

Correcting Pharmaceutical-Induced Nutritional Deficiencies

While pharmaceuticals have lifesaving benefits, many of these medications can have serious side effects, ranging from cardiac arrest to suicide.

Many suffer from an almost completely ignored epidemic of drug-induced nutrient depletion that can cause grave health problems. A large number of pharmaceutical side effects are the direct result of these drug-induced nutrient deficiencies. In other words, a pharmaceutical medicine "robs" you of one or more nutrients or other helpful substances, and this lack of nutrients causes additional side effects. In a sense, the medicine acts as an "anti-vitamin pill," taking away the substances you need for good health. Thus, nutrient depletion caused by the medicines, rather than the medicines themselves, is often directly responsible for many of the side effects associated with pharmaceuticals.

Among the most common medicines linked to nutrient depletion are oral contraceptives, cholesterol-lowering statins, and antibiotics. These and many other over-the-counter and prescription medications can interfere with your body's ability to digest, absorb, synthesize, or make use of certain nutrients, leading to nutrient deficiency-related "side effects."

The only solution to averting pharmaceutical-induced nutritional deficiencies is to replace the depleted nutrients through nutritional supplements, dietary sources, or both. This chart summarizes some commonly prescribed medicines, along with the vitamins, minerals, and other nutraceuticals they are most likely to deplete, as well as which Solal products should be used at the same time as pharmaceutical medicines, to prevent these depletions.

Why Use Solal products to correct nutrient depletions?

Corrective dosages, not RDA amounts:

- ▶ To correct passive deficiencies caused by lack of dietary intake, merely taking RDA (recommended dietary allowance) amounts may be adequate. HOWEVER, in active deficiencies, where a medicine actively and continuously flushes nutrients from the body, higher-than-RDA-doses are required to correct deficiencies of nutrients being actively flushed from the body. SOLAL products supply optimal higher-than-RDA, scientifically researched doses of vitamins, minerals and nutraceuticals.
- ▶ SOLAL does not compromise on doses of expensive ingredients, eg Co-enzyme Q10. The doses in SOLAL products match the doses shown to be effective in scientific studies.

Safest forms:

- ▶ At low doses, the form of a vitamin or mineral is unlikely to make a difference. However at higher doses the form makes a significant difference.
- ▶ An example is Vitamin B12. There are 2 forms, *cyanocobalamin* and *methylcobalamin*. At 1-2ug RDA doses the cyanocobalamin form can be used. However the optimal corrective amount of 1000-2000ug of cyanocobalamin metabolises to cobalamin and cyanide, which blocks enzymatic functions. The methylcobalamin forms cobalamin with no cyanide, and donates a methyl group which is useful for healthy liver function. Therefore SOLAL uses *methylcobalamin* instead of cyanocobalamin.
- ▶ There are many other examples such as that SOLAL only uses chelated amino acid forms of minerals, which are not only more effective, but do not cause the safety risks (such as slightly elevated cancer risk) associated with inorganic mineral salt forms of minerals.

Most researched and effective forms and doses:

- ▶ SOLAL products contain doses, extracts and forms proven effective in studies.

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Consequences of nutrient depletions

Beta-Carotene

This nutrient is converted to vitamin A by the body. Therefore deficiency symptoms are the same as those of vitamin A. The earliest symptom is reduced night vision. Prolonged deficiency leads to more advanced changes in eye tissue. Other potential signs of mild to moderate deficiency include rough, dry skin, loss of appetite, loss of hair luster, brittle nails, joint pain, and possibly increased susceptibility to infection.

Biotin

Low levels of biotin are associated with changes in skin color, inflammation of the skin, hair loss, muscle pain, anemia, and loss of appetite, depression, insomnia, and elevated levels of cholesterol.

Calcium

Osteoporosis (bone loss) is the primary disease associated with long-term calcium deficiency. It may be associated with bone pain and spinal deformity. Depleted levels can also cause muscle cramps, irregular heartbeat, and depression.

