

Drug Nutrient Depletions/Interactions Chart

Prescription drug listings are not all-inclusive; drugs listed are common examples. For support of overall health in any individual, the appropriate comprehensive age and gender specific multiple formula, flax oil, and multiple antioxidant formula are recommended. However, for a specific potential deficiency, individuals may add single ingredient supplements to assure repletion. It is important to consider the quality and bioavailability of vitamin and mineral supplements used for these purposes.

Top drug categories by overall number of prescriptions	Depletions	Interactions	Top drug categories by overall number of prescriptions	Depletions	Interactions
ACE inhibitors [Lotensin® (captopril), Capoten®, Vasotec®, Prinivil®, Zestril®]	Zinc. ^{1,3} Sodium. ^{4,6}	Potassium. May increase potassium levels- especially in combination with potassium-sparing diuretics (<i>spironolactone</i>) ⁹ or salt-substitutes ⁸ or potassium supplements. ¹⁰ Cayenne (<i>Capsicum frutescens</i>) - Coughing reported when cayenne (<i>Capsicum frutescens</i>) cream was applied in conjunction with the use of ace inhibitors. ¹¹ Iron. Iron supplementation inhibits cough associated with ACE inhibitors. ¹²⁻¹³	Digoxin™ (lanoxin)	Calcium, magnesium, phosphorus, vitamin B1, ¹ potassium. ²	Hawthorn may enhance the activity of digoxin in a positive manner. ³ Overuse or misuse of senna (or other laxatives with similar action) can cause potassium loss leading to increased toxicity of cardiac glycosides such as digoxin. ⁴ Licorice may potentiate the toxicity of cardiac glycosides such as digoxin due to a reduction of potassium in the blood. ⁵ However, deglycyrrhized licorice does not have this adverse effect associated with its use. ⁶ One case study reported elevated serum levels of digoxin in a person taking Siberian ginseng (eleuthero). ⁷ A recent study investigated the use of St. John's wort with digoxin. This study indicated the concomitant use of St. John's wort and digoxin resulted in reduced serum (blood) levels of digoxin. ⁷
Anti-diabetics [Glucophage® (metformin), Actos®, Avandia® (pioglitazone)]	Vitamin B12. ^{1,5} Folic Acid. ^{1,6} Coenzyme Q10. ⁷	DHEA Dehydroepiandrosterone. Metformin has been shown to increase blood levels of DHEA. ^{8,9}	Diuretics		
Anti-infectives [Penicillins, aminoglycosides, sulfonamides, erythromycins] All class or multi-class effects	Gastrointestinal flora – Diarrhea and altered intestinal flora is a well-documented side effect of antibiotic use. ¹⁻² Recent studies have suggested a benefit to probiotic supplementation during antibiotic use in both adults and children. ¹⁻⁴	Calcium, iron, magnesium, and zinc may prevent the absorption of tetracycline, ciproflaxin, and other antibiotics. ^{5,6}	a. Potassium-depleting diuretics: [Loop diuretics such as Lasix® (furosemide) and Thiazide diuretics such as HydroFIURIL® (hydrochlorothiazide)]	a. Magnesium, ¹ potassium, ² zinc, ³ thiamine, ^{4,5} and vitamins B6, and C. ⁶⁻⁷	
a. Aminoglycosides [Garamycin® (gentamycin) and Tobrex® (tobramycin)]	a. Calcium, magnesium, potassium, and vitamin K. ⁷⁻¹⁰	a. Potassium Chloride. Concomitant administration of gentamycin with potassium chloride may lower the absorption of potassium chloride. ¹¹	b. Potassium-sparing diuretics: [amiloride, Aldactone® (spironolactone), Dytac® (triamterene)]	b. Folic acid, ^{1,2} iron, ³ and vitamin C. ⁴	b. Magnesium tends to be preserved. ¹⁰
