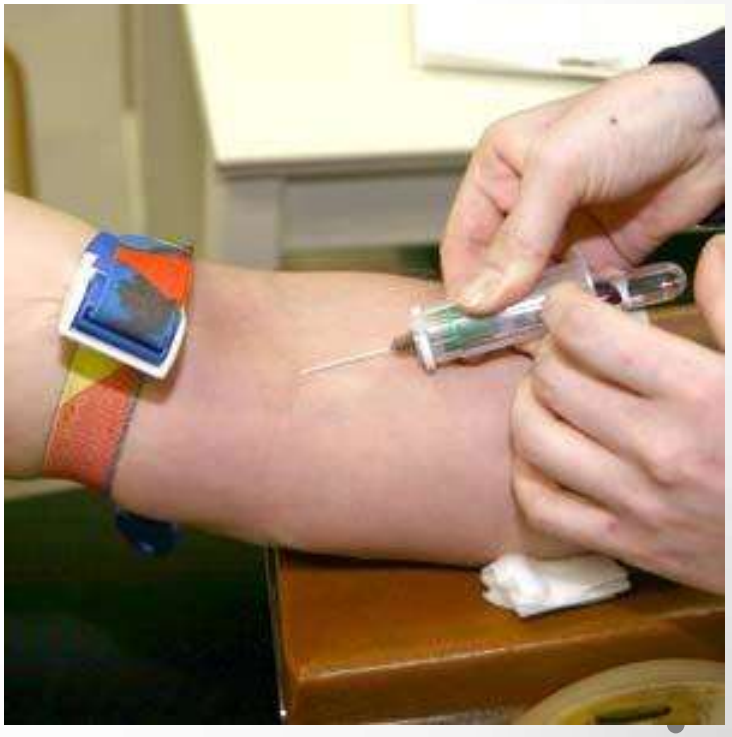
Blood Types to Disorders

EQ: Why is knowing your blood type so important?

Blood Genotypes

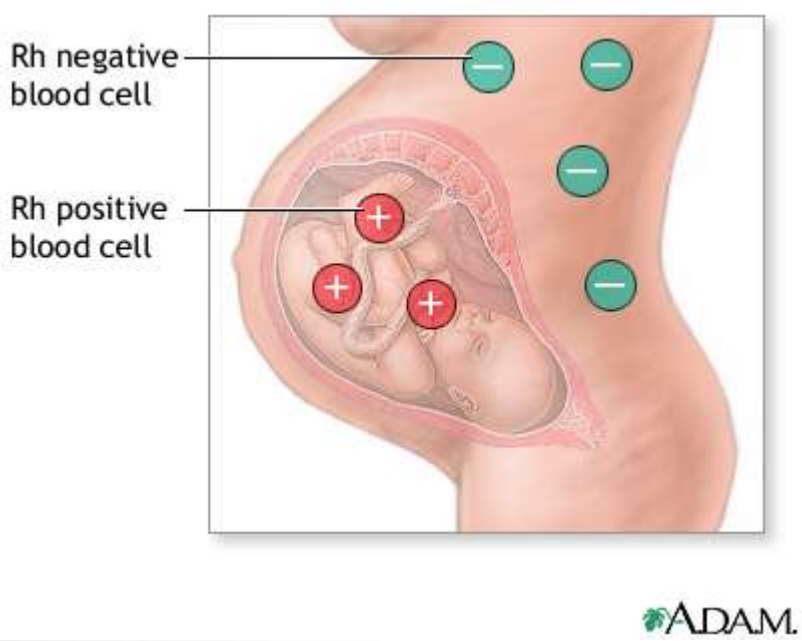
Blood Type	Genotype		Can Receive Blood From:
A	$i^A i$ $i^A i^A$	AA AO	A or O
B	$i^B i$ $i^B i^B$	BB BO	B or O
AB	$i^A i^B$	AB	A, B, AB, O
O	$i\,i$	OO	O



