



## D - DIMER

### What is D- dimer testing?

- D-dimer is a fibrin degradation product, a small protein fragment present in the blood after a blood clot is degraded by fibrinolysis. It is so named because it contains two D fragments of the fibrin protein joined by a cross-link. D-dimer concentration may be determined by a blood test to help diagnose thrombosis.
- It is normally undetectable or detectable at a very low level unless the body is forming and breaking down blood clots. Then, its level in the blood can significantly rise.

### What are the clinical Utilities of D- Dimer test?

D-dimer tests are used to help rule out the presence of an inappropriate blood clot (thrombus). Some of the conditions that the D-dimer test is used to help rule out include:

- [Deep vein thrombosis \(DVT\)](#)
- Pulmonary embolism (PE)
- [Stroke](#)
- Hypercoagulability, a tendency to clot inappropriately.
- DIC- disseminated intravascular coagulation (DIC)

### When a doctor will recommend D-dimer test to the patient?

D-dimer testing is often ordered when someone goes to the emergency room with symptoms of a serious condition (e.g., chest pain and difficulty in breathing).

D-dimer test may be ordered when someone has symptoms of deep vein thrombosis, such as:

- Leg pain or tenderness, usually in one leg
- Leg swelling, edema
- Discoloration of the leg

It may be ordered when someone has symptoms of pulmonary embolism such as:

- Sudden shortness of breath, labored breathing
- Coughing, hemoptysis (blood present in sputum)
- Lung-related chest pain
- Rapid heart rate

### **What does the test result mean?**

- A normal or "negative" D-dimer result (D-dimer level is below a predetermined cut-off threshold) means that it is most likely that the person tested does not have an acute condition or disease causing abnormal clot formation and breakdown. Most health practitioners agree that a negative D-dimer is most valid and useful when the test is done for people who are considered to be at low to moderate risk for [thrombosis](#). The test is used to help rule out clotting as the cause of symptoms.
- A positive D-dimer result may indicate the presence of an abnormally high level of fibrin degradation products. It indicates that there may be significant blood clot (thrombus) formation and breakdown in the body, but it does not tell the location or cause. For example, it may be due to a venous thromboembolism (VTE) or [disseminated intravascular coagulation \(DIC\)](#). Typically, the D-dimer level is very elevated in DIC.

### **When the level of D- Dimer increases?**

- Elevated levels may be seen in conditions in which fibrin is formed and then broken down, such as recent surgery, trauma, infection, [heart attack](#), and some cancers or conditions in which fibrin is not cleared normally, such as [liver disease](#). Therefore, D-dimer is typically not used to rule out VTE in hospitalized patients (inpatient setting).
- Fibrin is also formed and broken down during [pregnancy](#), so that may result in an elevated D-dimer level. However, if DIC is suspected in a woman who is pregnant or is in the immediate postpartum period, then the D-dimer test may be used, along with a [PT](#), [PTT](#), [fibrinogen](#), and [platelet count](#) to help diagnose her condition. If the woman has DIC, her D-dimer level will be very elevated.

### **What does an elevated D-dimer in COVID-19 patients mean?**

- Several studies from Wuhan have shown elevated D-dimer in COVID-19 patients is associated with higher mortality, although prophylactic anticoagulation in ICU patients in China was not common [when these studies were performed](#). These studies provided little information on assays/unit types utilized. Although it is not clear what effect anticoagulation has on D-dimer levels in the setting of COVID-19, very low D-dimer levels are usually observed in patients receiving anticoagulation.
- Because D-dimer is a product of cross-linked fibrin, it is considered a sensitive biomarker to rule out venous thromboembolism. However, D-dimer has low specificity as there are many other conditions with ongoing activation of the hemostatic system in which D-dimer can be elevated such pregnancy, inflammation, malignancy, trauma, liver disease (decreased clearance), heart disease, sepsis or as a result of hemodialysis, CPR or recent surgery.

### **What is a normal & reference range of D-dimer test?**

- A normal D-Dimer is considered less than 500ngFEU/ml. A positive D-Dimer is 500ngFEU/ml or greater. Since this is a screening test, a positive D-Dimer is a positive screen.

**Commercial Information:**

Test Name	Test Code	MRP	Technique	Specimen	Temp	Run days at Section	TAT / Report ed on
D -dimer	RHM10065	1090	Chemiluminescence Enzyme Immunoassay (CLIA)	2 ml (1 ml minimum) sodium citrate Plasma	Local samples: 2-8° C to reach lab in 4 hours. Outstation samples: Frozen	Every day if received before 1:00 p.m.	Same Day by 7:00 p.m.