NUTRIENTS

Vitamins: Thiamin

What is it?

Thiamin (formerly known as vitamin B1) is a water-soluble vitamin.

Functions - what does it do?

Energy metabolism
Thiamin helps to release energy from foods, particularly carbohydrates. It is important in the the breakdown and use of glucose, the primary nutrient produced during carbohydrate digestion.

Metabolism. The chemical processes occurring within a living cell or organism that are necessary to maintain life.

It is important in the functioning of the nervous system, especially the peripheral nerves, like those found in your hands and feet, and is vital for adequate muscle coordination.

Requirements - How much do we need?

	Recommended Dietary Allowance* (mg/day)	
Life-Stage (years)	**Males**	**Females**
0 - 0.5 (0 - 6 months)	0.2a	0.2a
0.5 - 1 (7 - 12 months)	0.3a	0.3a
1 - 3	0.5	0.5
4 - 8	0.6	0.6
9 - 13	0.9	0.9
14 - 18	1.2	1.0
Ages 19+	1.2	1.1
Life-Stage (years)	**Pregnancy**	**Lactation**
18 and younger	1.4	1.5
19 - 30	1.4	1.5
Ages 31+	1.4	1.5

*The Recommended Dietary Allowance (RDA) is the average daily dietary intake level that is sufficient to meet the nutrient requirements of nearly all (97-98%) healthy individuals in each life-stage and gender group.

aAdequate Intakes (AI) are used as no RDA is established. The AI is a recommended daily intake level based on observed or experimentally determined approximations of nutrient intake by a group of healthy people who are assumed to be maintaining an adequate nutritional state.

Sources - Where is it found?

	Nutrient Density		
	High	**Medium**	**Low**
Excellent sources	Lean pork, Wheat germ, Sunflower seeds		
Moderate sources	Organ meats, Poultry, Egg yolk, Fish, Legumes, Whole grains, Enriched breads, Cereals		
Poor sources	Milk and milk products, Fruit, Vegetables		

Deficiency - When you have too little

A thiamin deficiency is seen where refined, non-enriched grains are a major dietary staple. The brown (whole) grains are processed, removing the bran and germ layer, to make polished (white grains), which are a poor source of thiamin, unless later enriched.

Beriberi. The thiamin deficiency disorder that involves nerve degeneration and muscle disease, particularly affecting heart muscles.

The thiamin deficiency disease is called **Beriberi**. Its symptoms include weakness, muscle wasting, fatigue, loss of appetite, weight loss, irritability, nervous tingling, poor co-ordination and heart failure.

There are two types of beriberi: **dry beriberi** and **wet beriberi**. Symptoms of dry beriberi include fatigue, tingling or loss of sensation in hands and feet due to nerve degeneration, muscle wasting with loss of function or paralysis of the limbs, and potentially brain damage and death. Wet beriberi is characterized by swelling caused by accumulated fluid in the limbs (edema), increased heart rate, lung congestion, and enlarged heart related to congestive heart failure; nerve degeneration is commonly present as well.

Toxicity - When you have too much

	Upper Limit+ (mg/day)	
Life-Stage (years)	**Males**	**Females**
All ages	ND	ND
Life-Stage (years)	Pregnancy	Lactation
All ages	ND	ND

+Upper Limits (UL) = The maximum level of daily nutrient intake that is likely to pose no risk of adverse effects. Unless otherwise specified, the UL represents total intake from food, water, and supplements.

ND = Not determinable due to lack of data of adverse effects in this age group and concern with regard to lack of ability to handle excess amounts. Source of intake should be from food only to prevent high levels of intake.

For further, personalized and more detailed information, please contact a dietitian registered with the Health Professions Council of South Africa.*References from the scientific literature used to compile this document are available on request.*

Human Nutrition | Menslike Voeding
Fakulteit Geneeskunde en Gesondheidswetenskappe /
Faculty of Medicine and Health Sciences
Universiteit Stellenbosch University
Francie van Zijl Rylaan / Drive; Tygerberg; Kaapstad / Cape Town
Posbus / PO Box 241; Kaapstad / Cape Town; 8000
Suid-Afrika / South Africa
Tel: +27 21 938-9259
e-pos / e-mail: irene@sun.ac.za
www.sun.ac.za