

CERTIFIED ADVANCED HERBALISM COURSE - SESSION 3: Vitamins

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Vitamins & Minerals - Introduction

Before herbs are introduced, it is important to be aware of some important factors in relation to vitamins, minerals, carbohydrates, fats and proteins. In 1993, The European Union issued guidelines on the Recommended Daily Dietary Allowance (RDA) for twelve vitamins and six minerals. The RDA represents the quantity that should be taken daily to avoid vitamin deficiency. It is not the quantity that should be taken for health improvement or illness prevention. The vitamins and minerals included in this list are as follows:

Vitamins:

Vitamin A - Retinol
Vitamin B1 - Thiamin
Vitamin B2 - Riboflavin
Vitamin B3 - Niacin
Vitamin B5 - Pantothenic Acid
Vitamin B6 - Pyridoxine
Vitamin B9 - Folic acid
Vitamin B12 - Cobalamin
Vitamin H - Biotin
Vitamin C - Ascorbic Acid
Vitamin D - Calciferol
Vitamin E - Tocopherol

Minerals:

Calcium (Ca)
Iron (Fe)
Iodine (I)
Magnesium (Mg)
Phosphorus (Ph)
Zink (Zn)

Vitamins:

Vitamins are substances of organic origin and are necessary for the successful operation of all bodily functions. Additionally vitamins are important in the body for processing proteins, fats and carbohydrates, and also for a healthy immune system.

A lack of vitamins can cause various illnesses. A total lack of vitamins is called avitaminosis and a deficiency of vitamins is called hypovitaminosis.

There are two major types of vitamins:

1. Vitamins that can be diluted in water. Any excess of these vitamins **can not** be retained in the body.
2. Vitamins that can be diluted in fats. Any excess of these vitamins **can** be retained and stored in the body.

Vitamin A (Retinol):

Vitamin A is important for the growth and development of the body, especially in children. It is also important for healthy skin and for ability to see in the dark. It was discovered in 1913.

Vitamin A can be found in meat, animal products (milk, butter, eggs, etc.), and some vegetables and fruits. The following vegetables and fruits are rich in vitamin A; carrot, raw cabbage, tomato, lettuce, cauliflower and yellow color fruit (yellow apple, yellow pear etc.).

If a child is suffering from a dry cough and ordinary medicine does not appear to be working, then a vitamin A deficiency could be the problem. The probable cause of the cough in this case is the poor regeneration of cells in the upper respiratory tract, which causes dust particles and hence bacteria to stick to the throat. This creates irritation and a cough results. Another indicator of a lack of vitamin A is a loss of sight at dusk. Vitamin A deficiency can also have a negative impact on the immune system and the body becomes more vulnerable to illness.

Top 5 sources of vitamin A:

1. Calf's liver – 29,730µg per 100g
2. Butter - 815µg per 100g
3. Margarine - 780µg per 100g
4. Egg yolk - 535µg per 100g
5. Cream Cheese - 385µg per 100g

RDA (EU) - 800µg (1g = 1 000 000µg)

RDA (USA) - 5000iu (International Units)

The RDA for vitamin A is the equivalent to 3 grams of grilled calf's liver or eight eggs.

Diluent: fat

Vitamin B:

Vitamin B was discovered during research into a remedy for beriberi, which was an illness common in the Far East. The strange thing about the illness was that it mainly affected the middle classes and left the poorer element in that society almost unaffected. The discovery was then made that the reason for the illness was that the middle class diet consisted mainly of glazed (skinless, peeled) rice, whereas the poorer people used unglazed rice. As vitamin B is found in the skin of the rice, unglazed rice is clearer much more beneficial to the body than its glazed equivalent. There are some known variations of vitamin B; from B1 to B12. Vitamin B can be found in green vegetables, liver, red meat, eggs, seed skins, brown bread and unprocessed wheat. Vitamin B deficiency can also cause anemia.

Vitamin B1 (Thiamin):

This vitamin is important for the maintenance of the nervous system and for carbohydrate metabolism. It also improves memory and helps reduce sugar cravings. It is also crucial for the efficient performance of certain enzymes, which increases energy levels in the body. It should be noted that regular intakes of this vitamin is important because the body only stores small quantities.

