





Vitamins-Drugs Interactions

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INTRODUCTION

Definition and classification



Definition

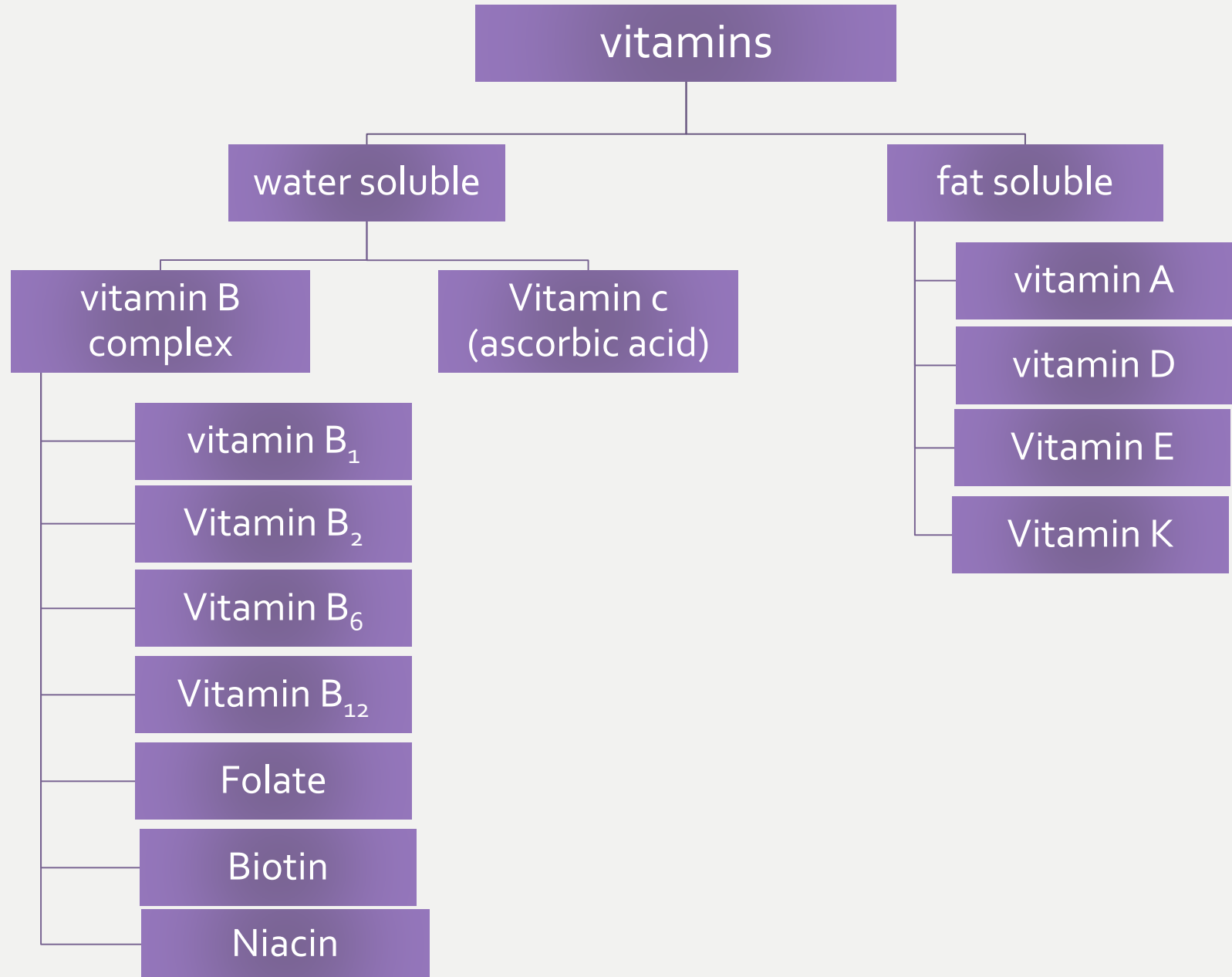
- Organic compounds
- Required in small amounts with specific function(s).
- Follow specific criteria:

