



What is a Blood Clot or “Thrombosis”?

A blood clot is when your blood changes from a liquid to a solid. A blood clot is good because it stops bleeding when you cut or hurt yourself. A scab is a type of clot. This is usually a good thing, but sometimes it isn't good.

Blood clots can develop in your veins (v-ay-n-s) or arteries (art-er-ees) which are the pipes that carry your blood back and forth to your heart. Sometimes blood clots form in places they are not supposed to; this is called a harmful blood clot or “throm-bo-sis” or deep venous thrombosis (DVT).

How Does Blood Clot?

There are **proteins (pro-teens)** in your blood that are so small you cannot see them without a special magnifying glass. These proteins work together to ensure your body makes a clot when needed. Some of these proteins are called factors.

Other proteins prevent your blood from clotting too much and causing a clot when you do not need one.

The proteins work together to balance blood clotting so that your blood does not make a clot when it does not need one.

You may have developed a DVT because one of your proteins may differ. You may have inherited this from your mom or dad.

Your doctor can check the proteins in your blood to see if they are different and may cause you to get another blood clot.

This is called a **throm-bo-phil-ic work-up**.

Differences in Clotting Proteins that May Increase Risk for Thrombosis

Many things can cause a ‘bad’ blood clot (thrombosis). There are blood components or proteins that we can test your blood for. *Differences in the amount and action of these proteins may increase your risk for thrombosis.*

These differences may be inherited from a parent or both parents or may occur during an illness. Differences in these proteins can increase your risk of getting a blood clot.

| | | | | |
|--------------------|-------|-----------------|---|------------------|
| $\frac{2}{10}$ | , | $\frac{2}{100}$ | , | $\frac{2}{1000}$ |
| Equal decimals are | | | | |
| 0.2, | 0.02, | 0.002 | | |

The five most common differences are:

- ❖ Factor V Leiden (FVL)
 - Heterozygous means that the difference is inherited from one parent.
 - 5/100 people have heterozygous FVL, which increases your risk of getting a blood clot from 1/1000 per year to 3-10/1000 per year.
 - With Estrogen therapy, such as oral contraceptive pills, the risk increases to 5/1000 per year. The chance of getting a blood clot when pregnant increases to 21/1000 per year.
- ❖ Prothrombin Gene 20210 (PG20210) Heterozygous:
 - 2-3 /100 people have heterozygous prothrombin gene. If you have it, your risk for thrombosis increases your risk of getting a blood clot from 1/1000 per year to 3-10/1000 per year.
 - With Estrogen therapy, such as oral contraceptive pills, the risk increases to 5/1000 per year and 23/1000 per year with pregnancy.
- ❖ Protein C Deficiency:
 - 3/1000 people have protein C deficiency. If you have it, your risk for thrombosis increases from 1/1000 per year to 5-10/1000 per year and 40/1000 per year with Estrogen therapy or pregnancy.
- ❖ Protein S Deficiency:
 - 3/1000 people have it. If you have it, your risk for thrombosis increases from 1/1000 per year to 5-10/1000 per year and 40/1000 per year with Estrogen therapy or pregnancy.
- ❖ Antithrombin Deficiency:
 - 3/1000 people have it. If you have it, your risk for thrombosis is from 1/1000 to 5-10/1000 and 40/1000 with estrogen therapy or pregnancy.

Considerations for Thrombophilia Testing

If testing is performed and is positive, it may impact the individual's ability to get life and mortgage insurance as it requires a declaration.

Testing performed for tests other than DNA (FVL, PG20210), such as protein C, protein S and antithrombin, may be influenced by developmental hemostasis until adolescence. As a result, any testing performed before the age of approximately ten years may indicate a false positive result.

It is sufficient for the individual to declare previous personal or family history of thrombosis to demonstrate an increased risk for thrombosis.

Thrombophilia testing rarely alters clinical management.

If you decide not to test for thrombophilia now, you may contact KIDCLOT at kidclot.com in the future and have your family doctor request a consult.