Carnitine (L-Carnitine)

Deficiency is associated with anemia, fatigue, increased blood levels of ammonia, lethargy, unexplained stupor, and heart irregularities.

Co-enzyme Q10

A deficiency of the antioxidant coenzyme Q10 may be associated with long-term conditions including heart disease and high blood pressure. Symptoms of deficiency include gingivitis, and weakened immune function.

Copper

Signs and symptoms of long-term depletion of copper include anemia, changes in the structure and appearance of hair, heart damage, growth retardation, impaired bone formation, osteoporosis (bone loss), and emphysema (lung disease).

Folic Acid

Low levels of folic acid have been linked to anemia, elevated homocysteine, heart disease, increased cancer risk, and birth defects.

Iron

Depleted levels of iron may lead to anemia and weakened immune function. In the event of anemia, symptoms include dizziness, fatigue, shortness of breath, pale skin color, and possibly irregular heartbeat.

Lactobacillus

Reducing the number of probiotic organisms in the gastrointestinal tract may decrease the body's ability to resist infections and diseases. Symptoms of deficiency include gas, abdominal distress, diarrhea, immune complaints, allergies, aggravation of auto-immune diseases, and yeast infections.

Magnesium

Magnesium deficiency affects calcium and vitamin D levels in the body and may be associated with muscle cramps, heart irregularities, insomnia, high blood pressure, diabetes, and osteoporosis (bone loss).

Melatonin

Reduced levels of melatonin in the body have been associated with sleep disturbances and accelerated brain ageing (through oxidative damage).

Potassium

Symptoms of potassium deficiency include loss of appetite, nausea, drowsiness, feelings of apprehension, excessive thirst, irrational behavior, fatigue, muscle pain and weakness (usually of the lower limbs); severe cases may lead to irregular heartbeat.

Protein

Protein deficiencies are characterized by weakened immune status, including increased susceptibility to infection, impaired wound healing, muscle and weight loss, growth retardation, and deterioration in skin and hair condition.

Selenium

Selenium deficiency may be associated with muscular, digestive, and heart disorders; long-term deficiency may be associated with increased risk of developing certain chronic illnesses such as cancer, diabetes, or liver disease.

Vitamin A (Retinol)

The earliest symptom of deficiency of this nutrient is reduced night vision. Prolonged deficiency leads to more advanced changes in eye tissue. Other potential signs of mild to moderate deficiency include rough, dry skin, loss of appetite, loss of hair luster, brittle nails, joint pain, and possibly increased susceptibility to infection.

Vitamin B1 (Thiamine)

Symptoms of depleted levels of thiamine include weakness, fatigue, anorexia, constipation, memory loss, confusion, and depression. Deficiency may lead to beriberi, a condition characterized by inflammation of nerves, heart irregularities, and fluid retention.

Vitamin B2 (Riboflavin)

Symptoms of vitamin B 2 deficiency may include cracks at the corners of the mouth, inflammation of the skin, growth retardation, and impaired wound healing.

Vitamin B3 (Niacin or Niacinamide)

Because this nutrient plays a key role in many metabolic processes, low levels may impair the breakdown and use of starches, fats, and proteins. Symptoms of deficiency may occur within 1 to 2 months. Severely low levels of niacin or niacinamide cause pellagra, a condition characterized by inflammation of the skin, mental depression, abdominal pain, and diarrhea.

Vitamin B6 (Pyridoxine)

Symptoms of vitamin B 6 deficiency may include weakness, nervousness, insomnia, mental confusion, irritability, and anemia. Long-term low levels of this nutrient may also increase the risk of heart disease as well as colon and prostate cancers.

Vitamin B12

It can take years to develop complications associated with long-term depletion of this nutrient. Irritability, weakness, numbness, anemia, loss of appetite, headache, personality changes, and confusion are some of the signs and symptoms associated with vitamin B 12 depletion. Low levels of this vitamin may also be associated with an increased risk of colon cancer, heart disease, brain disorders, and birth defects.

