

Human anatomy and physiology

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Differential White blood cell count Cheesbrough, M. (2005-2006) Total number of White blood cell count is 53. Therefore, differential WBC count is as follows: Neutrophils is equivalent to $(30 / 53) \times 100 = 56.6\%$ Lymphocyte is equivalent to $(16 / 53) \times 100 = 30.$

2 % Monocyte is equivalent to $(4 / 53) \times 100 = 7.5\%$ Eosinophil is equivalent to $(2 / 53) \times 100 = 3.8\%$ Basophil is equivalent to $(0 / 53) \times 100 = 0\%$ Red Blood cell Count The numbers of red cells counted in the haemocytometer using the solution with the dilution factor X100 are 7, 5 and 4. Average number of red cells = $(12 + 5 + 7) / 3 = 24 / 3 = 8$ red cells Given that No. of cells per ml = Cell count X Dilution factor X 10^4 , the number of cell count is = $8 \times 100 \times 10^4 = 8 \times 10^6$ red cells / ml of blood.

The numbers of red cells in the haemocytometer using the solution with the dilution factor X1000 are 3, 6 and 2 Average number of red cells = $(3 + 6 + 2) / 3 = 11 / 3 = 3.67$ red cells Given that No. of cells per ml = Cell count X Dilution factor X 10^4 , the number of cell count is = $3.67 \times 1000 \times 10^4 = 3.67 \times 10^7$ red cells / ml of blood.

Matching Blood Types for a blood Transfusion Blood group matching is important to prevent any incompatibility between the donor's and the recipient's blood. Incompatibility arises when the donor's blood has some incompatibility factors called the antigens (A, B, Rh factor) which trigger an immune response when they are foreign to a body (American Red Cross, 2012). These antigens result into the different blood groups existing in the body namely the ABO and the Rh blood group systems. The following table shows compatibility in the ABO blood group system for a safer

transfusion: Compatibility of the various ABO groups v- Means Compatibility

In the Rh blood group system, the Rh factor is the antigen and is represented by a positive (+) if present and a negative (-) if absent in the blood.

Generally, an Rh (-) person receives blood from an Rh (-) donor while an Rh (+) positive person can receive blood from both an Rh (+/-) donor (American Red Cross, 2012). However, it is sometimes possible to mismatch the various blood groups thus producing severe consequences.

One of the major consequences is an immune and clotting reaction which can lead to kidney failure, shock, circulatory collapse and even death. When an incompatible blood type is transfused, the immune system of the recipient will detect antigens, process it, and respond by removing the antigen from the recipient's body (NCBI, 2009).