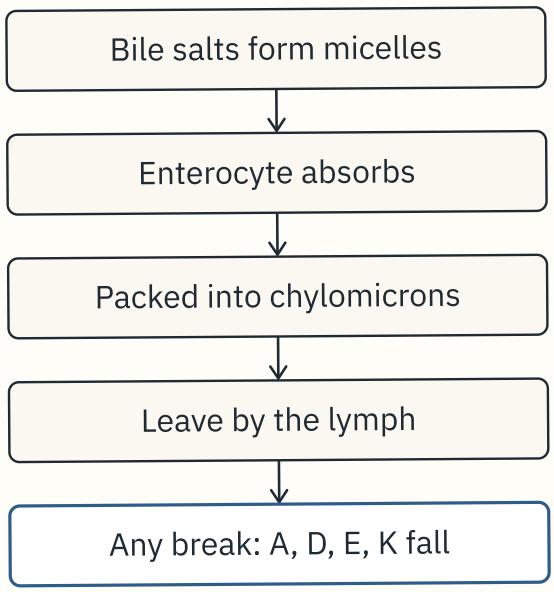
Fat-soluble vitamins A, D, E, K

Job, deficiency, excess, and one shared route



Vitamin	Job	Deficiency	Excess
A	Rhodopsin, epithelia	Night blindness, Bitot spots	Raised ICP, liver damage
D	Calcitriol: Ca and phosphate	Rickets, osteomalacia	Hypercalcaemia, stones
E	Lipid antioxidant	Haemolysis, ataxia	Bleeding risk
K	Carboxylates II, VII, IX, X, C, S	Bleeding, long PT	Almost never toxic

One job each

Rule of thumb

A for vision and epithelia, D for calcium

E protects membranes, K carboxylates clotting factors

Break the bile and chylomicron route: all four fall

Exam traps

- Fat malabsorption lowers all four together; a blocked bile duct largely spares the water-soluble vitamins.
- A, D and E are stored, so excess lingers; vitamin K stores are small.
- Newborns have low vitamin K stores, so a newborn injection is given.

Fat-soluble vitamins A, D, E and K: functions, deficiency, toxicity

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/vitamins-nutrition/fat-soluble-vitamins-a-d-e-k

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