Vitamin C

Vitamin C deficiency may include bruising, fever, anemia, emotional changes, swollen and bleeding gums, fatigue, lethargy, jaundice (yellowing of the skin and eyes), increased susceptibility to infections, slow wound healing, and swelling of the lower limbs. Very rarely, severe deficiency leads to scurvy, a disorder that affects muscles and bones and is potentially fatal.

Vitamin D

Vitamin D deficiency leads to abnormal bone formation (rickets) in children and softening of the bones (osteomalacia) in adults. Vitamin D deficiency interferes with calcium absorption, leading to deficiency of that nutrient with all of the associated symptoms (such as increased risk of fractures, osteoporosis (bone loss), and muscle weakness). Vitamin D deficiency is also associated with increased risk of cancer (especially breast cancer), depression and depression.

Vitamin E

Vitamin E deficiency negatively affects muscle tissue, red blood cells, nervous, and the reproductive system. Over the long-term, depleted levels of this nutrient may also be associated with cancer, heart disease, and altered immune function.

Vitamin K

The major symptom of vitamin K deficiency is an inability of the blood to clot properly, which may lead to excessive bleeding and a tendency to bruise easily. A deficiency of this vitamin can also accelerate hardening of the arteries.

Zinc

Signs and symptoms of zinc deficiency include loss of appetite or sense of taste, impaired immunity, growth retardation, skin changes, reduced hormonal production, decreased sex drive and increased susceptibility to infection.