Top 5 sources of vitamin B1:

1. Yeast extract - 4.25mg per 100g
2. Peas - 0.89mg per 100g
3. Oranges - 0.70mg per 100g
4. Fortified cornflakes - 0.65mg per 100g
5. Boiled potatoes - 0.59mg per 100g

RDA (EU) - 1.4mg (1g = 1 000mg)

RDA (USA)- 1.2mg - 1.5 mg (1g = 1 000mg)

The RDA for vitamin B1 is the equivalent to one bowl of fortified breakfast cereal or a serving of pork.

Diluent: water

Vitamin B2 (Riboflavin):

This vitamin is needed for healthy digestion and for regeneration of the body. It also improves energy levels, maintains healthy skin and keeps nails and hair healthy.

Top 5 sources of vitamin B2:

1. Marmite (Yeast) - 11.0mg per 100g
2. Lamb's liver - 4.4mg per 100g
3. Pig's kidney - 2.1mg per 100g
4. Fortified cornflakes - 1.3mg per 100g
5. Cheddar cheese - 0.4mg per 100g

RDA (EU) - 6.0mg (1g = 1 000mg)

RDA (USA) - 1.7mg (1g = 1 000mg)

The RDA for vitamin B2 is the equivalent to two large bowls of fortified cereal with skimmed milk.

Diluent: water

Vitamin B3 (Niacin):

This vitamin is part of the complex B vitamins. It is required for the efficient functioning of the digestive tract and nervous system. It also lowers high cholesterol.

Top 5 sources of vitamin B3:

1. Chicken - 12.8mg per 100g
2. Pork - 11.0mg per 100g
3. Beef - 10.2mg per 100g
4. Wheat germ - 9.8mg per 100g
5. Turkey - 8.5mg per 100g-

RDA (EU) - 8.0mg (1g=1 000mg)

RDA (EU) - 1.3mg - 1.8mg (1g=1 000mg)

The RDA for vitamin B3 is the equivalent to one portion of mixed nuts, roast chicken or a serving of cornflakes.

Diluent: water

Vitamin B5 (Pantothenic Acid):

This vitamin is required for releasing energy from fat and for maintaining normal body growth. It also speeds up the healing of wounds.

Top 5 sources of vitamin B5:

1. Calf's liver - 8.4mg per 100g
2. Plain peanuts - 2.66mg per 100g
3. Sesame seeds - 2.14mg per 100g
4. Pecan nuts - 1.71mg per 100g
5. Walnuts - 1.6mg per 100g

RDA (EU) - 6.0mg (1g=1 000mg)

RDA (USA) - 4.7mg (1g=1 000mg)

The RDA for vitamin B5 is the equivalent of 100g of roasted calf's liver

Diluent: water

Vitamin B6 (Pyridoxine):

This vitamin is required for digesting proteins from amino acids, the creation of antibodies and red blood cells and for the maintenance of a healthy digestive track and nervous system. It also helps ease pre-menstrual syndrome and improves moodiness and fatigue.

Top 5 sources of vitamin B6:

1. Wheat germ - 3.3mg per 100g
2. Ox liver - 0.83mg per 100g
3. Cod - 0.38mg per 100g
4. Turkey - 0.32mg per 100g
5. Beef - 0.30mg per 100g

RDA (EU) - 2.0mg (1g=1 000mg)

RDA (USA) - 2.0mg (1g=1 000mg)

The RDA for vitamin B6 is the equivalent to one serving of salmon with a baked potato.

Diluent: water

Vitamin B9 (Folic acid):

This vitamin is required for the maintenance of a healthy digestive track and nervous system and together with vitamin B12 helps to generate red blood cells. It also prevents some birth defects and may reduce the risk of heart disease.

Top 5 sources of vitamin B9:

1. Ox liver - 290µg per 100g
2. Fortified cereal - 250µg per 100g
3. Brussels sprouts - 110µg per 100g
4. Peanuts - 110µg per 100g
5. Spinach - 90 µg per 100g

RDA (EU) - 300µg (1g = 1 000 000µg)

RDA (USA) - 400µg (1g = 1 000 000µg)

The RDA for vitamin B9 is the equivalent to three servings of fortified breakfast cereal.

Diluent: water

Vitamin B12 (Cobalamin):

This vitamin is important for the healthy maintenance of the nervous system as it assists in the production of red blood cells and splitting of cells during the growth of the body.

Top 5 sources of Vitamin B12:

1. Lamb's liver - 81µg per 100g
2. Liver pate - 7.2µg per 100g
3. Duck - 3.0µg per 100g
4. Eggs - 2.5µg per 100g
5. Cod - 2.0µg per 100g

RDA (EU) - 2µg (1g = 1 000 000µg)

RDA (USA) - 3µg (1g = 1 000 000µg)

The RDA for vitamin B12 is the equivalent to one 50g serving of beef.

