

Common blood tests in dentistry



Before requesting laboratory tests, the healthcare provider should obtain a detailed medical history, conduct a comprehensive physical examination, review relevant imaging studies, and then order specific tests from the laboratory. These tests should be chosen based on the likelihood of confirming or ruling out the differential diagnosis. Importantly, some of the tests may be liable to engender undue anxiety, time consuming, expensive and may have adverse effects.

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Haematology screening¹

A complete blood count (CBC), commonly referred to as a full blood count (FBC), is a blood test that offers comprehensive details about the various components of your blood (Table 1). It is one of the most frequent blood tests, and could offer important information about your general health. The following elements are normally part of a complete blood count:

Haemoglobin (Hb) Level: Haemoglobin is an oxygen-carrying protein in red blood cells that binds to oxygen and carries it to the body's tissues. Low Hgb values are usually indicative of either anaemia or blood loss.

Haematocrit (Hct) Level: Haematocrit measures the proportion of packed red blood cells in a unit volume of whole blood. It is expressed as a percentage. An elevated Hct may be seen in dehydration, burns, polycythemia vera, and conditions of low oxygen tension (smoking, living at high altitudes, congenital heart disease). A low Hct may be caused by bleeding, anemia, and bone marrow failure.

Mean Corpuscular Volume (MCV): MCV measures the average volume of a red blood cell. It is used to classify anaemia into different types (microcytic, normocytic, or macrocytic).

The mean corpuscular haemoglobin (MCH): It is an assessment of the average amount of haemoglobin per red blood cell.

Platelet Count: Measurement of platelets in the blood.





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White Blood Cells (WBC) Count: This measures the number of white blood cells in the blood.

- *Neutrophils:* High (neutrophilia) in acute infection (viral, bacterial, fungal, spirochaetal, and rickettsial), inflammation (trauma, burns, vasculitis, and rheumatoid disease), and malignancies. Low (neutropenia) in congenital neutropenia syndromes (cyclic neutropenia), medications (phenytoin, carbimazole), immune mediated (lupus, Felty's syndrome), and bone marrow failure.
- *Lymphocytes:* High (lymphocytosis) in leukaemias and lymphomas, infections (EBV, CMV, hepatitis), myocardial infarction, trauma, and post-splenectomy. Low (lymphopenia) in congenital disorder (DiGeorge's syndrome), infection (HIV), chemotherapy, burns, liver failure, and malignancy.
- *Monocytes:* High (monocytosis) in tuberculosis, malaria, and myelodysplasia. Low (monocytopenia) in lupus, hair cell leukaemia, drugs (glucocorticoids), and chemotherapy.
- *Eosinophils:* High (eosinophilia) in allergic reaction, drugs (gold, penicillin), erythema multiforme, and Stevens-Johnson syndrome, pemphigus, dermatitis herpetiformis and polyarteritis nodosa.
- *Basophils:* High (basophilia) in myeloproliferative disorder, Hypothyroidism, rheumatoid disease, and irradiation. Low (basopenia) in thyrotoxicosis, haemorrhage, Cushing's syndrome and allergic reaction.

Table 1: Components of CBC/FBC

PARAMETERS	RANGE
Haemoglobin	115-155 g/L
Hct	0.35-0.46
MCV	80-99fL
MCH	27-33pg
Platelets	150-400 x10 ⁹ /L
WBC	4.0-11.0 x10 ⁹ /L
Neutrophils	1.9-7.5 x10 ⁹ /L
Lymphocytes	1.0-4.0 x10 ⁹ /L
Monocytes	0.2-1.0 x10 ⁹ /L
Eosinophils	<0.6 x10 ⁹ /L
Basophils	<0.3 x10 ⁹ /L

(The reference ranges may vary in age and genders)

REFERENCE

1. Provan D, Baglin TP, Dokal I, Vos Jd. Oxford handbook of clinical haematology. Fourth edition / Drew Provan, Trevor Baglin, Inderjeet Dokal, Johannes de Vos. ed. Oxford: Oxford University Press; 2015.