

## Factor V Leiden

Factor V is a protein found in the blood that is required for normal clotting to occur in response to injury to a blood vessel. Factor V assists in enzyme reactions that form the fibrin in the blood clot. When enough fibrin is made, a substance called activated protein C inactivates the Factor V. This process helps to stop the clot from growing. Too much clotting power (thrombophilia) causes the clot to grow larger than necessary.

When an individual has a genetic mutation causing the body to make an abnormal version of the factor V protein, the factor V protein becomes resistant to the action of the activated protein C. If you have Factor V Leiden, the Factor V protein in your blood is more resistant to being broken down and the clotting process goes on longer. This makes you more prone to develop blood clots in one of your deep veins, or Deep venous thrombosis (DVT). If the clot travels to the lung, it is called a pulmonary embolus (PE), which can be life threatening.

Factor V is an inherited condition that affects both men and women. People from European ancestry are more likely to have Factor V Leiden, where as it is rare for people who are Black or Asian to have Factor V mutation. Factor V Leiden does not increase the risk for arterial clots, heart attacks or strokes.

If you have inherited a single gene from one of your parents you are heterozygous for the mutation. The risk of having a DVT is about eight times greater if you are homozygous for the Factor V Leiden mutation. If you inherited 2 genes, one from each parent, then you are homozygous for the mutation. Homozygous individuals are eighty times more prone to DVTs than heterozygous individuals.

Most heterozygous individuals have a low absolute risk of ever having a DVT, ranging from about 1 in 10,000 for those in their twenties to about 5 in 10,000 for those in their seventies. However there are circumstances that may trigger a clotting event to occur. Pregnancy, estrogen based birth control pills and surgery are just a few examples.

The factor V Leiden mutation is associated with a slightly increased risk of pregnancy loss (miscarriage). Women with this mutation are two to three times more likely to have multiple (recurrent) miscarriages or a pregnancy loss during the second or third trimester. Some research suggests that the factor V Leiden mutation may also increase the risk of other complications during pregnancy, including pregnancy-induced high blood pressure (preeclampsia), slow fetal growth, and early separation of the placenta from the uterine wall (placental abruption). However, the association between the factor V Leiden mutation and these complications has not been confirmed. Most women with factor V Leiden have normal pregnancies.

## Sources

[www.circulationaha.org](http://www.circulationaha.org) (Patient pages Apr 2003; 107:e94-97)

<http://www.fvleiden.org/recently-diagnosed/>

<http://ghr.nlm.nih.gov/condition/factor-v-leiden-thrombophilia>