Diluent: water

Vitamin C (Ascorbic Acid):

Vitamin C can be found in fresh fruit and vegetables. In most cases, cooking fruit or vegetables partially destroys the vitamin C content. Vitamin C deficiency, also known as scurvy, causes bleeding of gums and bowels. Vitamin C helps to absorb iron from food and speeds up the healing process.

Top 5 sources of vitamin C:

1. Guava - 230mg per 100g
2. Black currants - 200mg per 100g
3. Green pepper - 120mg per 100g
4. Broccoli - 87mg per 100g
5. Strawberries - 77mg per 100g

RDA (EU) - 60mg (1g=1 000mg)

RDA (USA) - 60mg (1g=1 000mg)

The RDA for vitamin C is the equivalent to one glass of orange juice.

Diluent: water

Vitamin D (Calciferol):

Vitamin D has a very important role in bone formation, which starts in the womb and continues until childhood. Vitamin D is not found in great quantities in normal everyday diets. It is mainly found in milk, butter and eggs. It can also be produced in the skin if it is exposed to the sun. Vitamin D is also important for absorbing calcium and phosphorus from the diet.

If a child's diet has an insufficient supply of vitamin D, calcium and phosphorus, (brown bread, milk, cheese etc.) then their bones remain soft. This condition can lead to the creation of deformities of the head, chest cage, arms and legs. This condition is known as rickets. As a consequence of this it is recommended that babies are exposed to sunshine. Obviously there are also hazards associated with exposing babies to too much sunshine, so it is always advisable to check with your GP to ensure this is done properly and safely.

Top 5 sources of vitamin D:

1. Cod liver oil - 210µg per 100g
2. Herring - 19µg per 100g
3. Mackerel - 18µg per 100g
4. Sardines - 11µg per 100g
5. Rainbow trout - 10.6µg per 100g

RDA (EU) - 5µg (1g = 1 000 000µg)
RDA (USA) - 400iu (International Unit)

The RDA for vitamin D is the equivalent to two canned pilchards in tomato sauce.

Diluent: fat

Vitamin E (Tocopherol):

This vitamin helps with the immune system and is important for anemia prevention. It may also reduce the risk of heart disease and help lower the risk of cancer. The full function of this vitamin in the body is yet to be discovered.

Top 5 sources of vitamin E:

1. Wheat germ oil - 137mg per 100g
2. Sunflower seed oil - 49mg per 100g
3. Sunflower seeds - 27mg per 100g
4. Hazelnuts - 25mg per 100g
5. Almonds - 24mg per 100g

RDA (EU) - 10mg (1g=1 000mg)
RDA (USA) - 10mg (1g=1 000mg)

The RDA for vitamin E is the equivalent to 27g of sunflower seeds.

Diluent: fat

Vitamin H (Biotin):

This vitamin is required for releasing energy from fat. It can also help with diabetes and may help with weight loss.

Top 5 sources of vitamin H:

1. Dry roasted peanuts - 130µg per 100g
2. Crunchy peanut butter - 102µg per 100g
3. Hazelnuts - 76µg per 100g
4. Almonds - 64µg per 100g
5. Egg yolk - 50µg per 100g

RDA (EU) - 150µg (1g = 1 000 000µg)
RDA (USA) - 300µg (1g = 1 000 000µg)

The RDA for vitamin H is easily met through a mixed diet, because the body's requirement for vitamin H is very small.

Diluent: water

CERTIFIED ADVANCED HERBALISM COURSE - SESSION 3 – QUESTION & ANSWERS

NAME: _____

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Please be sure to fill out the information above, complete the test and e-mail or fax it back to us at 425-955-4639 (US) or at +353 1 647 5705 (EU) or e-mail it to us at joyful@best.com (US) or at answers@med-herbs.com (EU). We will grade your question & answer session and will let you know if we have any questions or concerns.

1. What does the abbreviation RDA stand for?
2. What are vitamins?
3. What type of vitamins CAN be retained in the body?
4. What is the RDA for Vitamin A?
5. What is vitamin B1 important for?
6. What is vitamin B9 important for?
7. List the top 5 sources of Vitamin B9.
8. What is the RDA for Vitamin C?
9. List the top 5 sources of Vitamin D?
10. What is vitamin E important for?