Remember Punnett Squares

Type A (genotype AA) x Type O (genotype OO)

Rh Blood Groups



- Most people have the antigen and are Rh+
- If an Rh- person receives blood from an Rh+ donor than Hemolysis takes place
- Hemolysis is rupture of RBCs

Rh Factor and Pregnancy

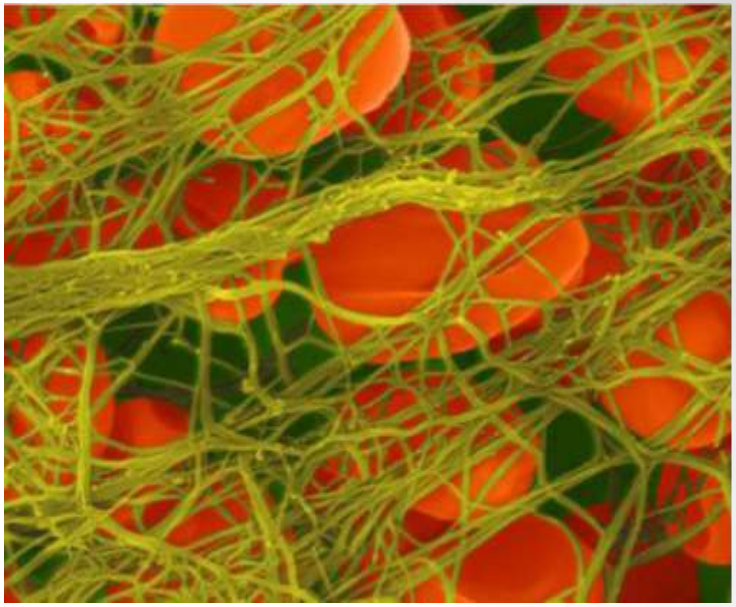
*Problem: When a fetus is Rh+ and the mother is Rh-, this can cause the mother's immune system to attack the fetus.

*There are drugs that will suppress this reaction.

