Homocysteine

Kid Clot ©

Normal
Blood Clotting

What is a Blood Clot?

A **blood clot** is when your blood changes from a **liquid** to a **solid.**
This is usually a good thing but sometimes is a bad thing.
A blood clot is a good thing because it stops the bleeding when you cut or hurt yourself.

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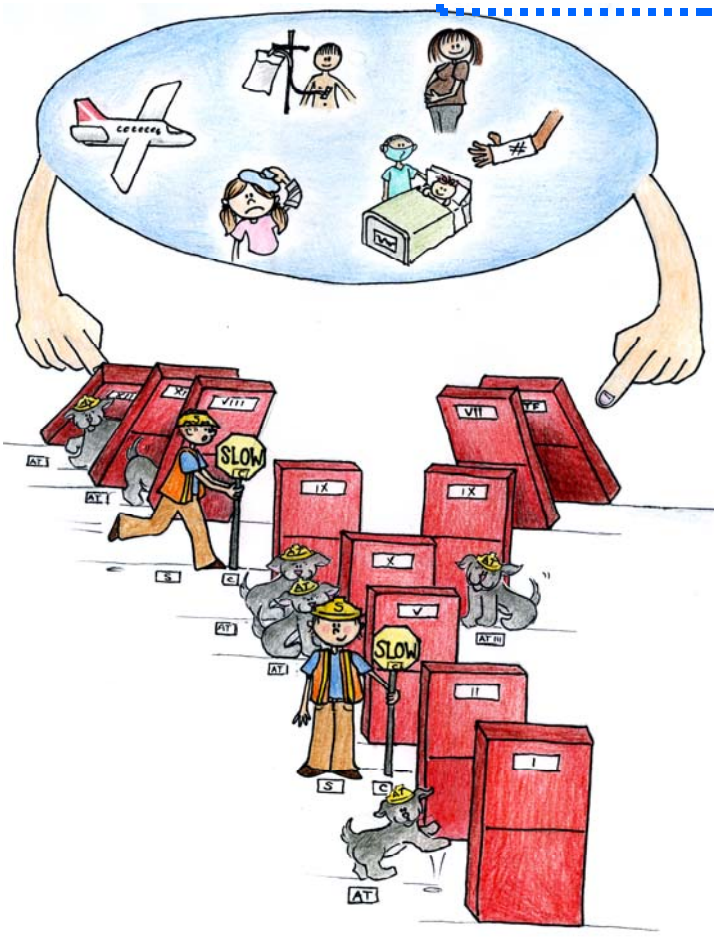
Kids
Informed
Decrease

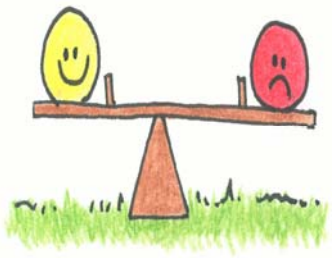
Complications
Learning
On
Thrombosis

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 **bad blood clot** or **"throm-bo-sis".**



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 make sure your body makes a clot when you need it. Some of these **proteins** are called **factors.**
These **factors** act like dominoes. Some of the things that cause your body to make a blood clot are seen in the bubble in the picture.
When these things happen to you, your blood clotting system gets **'turned on'** like tapping the dominoes. When each **protein** gets **turned on** it works like a tapped domino and falls on to the next one or two, causing them to fall. Like dominoes, each **protein will turn on the next one** and on and on. When the last factor falls it makes a scab to stop the bleeding within minutes.



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

Other important **proteins** have names like **C** and **S** or **AT**. The workmen are acting like **S** and their slow signs like **C.** The dogs are acting like AT and get in the way of the dominoes falling. These **proteins C, S** and **AT** work to **slow** down the falling domino like blood clotting system. The workmen **(S),** slow signs **(C)** and dogs **(AT)** are very important to make sure your blood does not **clot** when your body does not need one.

 Illustrated by Rebecca Bauman Updated June 2007

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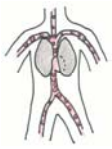
High Homocysteine MTHFR

Hyperhomocysteinemia?

MTHFR is a building block that makes homocysteine. MTHFR affects how much homocysteine you have in your blood. You may have different **MTHFR** that makes different amounts of **homocysteine .**

This is a VERY big word to remember!
Hi-per-ho-mo-sis-teen-eem-ia.
Your body is made of billions of tiny parts.
These tiny parts are called molecules. They are like building blocks.
Homocysteine is just one of those building blocks.



Homocysteine floats in your blood as it moves through pipes that take your blood from your heart to your body and back to your heart again. These pipes are called arteries (art-er-ees) and veins.
The cells on these pipes have a special job, to keep blood moving.
Some people have lots of **homocysteine** in their blood.
Another word for lots is (hi-per) which is the first part of the word.
When people have lots of **homocysteine** it hurts the cells in your veins. The blood slows at the places where your vein is hurt and then sometimes blood clots form there.

What Would a Bad Clot Feel Like?

Sometimes your body makes a blood clot when it does not need one. This is a **bad blood clot** and is called **deep vein thrombosis.**

If your body makes a bad blood clot you will have pain and puffiness in your arm or leg that seems to be for no good reason, OR you may find it hard to breathe even if you do not have asthma or a cold.

What Does High Homocysteine Mean For You?