- *Can't be synthesized by the human body*
- *External source*

Vitamin B
complex

Vitamin K

Classification



TYPES AND LEVELS OF DRUG INTERACTIONS



Types of drug interactions

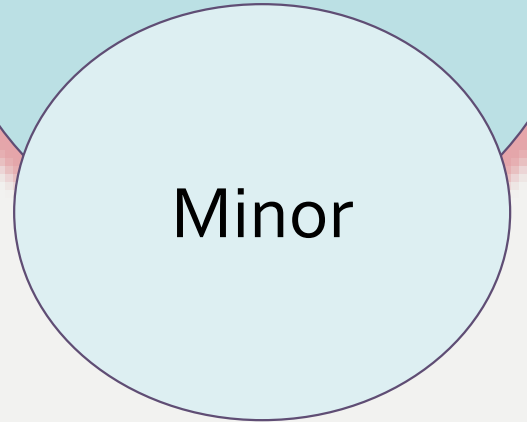
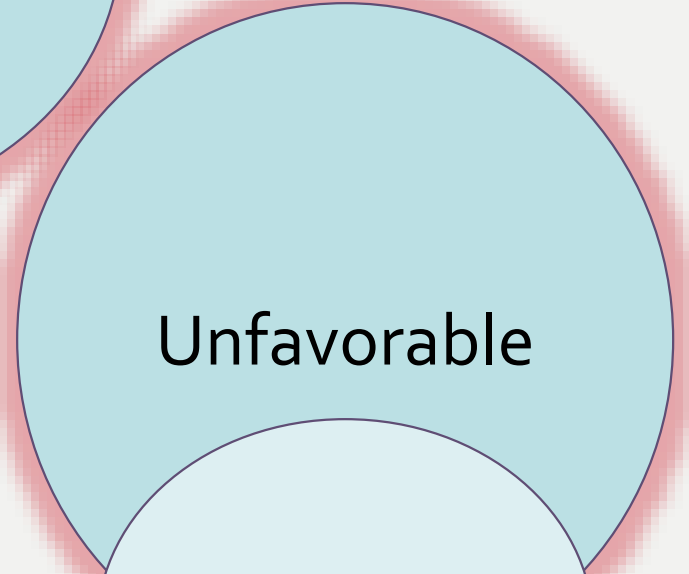
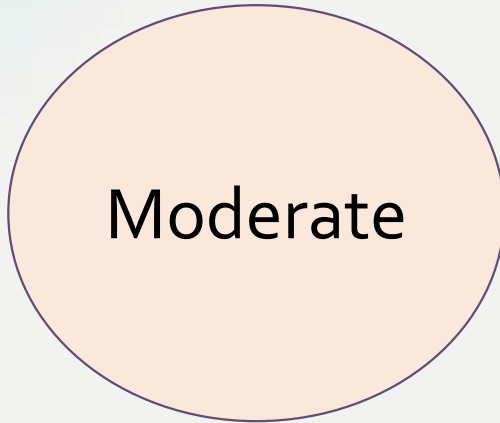
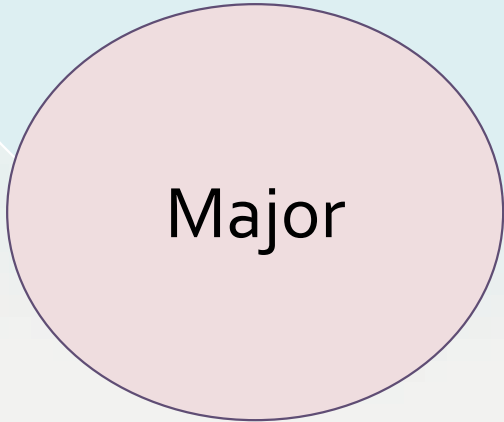
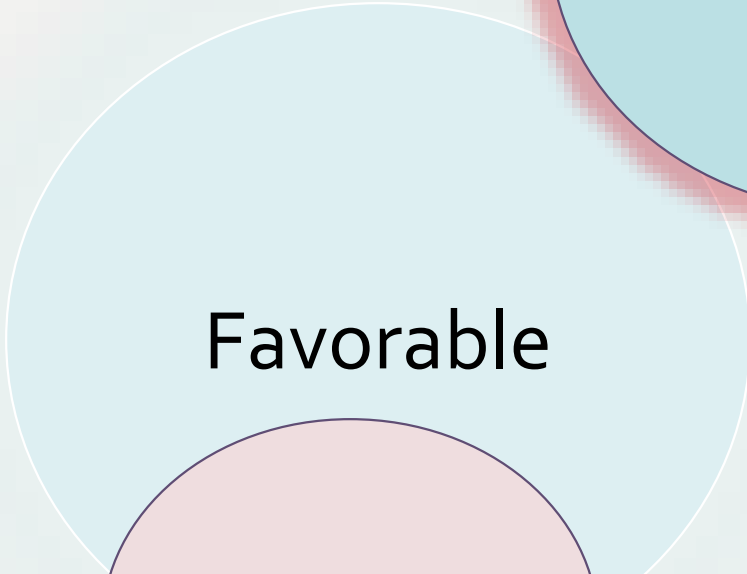
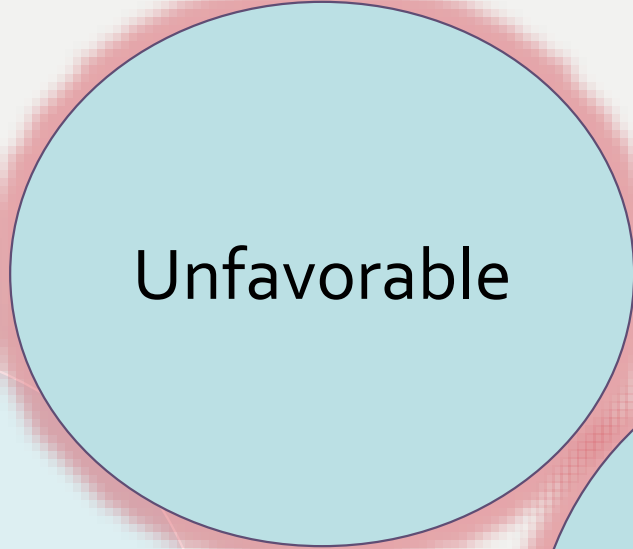
pharmacodynamic

