an oxygen transport metalloproteinase that transports oxygen from the lungs to the body tissues while also keeping red blood cells in shape. Hemoglobin is organized into four protein molecules .Hb levels below 5.0 g/dL (50 g/L) can lead to heart failure and death, and the values above 20 g/dL (200 g/L) can cause capillary occlusion due to blood levels. Protein is found in the liver, bone marrow, spleen, and muscles. If too much iron is taken from the store and cannot be replaced by food, the iron store can be exhausted and hemoglobin levels can drop. After donation, most people's hemoglobin levels will return to normal within 6–12 weeks.

These variants regulate the structure and biochemical properties of hemoglobin, with physiological effects ranging from mild to severe. The study of these mutations in patients and laboratories has produced a wealth of information on the biochemistry and biology of hemoglobin, which has important implications for hematological practice. Further generally, pioneering studies of hemoglobin over the last 60 years have created an important in the fields of structural biology, genetics, biochemistry, and medicine. This section summary the main classes of hemoglobin variants, emphasizing general concepts and examples. Those mutations in the globin gene that affect hemoglobin, the major carrier of blood oxygen, are widespread, affecting an estimated 7% of the world's population. These mutations are divided into mutations that affect the production of globin protein subunits (Thalassemias) and mutations that produce structurally abnormal globin proteins (Hb variants). The latter class is primarily composed of missense mutations that cause single amino acid substitutions in globin proteins, resulting in abnormal or "mutant" Hb tetramers.

Hemoglobin is a heterotetramer composed globin subunits, each of which is certain to the prosthetic group. The main function of Hb is to transport oxygen (O_2) from the lungs to peripheral tissues and carbon dioxide (CO_2) from the tissues to the lungs. The dynamics of HbO_2 binding and release have been fine-tuned for this purpose and can be adjusted according to the ontogeny of development and the perturbations of metabolism. In addition, the Hb molecule needs to limit the potential problems caused by the associated iron and free oxygen. It is a reactive molecule that can be harmful by producing reactive oxygen species. Efforts have been underway for over 50 years to understand how Hb structures mediate these important functions. MHBS are mutants that autoxidation and are called "MHBS" (see the section on selected variants showing important aspects of hemoglobin biology and methemoglobin variants ("MType")). Since a characteristic of colour from the heme group, changes that affect the heme iron environment, such as changes in surrounding amino acids, various gas ligands, or redox states, cause characteristic changes in visible light absorption. These colour changes are used clinically to assess the effects of HbO_2 saturation, Meth formation, and Hb variants.