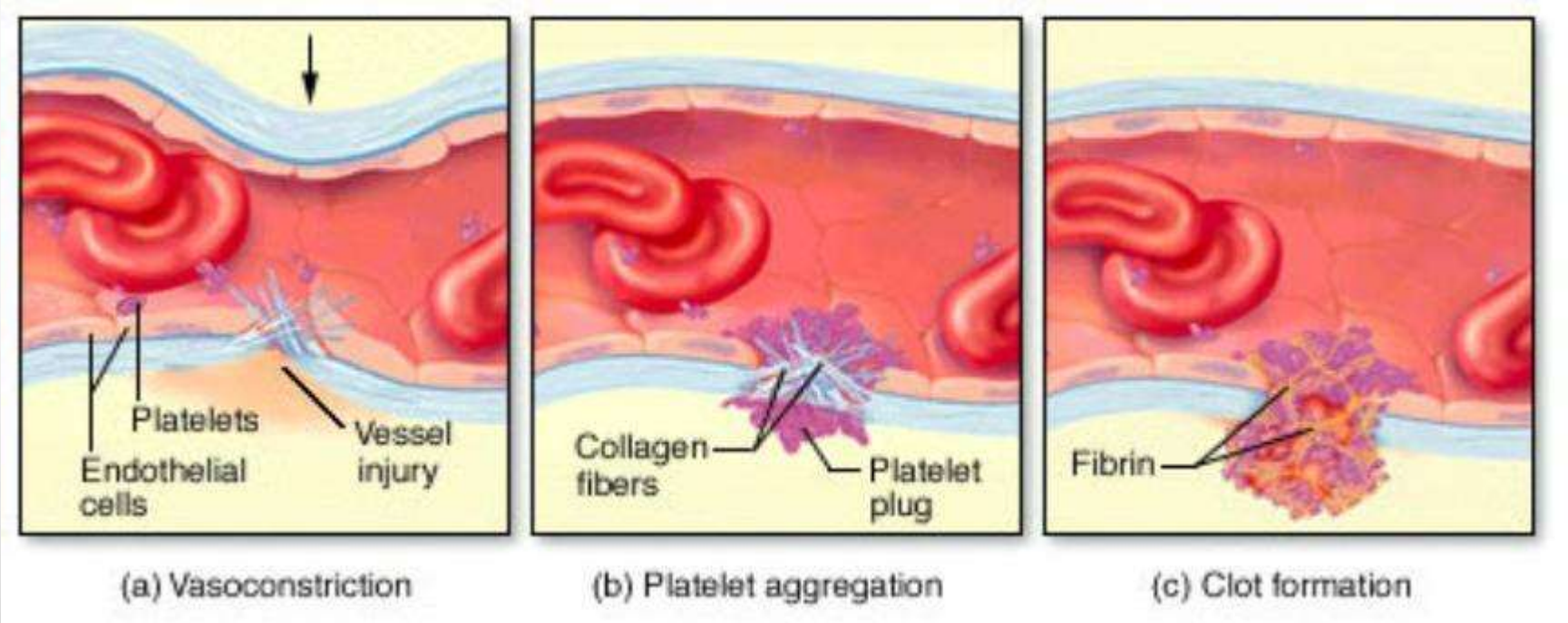
HEMOSTASIS

- The process of stopping bleeding
- Involves the coagulation and clotting of the blood to seal the site of damage