- At the receptor

pharmacokinetic

- Absorption
- Distribution
- Excretion
- Metabolism

CYP₄₅₀



VITAMINS-DRUGS INTERACTION



Vitamin A

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	Major	Tetracyclines	may increase the risk of pseudotumor cerebri both may increase intracranial pressure
	Moderate	Retinoids	May lead to additive toxicity and hypervitaminosis A
		Warfarin	May increase coagulability
		Food (Liver)	Contraindicated in pregnancy – teratogenic

Vitamin D

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	Major	Other forms of vitamin D	Narrow therapeutic index May cause hypervitaminosis
	Moderate	Magnesium containing products	cause hypermagnesemia specially in dialysis patients which may cause adynamic bone disorder
		Thiazide diuretics /calcium supplements	May cause hypercalcemia
		Bile salt sequestrants (e.g. cholestyramine)	May decrease absorption of oral vitamin D
		CYP450 inducers/inhibitors	Alter the enzyme level
		digoxin	Hypercalcemia may occur leading to arrhythmia

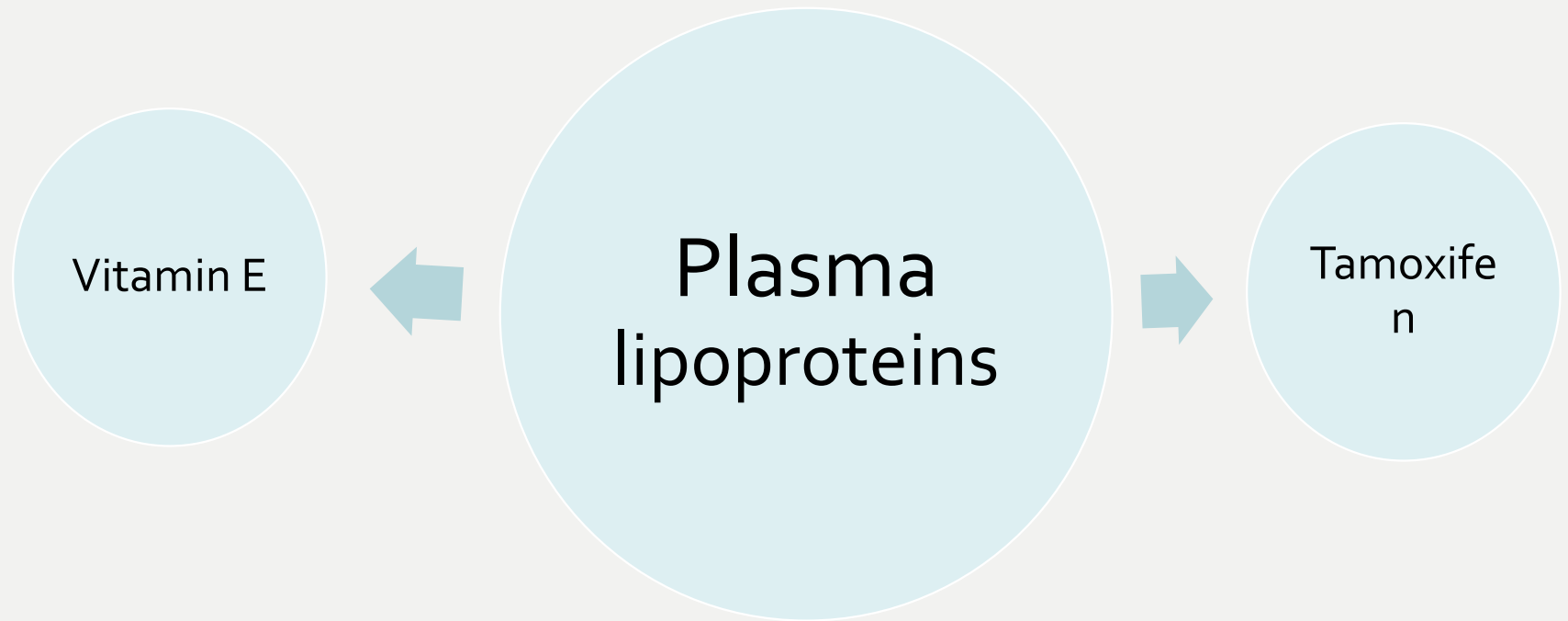
Vitamin D (cont.)



Vitamin E

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	Major	Tipranavir	May cause serious bleeding
	moderate	Chemo/radiotherapy	Questionable interaction
		Anticoagulants/anti platelet	Potentiated by vitamin E
		Iron supplementation in anemic patients	Reduce the response to iron

Vitamin E (cont.)



Vitamin K

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	moderate	Warfarin	Vitamin K may antagonize the hypoprothrombinemic effect of oral anticoagulants
		Bile salt sequestrants (e.g. cholestyramine)	May decrease absorption of oral vitamin K supplements



Vitamin B₁

Biotin

Vitamin B₂

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	Major	Doxorubicin	Deactivated by high doses of riboflavins

Vitamin B₆