Correcting Pharmaceutical-Induced Nutritional Deficiencies

Pharmaceutical Medicine	Deficiency caused	Solal product to correct deficiency
ACE inhibitors (eg Benazepril, Captopril, Enalapril, Fosinopril, Lisinopril, Moexipril, Perindopril, Erbuprine, Quinapril, Ramipril, Spirapril, Trandolapril)	Zinc	Multi-mineral or ACES-Plus Anti-oxidant
Alendronate (including all bisphosphonates)	Calcium	Calcium Glycinate with vitamin D3
Antacids (Aluminium salts)	Copper & Zinc Magnesium & Calcium Iron	Multi Mineral Bio-Calmag Iron-Plus (take iron and calcium 3 or more hours apart)
Antacids (Calcium salts)	Copper & Zinc Magnesium Iron	Multi Mineral Magnesium Glycinate Iron-Plus (take iron and calcium 3 or more hours apart)
Antacids (Magnesium salts)	Copper & Zinc Calcium Iron	Multi Mineral Calcium Glycinate with vitamin D3 Iron-Plus (take iron and calcium 3 or more hours apart)
Antibiotics: AMINOGLYCOSIDES (eg Gentamicin, Neomycin, Tobramycin)	Calcium & Magnesium Iron Lactobacillus (Probiotics) Vitamin K Vitamin A & B12	Bio-Calmag Iron-Plus (take iron and calcium 3 or more hours apart) Enzyme Prebiotic Probiotic Vitamin K1 Plus 3-Per-Day
Antibiotics: CEPHALOSPORINS (eg Cefaclor, Cefprozil, Cefuroxime, Loracarbef) -also MACROLIDES (Erythromycin, Azithromycin, Clarithromycin) -also PENICILLINS (eg Amoxicillin, Ampicillin, Flucloxacillin, Pivampicillin) -also QUINOLONES (eg Ciprofloxacin, Gatifloxacin, Levofloxacin, Lomefloxacin, Moxifloxacin, Nalidixic acid, Norfloxacin, Ofloxacin, Sparfloxacin, Trovafloxacin) -also SULFA DRUGS (eg Co-trimoxazole, Sulfamethoxazole, Trimethoprim) -also TETRACYCLINES (Tetracycline, Doxycycline, Minocycline)	Lactobacillus (Probiotics)	Enzyme Prebiotic Probiotic
Antibiotic: ISONIAZID (anti-TB medication)	Vitamin B2, B12, folic acid, biotin	Super Mega-B
Anti-inflammatories: NSAIDs (eg diclofenac, etodolac, fenoprofen, ibuprofen, indomethacin, ketoprofen, mefenamic acid, melofenamate, nabumetone, naproxen, oxaprozin, piroxicam, sulindac, tolmetin)	Vitamin K	Vitamin K1 Plus
Anti-retrovirals: REVERSE TRANSCRIPTASE INHIBITORS [eg Lamivudine (3TC), Didanosine (ddI), Zalcitabine (ddC), Stavudine (d4T), Ribavirin, Zidovudine (AZT), Abacavir (ABC), Emtricitabine (FTC), Tenofovir, Adefovir, Efavirenz, Nevirapine, Delavirdine]	Calcium & Vitamin D Lactobacillus (Probiotics) Vitamin B3, B6, E Vitamin K	Calcium Glycinate with vitamin D3 Enzyme Prebiotic Probiotic 3-Per-Day Vitamin K1 Plus
Aspirin	Iron, folic acid & vitamin C	Iron-Plus
Barbiturates (eg Phenobarbital)	Calcium & Vitamin D Folic acid & Vitamin B12	Calcium Glycinate with vitamin D3 Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
Betablockers (eg Acebutolol, Atenolol, Betaxolol, Bisoprolol, Carteolol, Celiprolol, Esmolol, Labetalol, Levobetaxolol, Levobunolol, Metipranolol, Metoprolol, Nadolol, Penbutolol, Pindolol, Propranolol, Sotalol, Timolol)	Melatonin	Melatonin or Melatonin Slow Release
Birth control pill (estrogen/progestin combination) -mono/bi & triphasic (eg Ethinyl estradiol, Desogestrel, Levonorgestrel, Norethindrone, Norgestimate)	Magnesium Zinc Vitamin B2, B6, B12, C & folic acid	Magnesium Glycinate Multi Mineral or ACES-Plus 3-Per-Day
Carbamazepine	Folic acid	Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
Cholestyramine & Colestipol (bile sequestrants)	Vitamin A, D, E, B12 & folic acid & betacarotene Vitamin K	3-Per-Day Vitamin K1 Plus
Clonidine	Co-enzyme Q10	Co-enzyme Q10
Corticosteroids (eg prednisone, prednisolone, hydrocortisone, beclomethasone, dexamethasone, triamcinolone)	Calcium & Magnesium DHEA Protein Vitamin C, D, B6, B12, folic acid, selenium & zinc Melatonin	Bio-Calmag DHEA (on prescription) Pure Whey Protein Isolate or Whey/Soy 50/50 Protein 3-Per-Day Melatonin or Melatonin Slow Release
Digoxin	Magnesium Vitamin B1	Magnesium Glycinate Super Mega-B or 3-Per-Day