b. Cephalosporins [Ceclor® (cefaclor), Duricef® (cefadroxil), and Keflex® (cephriaxone).]	b. Vitamin K. ¹²	b. Antacids. Magnesium- and aluminum – containing antacids have been shown to interfere with azithromycin absorption. ¹³⁻¹⁴ Avoid this by taking azithromycin two hours before or after any aluminum/magnesium-containing products. ¹⁵ Studies show the magnesium typically found in supplements affects absorption of azithromycin.	Estrogens (hormone replacement therapy) [Estrace®, Premarin®, Prempro®, Alora®, Climara®]	Vitamin B6. ¹²	Calcium, vitamin D – may increase the absorption of hormone replacements. ^{3,4} Calcium and vitamin D supplementation are recommended in conjunction with estrogen-therapy to increase bone mineral density. ^{5,6} Ipriflavone. This synthetic isoflavone has been shown to enhance calcium uptake and inhibit bone loss in combination with hormone replacement therapy. ⁷⁻⁹ Zinc and Magnesium. Estrogen therapy may reduce the excretion of these trace minerals. ¹⁰⁻¹¹ Red clover (<i>Trifolium pratense</i>) extracts and soy isoflavones. These herbal products have been used as an alternate to estrogen therapy but may interfere with absorption. ¹²⁻¹³ St. John's Wort. May alter estrogen/progesterone metabolism. ¹⁴ Grapefruit Juice. Grapefruit and grapefruit juice ingestion increases estradiol (estrogen hormone) levels so potentially should be avoided. ^{15,16} Caffeine. Hormone replacements may inhibit the metabolism and/or clearance of caffeine, thereby increasing its stimulating effects. ¹⁷
c. Penicillins [Amoxil® (amoxicillin), Wycillin® (penicillin), and Ticar® (ticarcillin).]		c. Potassium Chloride. Concomitant administration of penicillin with potassium chloride may lower the absorption of potassium chloride. ¹⁵			
d. Quinolones [Levaquin® (levofloxacin), Cipro® (ciprofloxacin), and Avelox® (moxifloxacin).]		d. Antacids. Magnesium- and aluminum – containing antacids have been shown to interfere with quinolones. ¹⁻² Avoid this by taking the quinolone product two-four hours before or after any aluminum/magnesium-containing products. ^{14,16-17}			
e. Tetracyclines [Tetracyn® (tetracycline), Periostat® (doxycycline).]		e. Antacids. Magnesium- and aluminum – containing antacids have been shown to interfere with tetracyclines. ¹⁻² Avoid this by taking the tetracycline product two-four hours before or after any aluminum/magnesium-containing products. ¹⁸			
Anti-ulcerants			NSAIDs (non-steroidal anti-inflammatory drugs) [Etodolac®, ibuprofen, indomethacin, nabumetone, naproxen, oxaprozin]	Folic acid. ^{1,2} Iron. ³ Vitamin C. ⁴	Potassium, Sodium. Cox-2 inhibitors have been shown to cause sodium and potassium retention in salt-depleted subjects. Patients on salt-restricted diets should be monitored carefully. ^{5,6} Lithium. Cox-2 inhibitors can cause an increase in lithium blood levels and undesirable side effects. ⁷⁻⁸ Patients should be monitored carefully.
a. H-2 blockers [Zantac® (ranitidine), Tagamet® (cimetidine), Axid®, Pepsid®]	a. Vitamin B12, vitamin D, calcium, iron, zinc, folic acid, and inhibition of the body to digest protein (amino acids). ¹⁻³	a. Magnesium. In healthy volunteers, a magnesium hydroxide/aluminum hydroxide antacid, taken with ranitidine, cimetidine and famotidine decreased absorption of these drugs by 20% to 25%. ⁷ To avoid this interaction, H2-receptor antagonists should not be taken at the same time as antacids. ⁸			
b. Proton pump inhibitors [Prilosec® (omeprazole), Prevacid® (lansoprazole)]	b. Vitamin B12. ^{1,4,6}		Oral contraceptives [Ortho-Cyclen®, Ortho-Novum®, Tri-Norinyl®, Triphasil®, Ovral®, Lo-Ovral®, Demulen®.]	Folic Acid. ^{1,2} Vitamins B1, B2, B3, B6, B12, C and zinc. ^{3,6} Trace Minerals. ⁷⁻⁹ Selenium. ¹⁰	St. John's Wort. Concomitant use of St. John's wort and oral contraceptives may reduce the effectiveness of the contraceptives and cause breakthrough bleeding. ^{11,12} Serum iron and copper. Oral contraceptive use has been associated with an increase in iron ^{13,14} and copper levels. ⁸
Benzodiazepines [Valium® (diazepam), Tranxene® (clorazepate dipotassium), Ativan® (lorazepam), Klonopin®, Xanax® (alprazolam)]	Melatonin. ¹	Kava. Due to the similarity of effects, it is usually recommended to avoid taking kava with benzodiazepines unless otherwise directed by a licensed health care professional. ^{2,3} St. John's wort. Concomitant administration of St. John's wort with alprazolam decreased the blood levels of alprazolam and should be avoided unless otherwise directed by a licensed health care professional. ⁴			