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	moderate	Phenytoin/ phenobarbital	Large doses of pyridoxine (greater than 200 mg/day) may decrease the concentration of phenytoin
		Levodopa	pyridoxine doses of 5 mg/day or more antagonize the effects of levodopa.

Vitamin B₆ (cont.)



Niacin

Interaction		Comments	
Type	Drug interacting		
Unfavorable	Major	Statins	Severe myopathy and rhabdomyolysis have been reported with concomitant use of statins and niacin
		Leflunomide	Severe hepatotoxicity
	Moderate	Alcohol	Ethanol can exacerbate the cutaneous flushing that is a common side effect of niacin.
		Antidiabetics	May interfere with the control of euglycemic state
		Naltrexone	May induce hepatotoxicity
		Zidovudine	May potentiate myopathy and rhabdomyositis

Vitamin B₁₂

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	Major	Hypokalemic drugs	Coadministration of Vit B ₁₂ with any drug causing hypokalemia during treatment of pernicious anemia may be fatal
	Moderate	Chloramphenicol	Reduce efficacy of Vit B ₁₂ supplement when treating patients with pernicious anemia
		Aluminum containing drugs	most of Vit B ₁₂ supplements contain aluminum.

Folate

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	Major	Capecitabine / 5FU	increased toxicity should be considered. Deaths from severe enterocolitis, diarrhea, and dehydration have been reported
	Moderate	Anticonvulsants	Coadministration with folate therapy may reduce the anticonvulsant effects of those drugs.
		pancreatin	interfere with the gastrointestinal absorption of folic acid and iron.
		Methotrexate	reduces pharmacological effects

Vitamin C

	Interaction		Comments
	Type	Drug interacting	
Unfavorable	Moderate	Amphetamines	Vitamin C decreases absorption
		Deferoxamine	When administered with high doses of vitamin C may lead to high incidence of cardiotoxicity and cataract

Thank You