Diuretics [loop] (eg Bumetanide, Ethacrynic acid, Furosemide, Torsemide)	Calcium & Magnesium (however, if this type of diuretic is COMBINED with a potassium sparing diuretic, then a magnesium deficiency will NOT occur. A calcium deficiency IS still likely though). Potassium (however, if this type of diuretic is COMBINED with a potassium sparing diuretic, then a potassium deficiency will NOT occur). Vitamin B1, B6 & C	Bio-CalMag [Calcium & Magnesium] (however, if this type of diuretic is combined with a potassium sparing diuretic, then DO NOT supplement with Magnesium: Rather use Calcium Glycinate instead of Bio-CalMag). [SOLAL does not have a potassium supplement - use Plenish-K or Slow-K]. However, if this type of diuretic is combined with a potassium sparing diuretic, then DO NOT supplement with Potassium. 3-Per-Day
Diuretics [Potassium sparing] (eg Amiloride, Triamterene, Spironolactone)	Calcium Folic acid	Calcium Glycinate with vitamin D3 Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
Diuretics [Thiazide type] (eg Chlorothiazide, Hydrochlorothiazide, Indapamide, Methyclothiazide, Metolazone)	Co-enzyme Q10 Potassium (however, if this type of diuretic is COMBINED with a potassium sparing diuretic, or an ACE inhibitor, then a potassium deficiency will NOT occur). Magnesium (however, if this type of diuretic is COMBINED with a potassium sparing diuretic, then a magnesium deficiency will NOT occur). Zinc (however, if this type of diuretic is COMBINED with a potassium sparing diuretic, then a zinc deficiency will NOT occur).	Co-enzyme Q10 [SOLAL does not have a potassium supplement - use Plenish-K or Slow-K]. However, if this type of diuretic is combined with a potassium sparing diuretic, or an ACE inhibitor, then DO NOT supplement with Potassium. Magnesium Glycinate (however, if this type of diuretic is combined with a potassium sparing diuretic, then DO NOT supplement with Magnesium supplements). Multi Mineral or ACES-Plus Anti-oxidant (however, if this type of diuretic is combined with a potassium sparing diuretic, then DO NOT supplement with Zinc containing supplements).
Fibrate type cholesterol reducing medications (eg Bezafibrate, Ciprofibrate, Clofibrate, Gemfibrozil, Fenofibrate)	Co-enzyme Q10 Vitamin E	Co-enzyme Q10 Vitamin E full spectrum or 3-Per-Day
Histamine H2 blockers (eg Cimetidine, Ranitidine, Famotidine, Nizatidine)	Calcium & Vitamin D Iron, Vitamin B12 & Folic acid Zinc	Calcium Glycinate with vitamin D3 Iron-Plus Multi Mineral
Hydralazine	Co-enzyme Q10 Magnesium Vitamin B6	Co-enzyme Q10 Magnesium Glycinate Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
Metformin	Folic acid & Vitamin B12	Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
Paracetamol	Glutathione Selenium	N-Acetyl-Cysteine ACES-Plus Anti-oxidant
Phenytoin	Calcium & Vitamin D Vitamin B1, folic acid & biotin	Calcium Glycinate with vitamin D3 Super Mega-B
Proton pump inhibitors (eg Lansoprazole, Omeprazole)	Vitamin B12	Methylcobalamin
Psychotropics: PHENOTHIAZINES (eg Chlorpromazine, Fluphenazine, Mesoridazine, Perphenazine, Prochlorperazine, Thioridazine, Trifluoperazine) -also THIOXANTHINES (eg Chlorprothixene, Flupenthixol, Thiothixene, Zuclopenthixol)	Co-enzyme Q10	Co-enzyme Q10
Sodium bicarbonate	Vitamin B2	Super Mega-B
Sulfasalazine	Magnesium Folic acid	Magnesium Glycinate Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
SSRI antidepressants (eg Fluoxetine, Sertraline, Paroxetine, Citalopram, Escitalopram, Fluvoxamine)	Folic acid	Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
Statins (HMG-CoA reductase inhibitors) (eg Atorvastatin, Fluvastatin, Lovastatin, Pravastatin, Simvastatin, Rosuvastatin)	Melatonin Protein	Melatonin or Melatonin Slow Release Pure Whey Protein Isolate or Whey/Soy 50/50 Protein
Sulfonylureas antidiabetic medication (eg Acetohexamide, Chlorpropamide, Gliclazide, Glipizide, Glybenclamide, Glyburide, Tolazamide, Tolbutamide)	Co-enzyme Q10	Co-enzyme Q10
Theophylline & derivatives (eg Theophylline, Aminophylline)	Co-enzyme Q10	Co-enzyme Q10
Tricyclic antidepressants (eg Amitriptyline, Amoxapine, Clomipramine, Desipramine, Doxepin, Imipramine, Nortriptyline, Protriptyline, Trimipramine)	Vitamin B6	Homocysteine Lowering Formula or Super Mega B or 3-Per-Day
Valproic acid & derivatives	Co-enzyme Q10 Vitamin B2 L-Carnitine Copper, Zinc & Selenium Folic acid	Co-enzyme Q10 Super Mega-B or 3-Per-Day L-Carnitine or Acetyl-L-Carnitine Multi Mineral Homocysteine Lowering Formula or Super Mega B or 3-Per-Day