



Medical Conditions that Deplete Vitamins

In order as listed on the RR Scan Results

The information is AI generated and may not be accurate. If you suspect a deficiency or have any of the conditions listed below, consult your GP or healthcare professional for assessment and advice.

Diseases and Medical Conditions That Deplete MTHFR (C677T & A1298C)

An Overview of Health Issues Affecting MTHFR Function

The MTHFR gene encodes an enzyme crucial for processing folate (vitamin B9) and regulating homocysteine levels. Mutations (C677T and A1298C) can impair methylation, leading to elevated homocysteine and reduced folate activity.

1. Genetic Mutations

- **C677T and A1298C variants:** Homozygous or compound heterozygous mutations can increase risk for hyperhomocysteinemia, cardiovascular disease, birth defects, and neurological conditions.

2. Associated Diseases

- **Cardiovascular diseases:** Increased risk of blood clots, stroke, and heart attack.
- **Birth irregularities:** Neural tube defects, microcephaly.
- **Mental health:** Depression, dementia.
- **Autoimmune diseases and cancer:** Some evidence links MTHFR mutations to higher risk.
- **Drug-induced toxicity:** Increased risk with drugs affecting folate metabolism (e.g., methotrexate).

3. Environmental Factors

- **Heavy metal exposure:** May worsen MTHFR defects.

Conclusion

MTHFR mutations can predispose individuals to a range of conditions by impairing folate metabolism and methylation. Management often involves dietary adjustments and supplementation.

Diseases and Medical Conditions That Deplete Eicosapentaenoic Acid (EPA)

An Overview of Health Issues Affecting EPA Levels

EPA is an omega-3 fatty acid vital for cardiovascular, neurological, and anti-inflammatory functions.

1. Dietary Deficiency

- **Low intake of fatty fish:** Main source of EPA.
- **Malnutrition:** Poor diets lacking marine sources.

2. Malabsorption Disorders

- **Inflammatory bowel disease (IBD):** Crohn's, ulcerative colitis can reduce absorption.

3. Chronic Inflammatory Diseases

- **Hashimoto's thyroiditis:** Chronic inflammation may increase EPA demand.

4. Metabolic Disorders

- **Cardiovascular disease:** EPA is depleted in states of high triglycerides and metabolic syndrome.

Conclusion

EPA deficiency is most often due to poor dietary intake, malabsorption, or increased metabolic demand in chronic diseases.

Diseases and Medical Conditions That Deplete Vitamin B1 (Thiamine)

An Overview of Health Issues Affecting Thiamine Levels

Thiamine is essential for energy metabolism and nerve function.

1. *Malnutrition and Poor Diet*

- **Diets high in processed carbohydrates:** White rice, flour, sugar.
- **Severe anorexia nervosa:** Low intake.

2. *Alcoholism*

- **Alcohol use disorder:** Impairs absorption and increases need.

3. *Malabsorption Disorders*

- **Chronic diarrhea, celiac disease, Crohn's disease:** Reduce absorption.

4. *Increased Demand*

- **Hyperthyroidism, pregnancy, fever, strenuous exercise:** Raise requirements.

5. *Medications*

- **Diuretics, cardiovascular drugs, antiseizure medications:** Can deplete thiamine.

Conclusion

Thiamine deficiency is rare in developed countries but can occur with malnutrition, alcoholism, malabsorption, or increased metabolic demand.

Diseases and Medical Conditions That Deplete Vitamin B2 (Riboflavin)

An Overview of Health Issues Affecting Riboflavin Levels

Riboflavin is vital for energy production and antioxidant function.

1. Malnutrition and Poor Diet

- **Low intake of dairy, eggs, meats, green vegetables, fortified cereals.**

2. Malabsorption Syndromes

- **Celiac disease, Crohn's disease:** Impair absorption.

3. Chronic Alcoholism

- **Alcohol use disorder:** Reduces absorption and metabolism.

4. Medications

- **Barbiturates, oral contraceptives, antidepressants:** May affect riboflavin levels.

5. Increased Demand

- **Pregnancy, breastfeeding, illness:** Raise requirements.

Conclusion

Riboflavin deficiency is uncommon but can occur with poor diet, malabsorption, alcoholism, or increased demand.

Diseases and Medical Conditions That Deplete Vitamin B3 (Niacin & Nicotinamide)

An Overview of Health Issues Affecting Niacin Levels

Niacin is crucial for energy metabolism, DNA repair, and skin health.

1. Malnutrition and Poor Diet

- **Diets lacking niacin-rich foods:** Meat, fish, poultry, fortified cereals.

2. Alcoholism

- **Chronic alcohol use:** Impairs absorption and metabolism.

3. Malabsorption Disorders

- **Crohn's disease, celiac disease, carcinoid syndrome, Hartnup disease:** Reduce absorption.

4. Medications

- **Isoniazid (TB drug):** Prolonged use can cause deficiency.

Conclusion

Niacin deficiency (pellagra) is rare in developed countries but can occur with malnutrition, alcoholism, malabsorption, or certain medications.

