

# INE: Micronutrients - Vitamins: Introduction to Vitamins



**INE** INSTITUTE OF  
NUTRITIONAL  
ENDOCRINOLOGY

## Micronutrients: Introduction to Vitamins

Dr. Ritamarie Loscalzo

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**Medical Disclaimer:** The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, [drritamarie.com](http://drritamarie.com), and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.

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### History of the Word “Vitamin”

- ✓ Derived from “vitamine” -- a combination word made up by Polish scientist Casimir Funk, from “vita” (life) + “amine” meaning nitrogen-containing compounds (amino acids) thus “amine of life”
- ✓ Changed to “vitamin” when it was determined that they were not indeed amines



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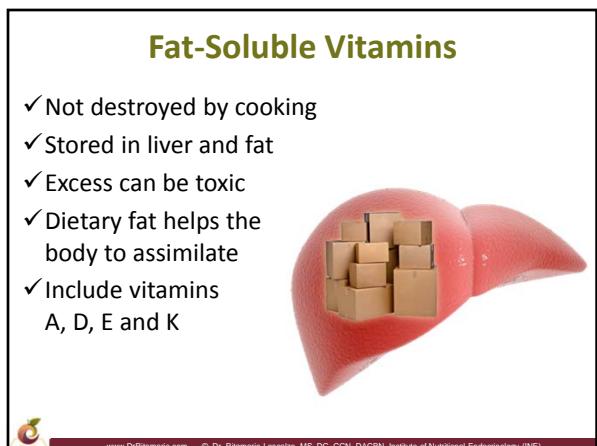
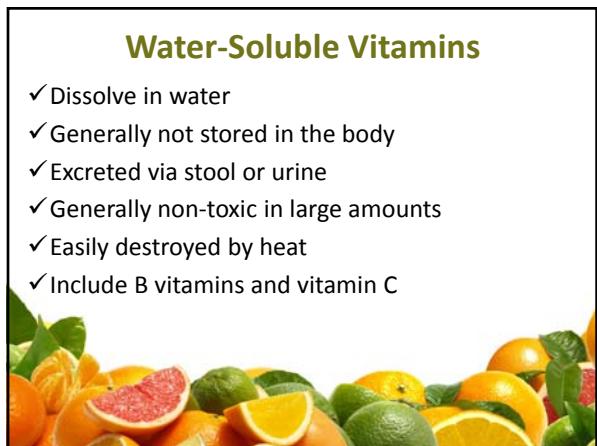
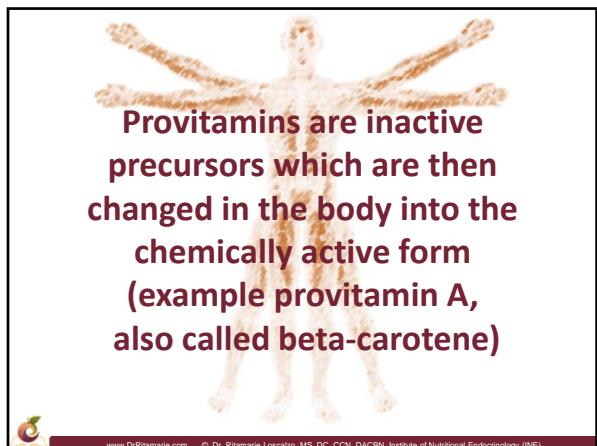
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## Functions of Vitamins

- ✓ Cofactors for metabolic reactions – i.e. to allow precursors to be converted to active forms
- ✓ Antioxidants
- ✓ Blood cell formation
- ✓ Brain health
- ✓ Hormone balance
- ✓ Digestion
- ✓ Mucous membrane protection
- ✓ Immune system





I believe that you can, by taking some simple and inexpensive measures, lead a longer life and extend your years of well-being. My most important recommendation is that you take vitamins every day in optimum amounts to supplement the vitamins that you receive in your food.

## Linus Pauling



Letter	Names	Notes/Actions
A	Retinol, Retinal, Carotenoids	Mucus membranes, eyes, immune, skin
B1	Thiamine, Benfotiamine	Energy, heart, muscle, and nerve function
B2	Riboflavin, R 5'-Phosphate	Energy, red blood cells, vision
B3	Niacin, Nicotinic Acid, Niacinamide	Energy, nerve function, circulation, and heart
B4	Choline, Adenine, Carnitine	Cell membranes, memory, neuromuscular
B5	Pantothenic Acid	Coenzyme A, adrenals, skin
B6	Pyridoxine, Pyridoxal 5'-Phosphate	Brain and nerve, hormones, protein synthesis
B7	Biotin	Hair, metabolism
B8	Inositol	Loosely considered a B vitamin
B9	Folate, Methylfolate, Folic Acid	Red blood cell production, DNA repair, brain
B10	Pteroylmonoglutamic Acid	Really a form of folate, skin protector
B11	Salicylic Acid	Not technically a vitamin, loosely categorized
B12	Cobalamins: Methyl, Hydroxy, Adeno, Cyan	Red blood cells, DNA repair, nervous system
C	Ascorbic Acid	Collagen, immune system
D	Cholecalciferol	Too many to list
E	Tocopherol, Tocotrienol	Antioxidant
K	Phyloquinones, Menquinones	Clotting, Bone health

