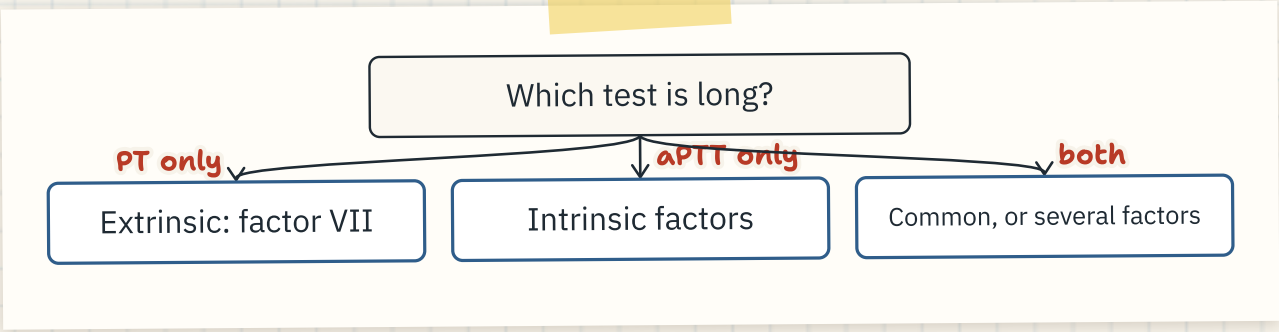
PT vs aPTT: the cascade

Which test does each factor prolong?



Step by step

1. PT adds tissue factor; aPTT adds phospholipid and a contact activator
2. Long PT, normal aPTT: factor VII
3. Long aPTT, normal PT: intrinsic, unless heparin or an inhibitor
4. Both long: common pathway or several factors
5. Warfarin: PT/INR. Unfractionated heparin: aPTT

Test	Pathways	Factors
PT	Extrinsic + common	VII; X, V, II, fibrinogen
aPTT	Intrinsic + common	XII, XI, IX, VIII; X, V, II, fibrinogen
Neither	Cross-linking	XIII

Which test covers which factors

Rule of thumb

Vitamin K clotting factors: II, VII, IX, X

Factor VII has the shortest half-life, so PT first

XII, kininogen, prekallikrein: long aPTT, no bleeding

Exam traps

- A long aPTT does not always mean bleeding.
- Haemophilia bleeds although the extrinsic pathway is intact: VIII and IX amplify the clot.
- Factor XIII deficiency leaves PT and aPTT normal.

Coagulation cascade: PT vs aPTT, pathway by pathway

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/haematology-oncology/coagulation-cascade-pt-aptt

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