



Table 37-1 Clotting Factors

Number*	Name
Plasma clotting factors	
I	Fibrinogen
II	Prothrombin
III	Tissue thromboplastin (extrinsic or intrinsic), the tissue factor (TF)
IV	Calcium ions (Ca ²⁺)
V	Proaccelerin, or labile factor
VII	Proconvertin, serum prothrombin conversion accelerator (SPCA), or stable factor
VIII	Antihemophilic factor (AHF)
IX	Plasma thromboplastin component (PTC), or Christmas factor
X	Stuart–Prower factor, or Stuart factor
XI	Plasma thromboplastin antecedent (PTA)
XII	Hageman factor
XIII	Fibrin stabilizing factor (FSF)
Platelet factors (Pf)	
Pf ₁	Platelet accelerator
Pf ₂	Thrombin accelerator
Pf ₃	Platelet thromboplastin factor
Pf ₄	None assigned formally

*The substance that had been assigned number VI is no longer used in coagulation theory.

in the formation of *fibrin degradation products* (FDP). The major fibrinolytic system, known as the *plasminogen-plasmin system*, consists of five components—plasminogen, plasmin, plasminogen activators, plasminogen activation inhibitors, and plasmin inhibitors. Normal serum contains less than 10 micrograms per milliliter ($\mu\text{g/ml}$) of FDP. Tests used to measure FDP levels are of value in cases involving recovery from abdominal operations, kidney transplant, or childbirth. Such tests also serve as an aid in the diagnosis of pulmonary embolism and renal disease. The Thrombo-Wellco test is a rapid and reliable procedure for the semiquantitative determination of FDP (Figure 37-4).

Hemoglobin is responsible for gaseous transport in the body. The hemoglobin content of the blood usually is expressed in grams per 100 milliliters (g/100 ml) or sometimes as a percentage of normal. The normal hemoglobin content of the blood is about 14.5–15 g/100 ml. Tests for the determination of hemoglobin content are included in this exercise.

Normal hemoglobin (HbA) is a conjugated protein consisting of *heme*, an iron-containing nonprotein, and a globin (protein) portion composed of two pairs of polypeptide chains. The amino acids and the sequence of their arrangement in each polypeptide are under genetic control. If a gene causes a substitution for an amino acid

Table 37-2 Coagulation-Disorder Screening Tests

Test	Brief Description
Clotting or bleeding time	A check for platelet aggregation and primary clot formation. This test is a helpful indication of platelet abnormality, whether in number or in function. Individuals with vascular problems will have an abnormal bleeding time.
Platelet count	Determination of the quantity of platelets.
Prothrombin time (PT)	A test to detect deficiencies in the extrinsic clotting system (Figure 37-3) and defects with Factors I, II, VII, or X in the presence of tissue thromboplastin. Individuals on the anticoagulant therapy will have a prolonged PT.
Activated partial thromboplastin (APTT)	A test to detect deficiencies in the intrinsic clotting system (Figure 37-3) and defects with Factors I, V, VIII, IX, X, and XII. Individuals on anticoagulant therapy will have a prolonged APTT test result.