

Difference Between APTT and PTT

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Key Difference – APTT vs PTT

PTT (Partial thromboplastin time) is a measure used to determine the [blood coagulation](#) time to diagnose bleeding problems. PTT test reveals the integrity of [intrinsic pathway](#) and common coagulation factors involved in blood coagulation. It evaluates the coagulation factors XII, XI, IX, VIII, X, V, II (prothrombin), and I ([fibrinogen](#)). PTT test is also used to monitor [heparin](#) therapy. Activated partial thromboplastin time (APTT) is another test which has a similar function to PTT test. APTT also measures the functions of coagulant factors in the intrinsic pathway and common pathway. However, APTT test is more sensitive to monitor heparin therapy than PTT. The key difference between APTT and PTT is **that an activator is added to APTT test to increase the speed of the clotting time and to obtain results in a narrower reference range while an activator is not added to normal PTT test.**

What is APTT?

Activated partial thromboplastin time (APTT) is a commonly used blood test which is performed to evaluate the function of the intrinsic pathway of blood clotting. This test is the newest version of PTT test, and it has replaced the older PTT test. APTT is considered as a more sensitive version of the PTT test. It is applied when the patient takes heparin therapy.

The normal range of the APTT is 30 to 40 seconds. If the value exceeds 70 seconds, it indicates bleeding disorders. The reference value of APTT varies among laboratories due to the chemicals they use to perform the test. However, it should generally range between 25 to 38 seconds. If the APTT value is longer than the reference range, surgeries are not performed until it becomes normal. Prolonged APTT values can be a result of salicylates, inherited or acquired intrinsic clotting factor deficiency or abnormality (XII, XI, X, IX, VII, V, II, I), massive blood replacement, [hemophilia A](#), lupus [anticoagulant](#), or excessive coumarin dosage.



APTT test is useful in monitoring heparin therapy, evaluation of certain coagulation factor abnormalities and detection of certain coagulant inhibitors, specific and nonspecific factor inhibitors.

What is PTT?

Partial thromboplastin time (PTT) test is another test which measures the time taken for blood coagulation. It measures the integrity of the intrinsic blood clotting system and coagulation factors of the common pathway. This test is performed together with the PT test to investigate excessive bleeding or clotting disorders. When there is an injury, both intrinsic and extrinsic pathways are initiated, and sequential activation of coagulation factors occur to form a [blood clot](#). PTT test is useful to evaluate the coagulation factors XII, XI, IX, VIII, X, V, II (prothrombin), and I (fibrinogen).

PTT test results are given in seconds. The reference range of the PTT test is 60 to 70 seconds. Patients can have prolonged PTT than the reference range. If it exceeds more than 100 seconds, it signifies spontaneous bleeding.

PTT test is prescribed along with the PT test for several reasons such as unexplained bleeding, easy bruising, formation of blood clot in a [vein](#) or [artery](#), and chronic liver conditions. The test results of both PTT and PT tests will reveal the real clues about the reasons for blood clotting disorders. Hence, doctors often prescribe both tests together.

What are the similarities between APTT and PTT?

- APTT and PTT evaluate the coagulant factors of the intrinsic pathway and common pathway.
- Both tests monitor the heparin therapy.

What is the difference between APTT and PTT?

| APTT vs PTT | |
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| APTT is a common screening test done to evaluate the function of the intrinsic clotting system and common pathway coagulant factors. | PTT is a test that measures the integrity of intrinsic pathway and common coagulation factors. |
| Use of an Activator | |
| APTT uses an activator. | PTT does not use an activator. |
| Reference range | |
| APTT has a narrow reference range (25 to 38 seconds). | PTT has increased reference range (60 to 70 seconds). |
| Sensitivity to Heparin Therapy | |
| APTT is more sensitive to monitor heparin therapy. | PTT is less sensitive for monitoring heparin therapy. |

Summary – APTT vs PTT

APTT and PTT are two tests performed to evaluate the overall integrity of the intrinsic/common coagulation pathway and to monitor patients on heparin therapy. APTT test is more sensitive than PTT test for monitoring heparin therapy. PTT test

is replaced by APTT test due to several factors. It uses an activator to speed up clotting time. This is the difference between APTT and PTT.

References:

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