# What You Need to Know About Vitamins

# Deficiency Signs

# To Supplement or Not to Supplement?

## Hierarchy of Ways to Supplement

- Whole food concentrates
- Liquid vitamins from concentrated whole food sources
- Powders that can be dissolved in water or green juice
- Capsules without excipients
- Tablets without binders and preservatives



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## Ingredients to Avoid in Supplements

- ✓ Hydrogenated oil
- ✓ Talc
- ✓ Sugar
- ✓ Artificial sweeteners
- ✓ FD&C colors
- ✓ Stearates
- ✓ Sodium Benzoate
- ✓ Titanium Dioxide



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## Magnesium Stearate

- ✓ A lubricant so that the vitamins don't stick to one another or the equipment being used
- ✓ Safety is controversial
- ✓ One study links this compound to creating a suppressed immune system
- ✓ Other studies show that this 'chalk' will create a biofilm in the body that blocks absorbing any of the needed nutrients



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## Synthetic vs Natural Vitamins

- ✓ Synthetics may be coal tar derivatives
- ✓ Naturals are lower potency
- ✓ Potentials for GMOs in synthetic
- ✓ Synthetics may be created using formaldehyde
- ✓ Some synthetics compete with natural for adverse effects (folic acid)





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## Whole Foods Vitamins





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## Vitamin Mineral Rush

## SUPPLEMENT FACTS

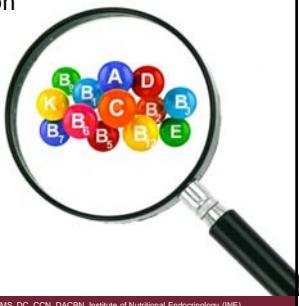
**SERVING SIZE** 2 tsp daily  
**Servings per container** 24

	Amount per a daily serving	Amount per a daily serving
Vitamin A (Organic Beta Carotene)*	5000 IU	1000 IU
Vitamin B1 (Thiamine HCl)*	4.0 mg	275% 27.5 mg
Vitamin B2 (Riboflavin)*	2.4 mg	142% 14.2 mg
Vitamin B3 (Niacin)*	4.3 mg	21% 21 mg
Vitamin B5 (Pantethonic Acid)*	4.4 mg	44% 44 mg
Vitamin B6 (Pyridoxine HCl)*	2.8 mg	140% 14 mg
Vitamin B9 (Folic Acid)*	1.6 mg	400% 40 mg
Vitamin B12 (Methylcobalamin)	12.0 mcg	200% 200 mcg
Vitamin C (Organic Ascorbic Acid)	60.0 mg	100% 100 mg
Vitamin D3 (Califerol)	520 IU	130% 130 IU
Vitamin E (Organic Annato Extract)	40 IU	133% 133 IU
Iron***	1.0 mg	5% 5 mg
Iodine***	6.3 mg	4% 4 mg
Molybdenum***	1.3 mcg	2% 2 mcg
Chromium***	1.4 mcg	1% 1 mg
Mineral Complex	28.0 mg	100% 100 mg

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## Testing Vitamin Status

- ✓ Symptoms that can be observed and recorded on questionnaires (scorecards resource)
- ✓ Exam findings
- ✓ Lab testing
  - Direct measurement
  - Functional assessment



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## Functional Tests for Vitamin Status

- ✓ Mean Corpuscular Volume (MCV)
- ✓ Methylmalonic Acid: B12
- ✓ Homocysteine: B12, B6, Folate
- ✓ Organic Acids: All
  - Genova/Metametrix
  - Great Plains
- ✓ NutrEval®
- ✓ SpectraCell



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## Direct Tests for Vitamin Status

- ✓ **Vitamin D:** 25-hydroxyvitamin D, 1, 25-dihydroxyvitamin D: blood
- ✓ **Vitamin A:** blood
- ✓ **Vitamin E:** blood
- ✓ **Vitamin C:** urine, blood
- ✓ **Vitamin B12:** blood
- ✓ **Folate:** blood
- ✓ **Vitamin B6:** blood
- ✓ **Vitamin B1:** blood



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## INE: Micronutrients - Vitamins: Introduction to Vitamins

## Additional Resources

### About Vitamins

<http://www.drritamarie.com/go/WHFoodsEssentNut>

- Basic Description
- Role in Health Support
- Summary of Food Sources
- Nutrient Rating Chart
- Impact of Cooking, Storage and Processing
- Risk of Dietary Deficiency
- Other Circumstances that Might Contribute to Deficiency



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