

## Prolonged coagulation times

It is advisable to repeat the coagulation tests if the results are abnormal, this is because coagulation tests are very prone to spurious results.

It is also advisable to have the tests done at the hospital as the transit time from taking the blood to it being processed in the lab also affects the results (i.e. the longer it takes the bloods to get to the labs the more prolonged the APTT is, this mainly due to the degradation of factor 8).

Coagulation tests poorly correlate with predicting if someone will have serious bleeding. A normal set of coagulation tests does not rule out a bleeding disorder. An abnormal coagulation screen may not indicate there is a bleeding disorder or an increased risk of bleeding.

A coagulation screen consists of the PT, APTT, and fibrinogen.

PT and APTT are different tests which screen for different kinds of bleeding disorders, they are also raised in many other conditions. Their prolongation is usually not specific for a particular condition and further tests may be required depending on the context.

Fibrinogen is an important clotting protein and contributes a great deal to the formation of a clot. It can be raised commonly in illnesses which cause inflammation and can be low in serious conditions, quite commonly liver disease.

### Reasons to do a coagulation screen:

- Before starting anticoagulation
- When investigating thrombocytopenia
- To look for a lupus anticoagulant
- Monitor anticoagulant (only request specific assay e.g. INR for warfarin)
- In the presence of a bleeding history
- Monitor severity of liver disease
- In patients with liver disease and high ASA grade pre surgery



**Here's a table of causes of prolonged coagulation times (this list is not exhaustive):**

<b>Prolonged PT (or PT&gt;APTT)</b>	<b>Prolonged APTT (or APTT&gt;PT)</b>	<b>Prolonged PT and APTT</b>	<b>Bleeding disorders with normal coagulation screen</b>
Warfarin	Lupus anticoagulant or another antibody interfering with assay	Disseminated intravascular coagulation	von Willebrand disease
Liver disease	Heparin	Anticoagulants	Platelet function defects
Vitamin K deficiency	Dabigatran	Coagulopathy due to trauma	Drugs e.g. antiplatelets, apixaban
Factor VII deficiency	Factor VIII, IX and XI deficiencies	Major haemorrhage	Mild factor deficiency
Rivaroxaban	Factor XII deficiency (not a bleeding disorder)	Dysfibrinogenaemia	Factor XIII deficiency
	von Willebrand disease	High haematocrit	Connective tissue disorders e.g. Ehlers Danlos
	Dysfibrinogenaemia	Liver disease	Vitamin C deficiency
	High haematocrit	Severe vitamin K deficiency	Uraemia
		Inherited deficiencies of factors II, V, X	Hereditary haemorrhagic telangiectasia

If there is a confirmed finding of prolonged coagulation tests with bleeding symptoms, it is useful to do a [bleeding assessment tool score - press here for link](#). This is also useful to do if there is a normal coagulation screen, but you are



suspecting a bleeding disorder still (remember it is still possible to have a bleeding disorder with a normal coagulation screen).

This score covers quite a lot of useful questions to ask when there is a suspicion of a bleeding disorder.

Advice and guidance queries can be sent about abnormal coagulation results.