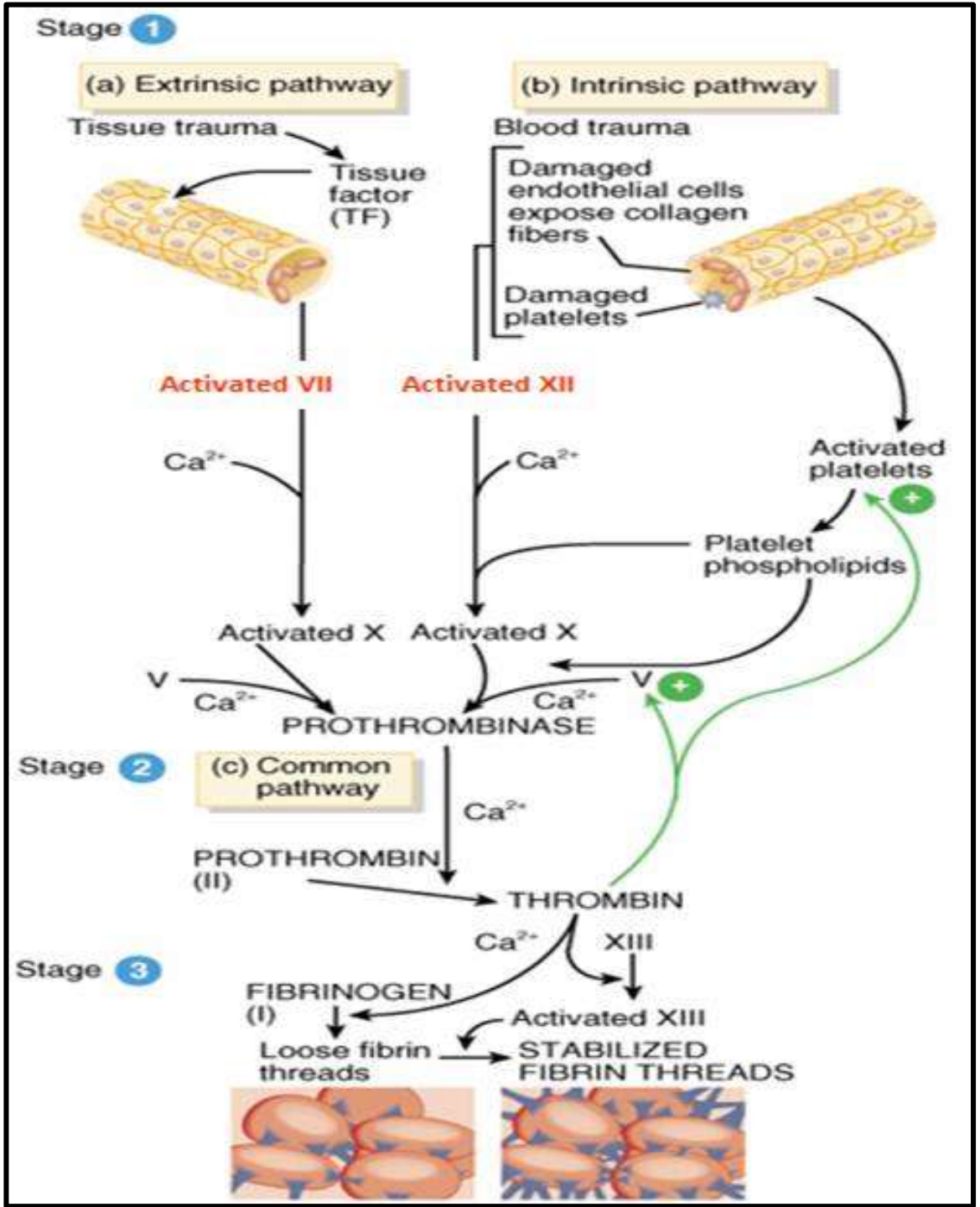
Coagulant

- Haemostasis (arrest of blood loss) and blood coagulation involve complex interactions between the injured vessel wall, platelets and coagulation factors.

