



Intravenous literature: Ashton, N. (2013) Physiology of red and white blood cells. *Anaesthesia & Intensive Care Medicine*. 14(6), p.261-266.

#### Abstract:

Blood consists of formed elements (red blood cells, white blood cells and platelets) and plasma. Red blood cells (erythrocytes) account for 99.9% of cells. Their principal function is the transport of oxygen from the lungs to respiring tissues and carbon dioxide from tissues back to the lungs. This is achieved through the presence of haemoglobin, a conjugated metallo-protein. The affinity of haemoglobin for oxygen changes with a number of circumstances. At the partial pressure of oxygen (PO<sub>2</sub>) in the alveoli (13 kPa) the binding of each oxygen molecule increases the affinity of haemoglobin, so aiding uptake of oxygen. At the low PO<sub>2</sub> in tissues, affinity is reduced, allowing the haemoglobin to offload more oxygen. This sigmoidal relationship is shifted to the right by a fall in pH or an increase in 2,3-diphosphoglycerate concentration or temperature. The role of white blood cells (leucocytes) is to defend the body against invading pathogens. Leucocytes are far less common than erythrocytes, although their numbers increase dramatically during an infection. Divided into granulocytes (neutrophils, eosinophils and basophils) and agranulocytes (monocytes and lymphocytes), leucocytes can recognize foreign material and either engulf cells or secrete membrane-disrupting chemicals that can destroy the organism. Lymphocytes play an important role in the immune response to disease, monitoring the internal environment and producing antibodies against pathogens.



Recent publication describes the physiology of red and white blood cells | 2