THREE EVENTS IN HEMOSTASIS

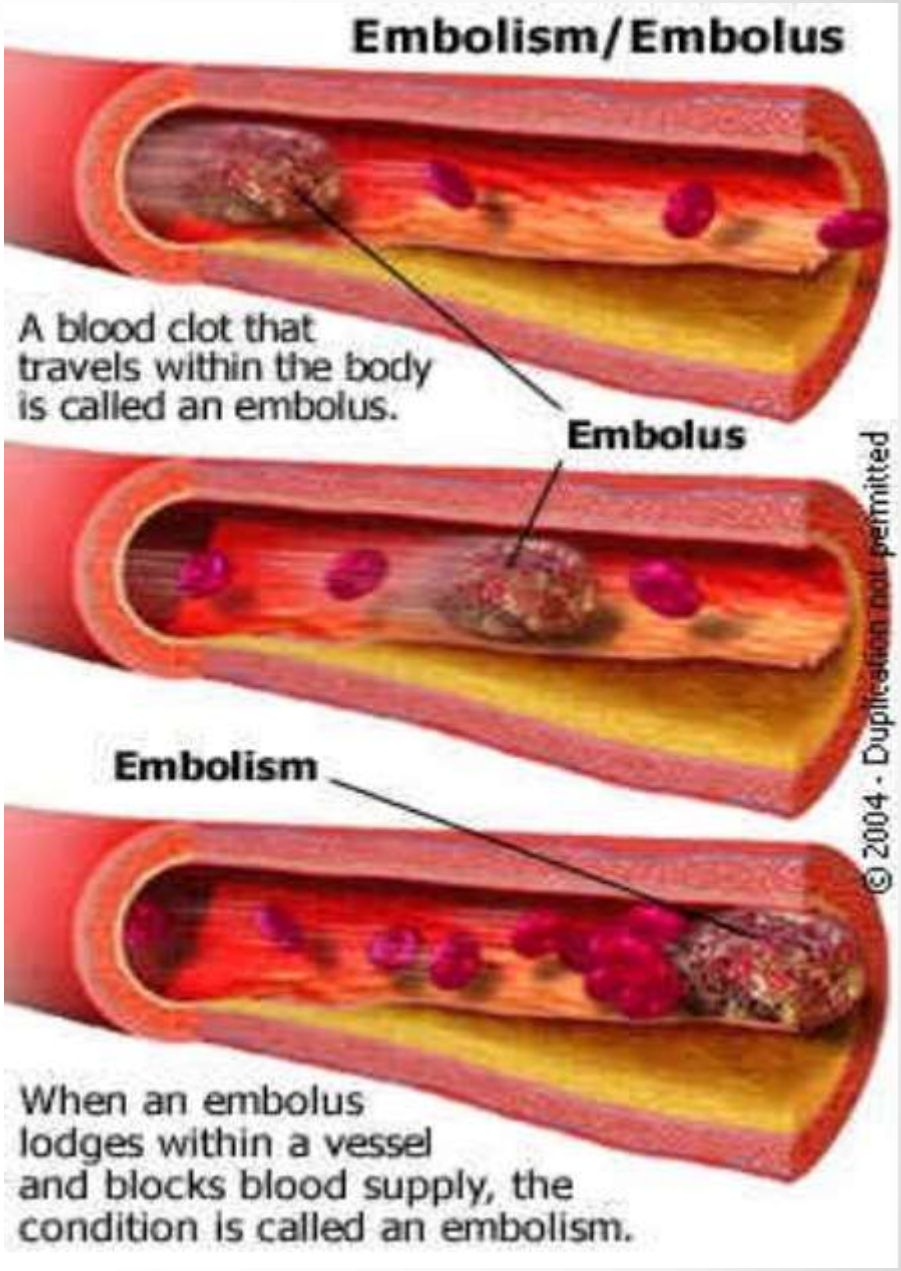


1. Blood Vessel Spasm
    - Serotonin = vasoconstrictor
2. Platelet plug formation
3. Blood coagulation
    - conversion of fibrinogen to fibrin
    - thrombin is enzyme that causes the conversion



THROMBUS – blood clot (abnormal)

EMBOLUS – when the clot moves to another place.



Blood Disorders - Hemophilia

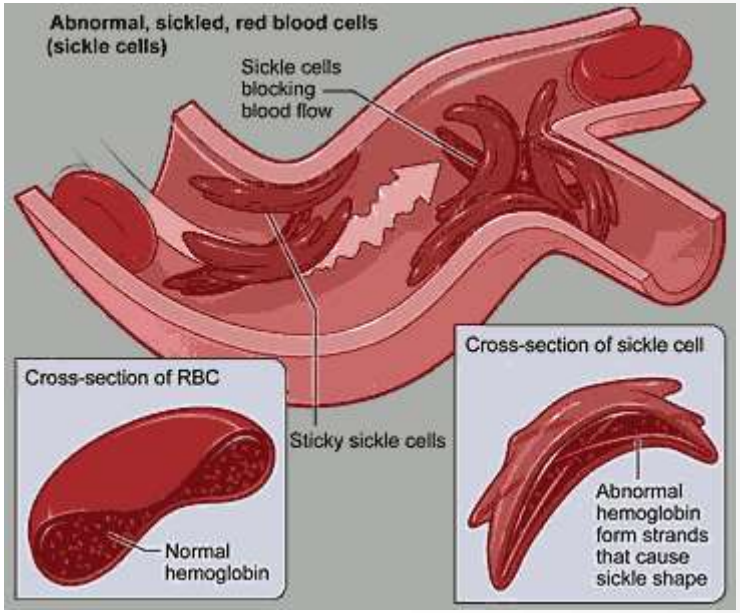
- Hemophilia – "bleeder's disease"
- Sex linked trait (gene on X chromosome)
- Missing or low level of blood clotting factors

Anemia

- Anemia: is a condition in which the body does not have enough healthy red blood cells
- Anemia has many causes but you do need…
  - Vitamin B-12
  - Folate (another B vitamin)
  - iron

Sickle Cell Anemia

- Sickle shaped cells rupture easy
- leave victims gasping for air and in intense pain.
- Is a homozygous recessive trait – where the heterozygous condition provides resistance to malaria.



Leukocytosis VS Leukopenia

- Too many WBC's – caused by an infection in the body.
- Too few WBC's in the body.