Having **high homocysteine** does **not** mean you did something wrong. You will always have **high homocysteine .**
Even though you have **high homocysteine** it does not mean you are sick or that you will get sick one day.
There are vitamins in the foods you eat that will help to lower your homocysteine.
Your doctor can give you pills with extra **folic acid** and **vitamin B12** for you take at home. This will help lower your **homocysteine.**

Some of the things that cause bad clots when you have **high homocysteine** are seen in the picture.

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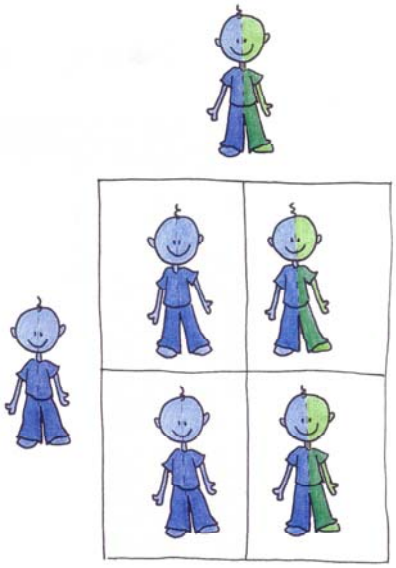
You should tell your doctor if any of these things happen to you.
Your doctor may give you a small dose of medicine to help slow down your blood clotting.
This medicine is called a **blood thinner. Blood thinners** help stop your body from making blood clots when your body does not need one.
Girls with **high homocysteine** are special. When you have **high homocysteine** and are having a baby you have a bigger chance of getting a **bad blood clot**.
Some girls take pills to stop them from having a baby. These pills are made of estrogen which will give you an even bigger chance of getting a **bad blood clot**. You should talk to your doctor about taking these pills.

How Did You Get It?

Building a person is not magic. Building a person requires a set of instructions. Tiny cells in your body store those **instructions** in a long, twisted particle called **DNA.**

The **DNA** controls everything about you, from the colour of your hair, to how tall you are, to the size of your feet. Your body carries billions of cells and each has 2 copies of **DNA** instructions. When you are born some **DNA** instructions come from your mom and some from your dad. You won't know which DNA instructions for the proteins that make and destroy **homocysteine** you will get until you are born.

Let's say you are one of the children in the box, pick one. One parent is **blue** the other parent is **blue/green.**



= **Usual Homocysteine**
= **High Homocysteine**

The blue/green parent has DNA instructions for high homocysteine. The blue parent has instructions for usual homocysteine. *If you* have **green DNA instructions you may have high homocysteine.**

Did you pick the **blue-green** child? You could just as easily have picked the **blue** child. You had the same chance of picking the **high homocysteine** child as you had for picking the blue child BUT you cannot pick your **DNA** instructions.

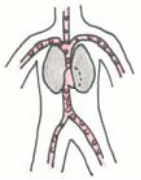
'An-ti' means against
co-ag' means clot,
"anticoagulant" is a
blood thinner

Preventing Blood Clots!

If you have any difference in your blood clotting system, you may need medicine to prevent blood clots.

Have You Had a Bad Blood Clot?

The bad clots form in the pipes that carry the blood back to the heart. These blue pipes are called **veins (v-ay-ns)**.



Arteries (ar-ter-ees) are the red pipes. Arteries carry the blood from your heart to your body.

If you have had a bad blood clot and you are in any of the situations pictured in the bubble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your  may give you a small amount of medicine called a blood thinner so that your body will not make another clot when it does not need one.

OR

Did the Doctors Operate to Help your Heart Work Better?

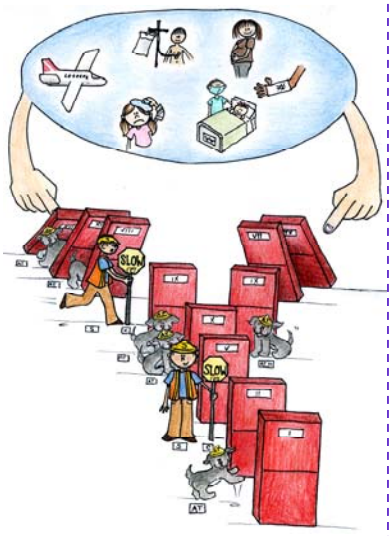
Some children have hearts that are not able to pump the blood through the pipes of their bodies.

The surgeon operates to fix their heart. Sometimes when a heart is fixed, it may be more likely to make a blood clot when it shouldn't.


Your doctor may give you a small amount of medicine called a blood thinner so that your heart will not make a clot when it shouldn't.

How Does a Blood Thinner Work?

A blood thinner slows down the time it takes for your blood to make a clot. The blood thinner helps **S,** **C** and **AT** slow down the dominoes when they fall. This means it will take longer for your blood to make a clot. If you cut yourself when you are taking a blood thinner, it takes about 2-3 times longer for you to stop bleeding.



Important Things To Know If You are Taking a Blood Thinner

1. Blood thinners will cause you to bruise and may cause **bleeding**.
2. You **must** **wear a helmet** when you are riding a bike, roller-blading, skateboarding or skiing.

3. If you fall and hit your head, you must tell your mom or dad.

4. If you cut yourself, hold the cut tight for 10 minutes.
5. If you are having any surgery that may cause bleeding tell your doctor or nurse who helps you with your blood thinner.