Beta-blockers [Inderal®, (propranolol), Tenormin®, Lopressor®, Betapace®].	Coenzyme Q10. ¹ Melatonin. ^{2,4}	Potassium. Concomitant use of certain beta-blockers may increase potassium levels. ^{5,6} Pepper (Piper nigrum, Piper longum). In a single-dose human study, piperine, a chemical found in black pepper and long pepper, was reported to increase blood levels of propranolol, which could increase the activity and risk of the drug's side effects. Antacids. One study showed a reduction in absorption of sotalol (Betapace®) when taken concomitantly with an aluminum oxide/magnesium hydroxide antacid. This interaction can be avoided by taking the medications 2 hours apart. ⁸ Magnesium. Magnesium has been effectively used to treat heart arrhythmias that have resulted from administration of sotalol (Betapace®). ^{9,10}	SSRIs (selective serotonin re-uptake inhibitors) [Prozac® (fluoxetine), Zoloff®, Paxil®]	Sodium. ^{1,2} Folic Acid. ^{3,4} Melatonin. ⁵	St. John's Wort. Concurrent use of St. John's Wort with many drugs including SSRIs may increase or decrease the effects of those drugs. People taking an SSRI drug may be at risk for mild serotonin syndrome and should avoid St. John's wort unless directed by a licensed health care professional. ^{6,9} 5 HTP and L-tryptophan. 5HTP and L-tryptophan are converted to serotonin in the brain and taking either one of these as supplements in combination with an SSRI or MAOI may cause headaches, sweating, dizziness, agitation, restlessness, nausea, vomiting, and other symptoms sometimes known as "serotonin syndrome". ^{8,11} While these supplements should be avoided while on SSRIs or MAOIs, it is not believed that L-tryptophan-rich foods are not believed to cause any problems during fluoxetine use. ¹¹
Bronchodilators (beta 2 adrenergic drugs) [Abuterol® Serevent®(salmeterol)]	Potassium. ^{1,3}	No significant interactions have been documented.	Statins/Antilipemics [Cholesterol reducers such as Mevacor® (lovastatin), Pravachol® (pravastatin), Zocor® (simvastatin).]	Coenzyme Q10 - The depletion of this nutrient by the widely used statin drugs is well-documented. ^{1,2} and is easily prevented with supplemental CoQ10. ³	Niacin. Although statins in combination with high doses of niacin have been shown to increase the risk of myopathy, ⁴ current research indicates that niacin significantly improves lipoprotein abnormalities ⁵ and is safe and effective in combination with statins for improving lipid levels and decreasing coronary risk. ^{6,7} Red Yeast Rice contains a naturally-occurring statin (lovastatin) and should not be taken concomitantly with a statin unless directed by a licensed health care professional. ⁸ Vitamin A. Long-term use may increase blood vitamin A levels. ⁹
Calcium channel blockers [Adalat®, Calan® (verapamil), Cardizem®, Norvasc®, Plendil®, Procardia®]	Potassium. ¹	Calcium. High level calcium supplementation may reverse the blood pressure-lowering actions of some calcium channel blocker drugs. ^{2,3} Vitamin D. Vitamin D may interfere with the effectiveness of verapamil. ⁴ St. John's Wort. A recent study showed that St. John's wort decreased the bioavailability of R- and S-verapamil. ⁵ Fruit Juices. Ingestion of grapefruit, grapefruit juice and grapefruit products has been shown to increase the adverse effects of calcium channel blockers or similar drugs. ^{6,8}	Synthetic thyroid [Levothroid® (levothyroxmesodium), Levoxy®, Thyrolar®, Synthroid®]	Calcium. ¹⁻⁴	Iron supplements and soy products taken at the same time as thyroid hormone replacement may interfere with absorption. ⁵⁻⁸ Thyroid hormone absorption is increased when taken on an empty stomach. Thyroid hormones should be taken an hour before eating, at the same time every day. ⁹



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