Diseases and Medical Conditions That Deplete Vitamin B5 (Pantothenic Acid)

An Overview of Health Issues Affecting Pantothenic Acid Levels

Pantothenic acid is essential for energy metabolism and hormone production.

1. *Malnutrition*

- **Severe malnutrition:** Most common cause.

2. *Malabsorption Disorders*

- **IBD, celiac disease, Crohn's disease:** Reduce absorption.

3. *Genetic Disorders*

- **Pantothenate kinase-associated neurodegeneration (PKAN):** Rare genetic cause.

4. *Alcoholism and Chronic Kidney Disease*

- **Alcohol use disorder, kidney disease:** Increase risk.

Conclusion

Pantothenic acid deficiency is rare but can occur with malnutrition, malabsorption, genetic disorders, or alcoholism.

Diseases and Medical Conditions That Deplete Vitamin B6 (Pyridoxine)

An Overview of Health Issues Affecting Pyridoxine Levels

Vitamin B6 is vital for metabolism, brain development, and neurotransmitter production.

1. *Malnutrition and Poor Diet*

- **Low intake of B6-rich foods:** Poultry, fish, organ meats, whole grains.

2. *Malabsorption Disorders*

- **Celiac disease, Crohn's disease, ulcerative colitis:** Impair absorption.

3. *Alcoholism*

- **Chronic alcohol use:** Depletes B6 levels.

4. *Medications*

- **Antiepileptic drugs, isoniazid, hydralazine, corticosteroids, penicillamine:** Can deplete B6.

5. *Increased Demand*

- **Pregnancy, lactation, dialysis:** Raise requirements.

Conclusion

Vitamin B6 deficiency is rare but can occur with malnutrition, malabsorption, alcoholism, or certain medications.

Diseases and Medical Conditions That Deplete Vitamin B7 (Biotin)

An Overview of Health Issues Affecting Biotin Levels

Biotin is essential for metabolism, skin, hair, and neurological health.

1. Genetic Disorders

- **Biotinidase deficiency, holocarboxylase synthetase deficiency, multiple carboxylase deficiency:** Impair biotin recycling and utilization.

2. Malnutrition and Poor Diet

- **Severe malnutrition, prolonged IV feeding without biotin supplementation:** Can cause deficiency.

3. Medications

- **Anticonvulsants, antibiotics:** Can deplete biotin.

4. Malabsorption Disorders

- **IBD, celiac disease:** Reduce absorption.

Conclusion

Biotin deficiency is rare but can occur with genetic disorders, malnutrition, malabsorption, or certain medications.

Diseases and Medical Conditions That Deplete Vitamin B9 (Folate)

An Overview of Health Issues Affecting Folate Levels

Folate is crucial for DNA synthesis, cell division, and methylation.

1. Malnutrition and Poor Diet

- **Low intake of leafy greens, legumes, fortified grains:** Common cause.

2. Malabsorption Disorders

- **Celiac disease, Crohn's disease, IBD:** Reduce absorption.

3. Increased Demand

- **Pregnancy, rapid cell turnover (cancer, hemolytic anemia):** Raise requirements.

4. Medications

- **Methotrexate, anticonvulsants:** Can deplete folate.

Conclusion

Folate deficiency is common in malnutrition, malabsorption, increased demand, or with certain medications.

Diseases and Medical Conditions That Deplete Vitamin B12 (Cobalamin)

An Overview of Health Issues Affecting Cobalamin Levels

Vitamin B12 is essential for nerve function, red blood cell formation, and DNA synthesis.

1. *Malabsorption Disorders*

- **Pernicious anemia, celiac disease, Crohn's disease, gastric surgery:** Impair absorption.

2. *Poor Diet*

- **Vegan diets without supplementation:** Risk for deficiency.

3. *Medications*

- **Metformin, proton pump inhibitors:** Can reduce absorption.

Conclusion

Vitamin B12 deficiency is most often due to malabsorption, poor diet, or medication effects.

Diseases and Medical Conditions That Deplete CoEnzyme Q10

An Overview of Health Issues Affecting CoQ10 Levels

CoQ10 is vital for cellular energy production and antioxidant defense.

1. *Statin Use*

- **Cholesterol-lowering drugs (statins):** Inhibit CoQ10 synthesis.

2. *Mitochondrial Disorders*

- **Genetic mitochondrial diseases:** Reduce CoQ10 production.

3. *Aging and Chronic Diseases*

- **Heart failure, diabetes, neurodegenerative diseases:** Associated with lower CoQ10.

Conclusion

CoQ10 deficiency is most often due to statin use, mitochondrial disorders, or chronic disease.

Diseases and Medical Conditions That Deplete Vitamin A

An Overview of Health Issues Affecting Vitamin A Levels

Vitamin A is essential for vision, immune function, and cell growth.

1. Malnutrition and Poor Diet

- **Low intake of animal products, orange/yellow vegetables:** Common cause.

2. Malabsorption Disorders

- **Celiac disease, Crohn's disease, cystic fibrosis:** Reduce absorption.

3. Liver Disease

- **Cirrhosis, hepatitis:** Impair storage and metabolism.

Conclusion

Vitamin A deficiency is most often due to poor diet, malabsorption, or liver disease.