Mechanisms of blood coagulation



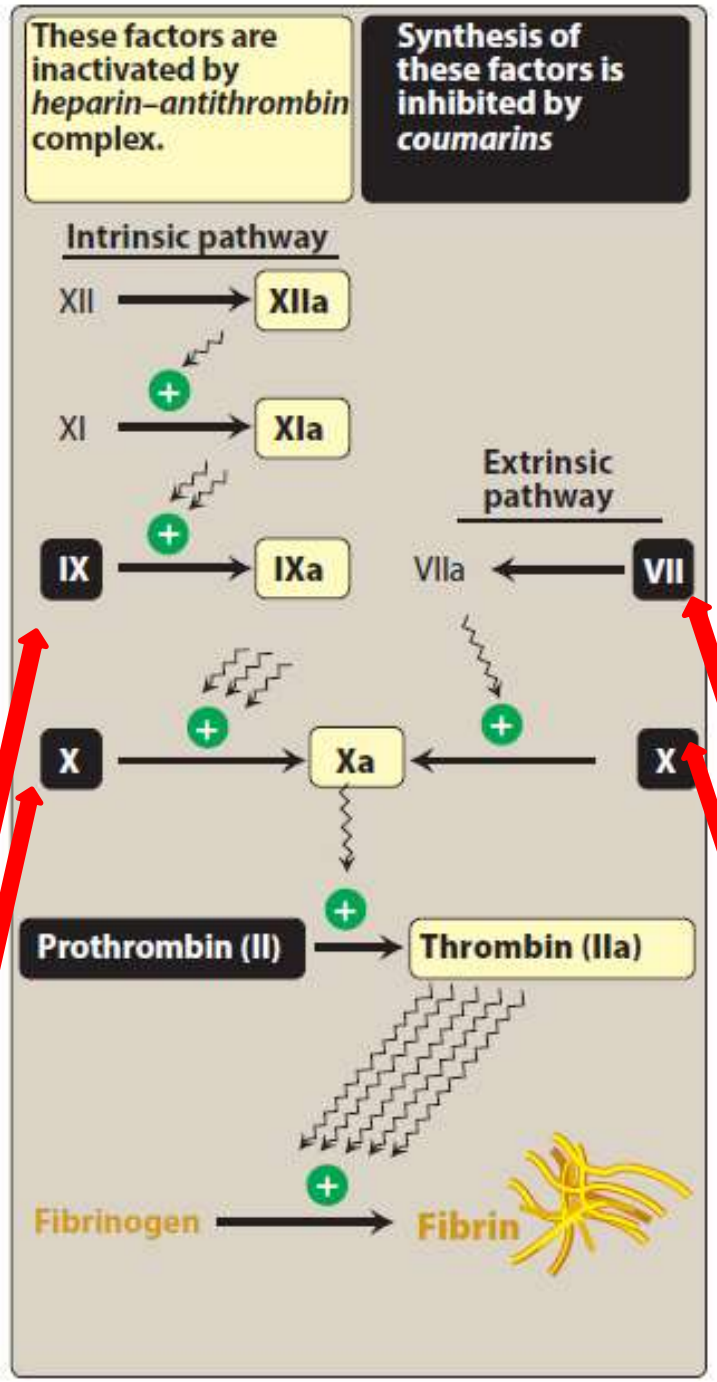
Coagulants

Vitamin K	**K1 (from plants fat-soluble):**	**Phytonadione (Phylloquinone)**
	K3 (synthetic)	
	—Fat-soluble:	Menadione, Acetomenaphthone
	—Water-soluble:	Menadione sod. Bisulfite, Menadione, sod. Diphosphate
Miscellaneous	Fibrinogen (human), Antihaemophilic factor, Desmopressin, Adrenochrome monosemicarbazone, Rutin, Ethamsylate	

Vitamin K

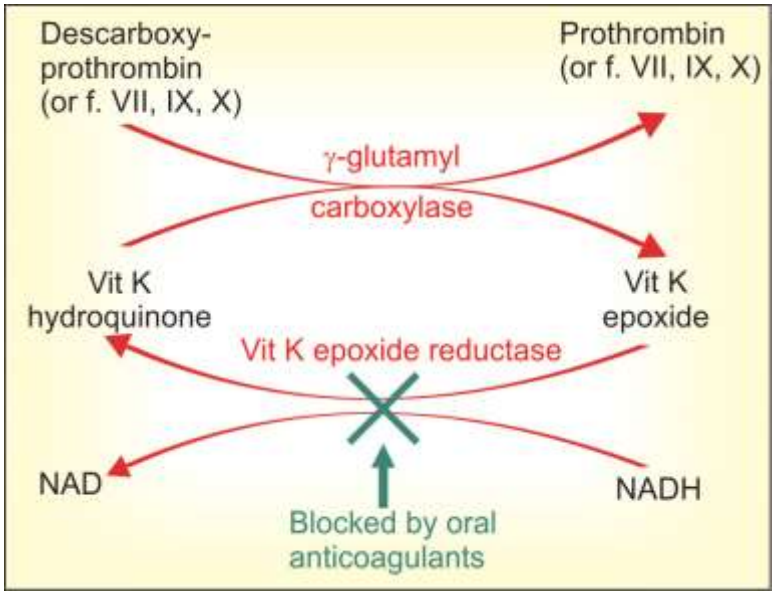
- Vit. K is a fat-soluble dietary principle required for the synthesis of clotting factors.
- **Daily requirement:** Vit. K2 produced by colonic bacteria and 3–10 µg/day external source may be sufficient. The total requirement of Vit. K for an adult has been estimated to be 50–100 µg/day.

tamin K



Inactive form

Functional form



Vit. K

Vit. K

Vitamin K

Action:

Vit K acts as a cofactor at a late stage in the synthesis by liver of coagulation proteins - prothrombin, factors VII, IX and X.

Use: The only use of vit K is in prophylaxis and treatment of bleeding due to deficiency of clotting factors.

Coagulants

Plasma fractions

- Deficiencies in plasma coagulation factors can cause bleeding.
- **Factor VIII deficiency (classic hemophilia or hemophilia A) and factor IX deficiency (Christmas disease, or hemophilia B)** account for most of the heritable coagulation defects. Concentrated plasma fractions and recombinant protein preparations are available for the treatment of these deficiencies.

Coagulants

Desmopressin acetate

- Desmopressin (DDAVP) stimulates the release of *von **Willebrand factor*** **(vWF)** from the **Weibel–Palade bodies** of **endothelial cells**, thereby increasing the levels of vWF (as well as coagulant factor VIII) 3 to 5-fold.
- It also used to promote the release of von ***Willebrand factor*** in patients with **coagulation disorders** such as ***von Willebrand*** disease, **mild hemophilia A** and **thrombocytopenia**.

Coagulants

Cryoprecipitate

- Cryoprecipitate is a plasma protein fraction obtainable from whole blood. It is used to treat deficiencies or qualitative abnormalities of fibrinogen.
- It may also be used for patients with factor VIII deficiency and von Willebrand disease