Diseases and Medical Conditions That Deplete Vitamin C

An Overview of Health Issues Affecting Vitamin C Levels

Vitamin C is vital for collagen synthesis, antioxidant defense, and immune function.

1. Malnutrition and Poor Diet

- **Low intake of fruits and vegetables:** Main cause.

2. Malabsorption Disorders

- **IBD, celiac disease:** Reduce absorption.

3. Increased Demand

- **Infection, stress, smoking:** Raise requirements.

Conclusion

Vitamin C deficiency is most often due to poor diet, malabsorption, or increased demand.

Diseases and Medical Conditions That Deplete Vitamin D (25-Hydroxy)

An Overview of Health Issues Affecting Vitamin D Levels

Vitamin D is essential for bone health, immune function, and calcium metabolism.

1. Malnutrition and Poor Diet

- **Low intake of fortified foods, fatty fish:** Common cause.

2. Malabsorption Disorders

- **Celiac disease, Crohn's disease, cystic fibrosis:** Reduce absorption.

3. Lack of Sun Exposure

- **Chronic illness, institutionalization, sunscreen use:** Reduce synthesis.

4. Liver and Kidney Disease

- **Impaired conversion to active form:** Can cause deficiency.

Conclusion

Vitamin D deficiency is most often due to poor diet, malabsorption, lack of sun exposure, or organ dysfunction.

Diseases and Medical Conditions That Deplete Vitamin E

An Overview of Health Issues Affecting Vitamin E Levels

Vitamin E is an antioxidant essential for cell membrane protection.

1. Malnutrition and Poor Diet

- **Low intake of nuts, seeds, vegetable oils:** Common cause.

2. Malabsorption Disorders

- **Cystic fibrosis, celiac disease, Crohn's disease:** Reduce absorption.

3. Genetic Disorders

- **Abetalipoproteinemia:** Rare cause of deficiency.

Conclusion

Vitamin E deficiency is most often due to malnutrition, malabsorption, or rare genetic disorders.

Diseases and Medical Conditions That Deplete Vitamin K

An Overview of Health Issues Affecting Vitamin K Levels

Vitamin K is an essential nutrient that plays a vital role in blood clotting, bone health, and other bodily functions. Certain diseases and medical conditions can lead to a deficiency or depletion of vitamin K in the body. Below is an overview of the main conditions known to reduce vitamin K levels.

1. Liver Disease

The liver is responsible for producing proteins that depend on vitamin K for blood clotting. Conditions such as cirrhosis, hepatitis, or liver failure can impair the liver's ability to store and utilise vitamin K, increasing the risk of deficiency.

2. Malabsorption Disorders

Several gastrointestinal disorders can affect the body's ability to absorb vitamin K from food, including:

- Celiac disease: Damage to the small intestine lining reduces nutrient absorption, including vitamin K.
- Crohn's disease: Inflammation in the digestive tract can interfere with vitamin K uptake.
- Ulcerative colitis: Chronic inflammation of the colon may limit absorption.
- Cystic fibrosis: Thick mucus in the digestive tract can block absorption of fat-soluble vitamins like vitamin K.
- Chronic pancreatitis: The pancreas produces enzymes needed for fat digestion, so its dysfunction can reduce absorption of fat-soluble vitamins.
- Short bowel syndrome: Surgical removal or disease affecting large portions of the intestine can limit vitamin K absorption.

3. Biliary Tract Disorders

Diseases that affect bile production or flow, such as gallstones, cholestasis, or biliary atresia, can hinder the absorption of fat-soluble vitamins, including vitamin K.

4. Antibiotic Use

Long-term or broad-spectrum antibiotic use can disrupt the gut bacteria that normally synthesise vitamin K₂, potentially leading to lower levels.

5. Certain Medications

Apart from antibiotics, other medications such as anticoagulants (e.g., warfarin), some cholesterol-lowering drugs (bile acid sequestrants), and certain anti-seizure medications can interfere with vitamin K metabolism or absorption.

6. Other Factors

- Newborn infants: Babies, especially those who are breastfed, are at risk of vitamin K deficiency because their gut flora is not yet established and breast milk contains low levels of vitamin K.
- Malnutrition: Diets very low in vitamin K-rich foods can contribute to deficiency.
- Alcoholism: Chronic alcohol use can damage the liver and impair nutrient absorption, including vitamin K.

Conclusion

A range of diseases and conditions can deplete vitamin K, mainly by affecting its absorption, storage, or metabolism. If you suspect a deficiency or have any of the conditions listed above, consult your GP or healthcare professional for assessment and advice.

Diseases and Medical Conditions That Deplete Beta Carotene

An Overview of Health Issues Affecting Beta Carotene Levels

Beta carotene is a precursor to vitamin A and an antioxidant.

1. Malnutrition and Poor Diet

- **Low intake of orange/yellow vegetables:** Main cause.

2. Malabsorption Disorders

- **Celiac disease, Crohn's disease, cystic fibrosis:** Reduce absorption.

3. Liver Disease

- **Impaired conversion to vitamin A:** Can cause deficiency.

Conclusion

Beta carotene deficiency is most often due to poor diet, malabsorption, or liver disease.