

ICS 11.020
CCS C 55

WS

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

WS/T 578.5-2018

**Chinese dietary reference intakes - Part 5: Water-soluble
vitamin**

(English Translation)

Issued on: April 27, 2018

Implemented on: November 1, 2018

Issued by: National Health Commission

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
4 Chinese residents' dietary water-soluble vitamin reference intake

Foreword

WS/T 578 "Chinese Dietary Nutrient Reference Intake" is divided into five parts.

- Part 1. Macronutrients;
- Part 2. Constant elements;
- Part 3. Trace elements;
- Part 4. Fat-soluble vitamins;
- Part 5. Water-soluble vitamins.

This part is the fifth part of WS/T 578.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

1 Scope

This part of WS/T 578 stipulates Chinese residents vitamin B1, vitamin B2, vitamin B6, vitamin B12, pantothenic acid, folic acid, niacin, Dietary reference intake of choline, biotin and vitamin C.

This section is applicable to the evaluation and guidance of the intake of water-soluble vitamins in healthy populations or individuals in China.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest edition (including all amendments) applies to this document.

WS/T 476-2015 terminology

3 Terms and definitions

The following terms and definitions as defined by WS/T 476-2015 apply to this document. For ease of use, WS/T 476 is repeated below.

- Some terms and definitions in 2015.

Dietary reference intakes; DRIs Evaluate whether dietary nutrient supply can meet human needs, whether there is a risk of excessive intake, and help prevent certain chronic non-infections A set of reference values for sexually transmitted diseases, including. average required, recommended intake, appropriate intake, tolerable maximum intake, and recommended intake the amount of macronutrients acceptable.

[WS/T 476-2015, definition 5.3.1] 3.2 Average requirement; estimated average requirement; EAR the average amount of nutrient requirements for each individual in the population.

[WS/T 476-2015, definition 5.3.4] 3.3 Recommended intake of recommended nutrient intake; RNI it can meet the nutrient intake levels required by most individuals in a particular gender, age, and physiological condition group.

[WS/T 476-2015, definition 5.3.5] 3.4 Appropriate intake A safe intake level of nutrients. It is the intake of certain nutrients in healthy people obtained through observation or experiment.

[WS/T 476-2015, definition 5.3.6] 3.4.1 Tolerable upper intake level; UL the average daily intake of nutrients is the highest. This amount does not cause damage to almost all individuals in the general population.

[WS/T 476-2015, definition 5.3.7] 3.5 Water-soluble vitamin A class of vitamins that can be dissolved in water, including B vitamins (vitamin B1, vitamin B2, vitamin B6, vitamin B12, pantothenic acid, Folic acid, niacin, choline, biotin) and vitamin C.

Vitamin B1 vitamin B1 Thiamine Anti-neuritis aneurin One of the B vitamins. Pyruvate dehydrogenase, transketolase, alpha-ketoglutarate dehydrogenase in the form of thiamine pyrophosphate Coenzymes are involved in energy metabolism. Vitamin B1 deficiency can cause beriberi (beriberi).

Vitamin B2 vitamin B2 Riboflavin One of the B vitamins. In the body, flavin adenine dinucleotide and flavin mononucleotide are used as a prosthetic group to bind to a specific protein to form Flavin protein, involved in redox reactions and energy metabolism. Vitamin B2 deficiency can cause inflammation in the mouth, skin and scrotum.

Vitamin B6 vitamin B6 One of the B vitamins, including pyridoxine, pyridoxal and pyridoxamine. Its phosphorylated form is a supplement of aminotransferases during amino acid metabolism.

Enzyme. Vitamin B6 deficiency can cause peripheral neuritis, cheilitis, glossitis, seborrhea

and small cell anemia. Excessive vitamin B6 can cause Sensory neurological disorders and light-sensitive reactions.

Vitamin B12 vitamin B12 Cobalamin Cyanocobalamin One of the B vitamins. Its coenzyme forms are methylcobalamin and adenosine cobalamin, which are involved in nucleic acid and erythropoiesis. Vitamin B12 deficiency Lack can cause megaloblastic anemia.

3.10

Pantothenic acid

One of the B vitamins. A component of coenzyme A and an acyl carrier protein. Coenzyme A is involved in the metabolism of sugar, fat and protein;

Body proteins play a role in fatty acid synthesis.

[WS/T 476-2015 (nutrition terminology), basic nutrition 3.6.3.7] 3.11 Folic acid frolate One of the B vitamins. Its coenzyme form is a derivative of tetrahydrofolate that plays a role in one carbon unit metabolism. Folate deficiency Causes megaloblastic anemia, which can lead to fetal defects such as fetal neural tube defects and cleft lip and palate during perinatal period. Excessive folic acid can mask life Early manifestations of deficiency of B12, interfere with zinc absorption and the role of anticonvulsants.

3.12

Dietary folate equivalent dietary folate equivalent, DFE Dietary folate intake is based on dietary folate equivalents due to differences in the extent of absorption and utilization of natural folic acid and synthetic folic acid.

Said, the calculation sees formula (1).

) g (μ synthetic folic acid $\times 1.7$) g (μ natural folic acid) =) gDFE (μ dietary folic acid equivalent...(1) 3.13 Niacin Nicotinic acid One of the B vitamins. Including nicotinic acid, nicotinamide and its derivatives with niacin activity Things. Niacin constitutes nicotinamide adenine dinucleotide (coenzyme I) and nicotinamide adenine dinucleotide phosphate (coenzyme II) in the body.

In the redox reaction, the coenzyme acts as an electron carrier or a hydrogen donor. Lack of niacin can cause pelvic disease. Excessive niacin can cause vasodilation, gastrointestinal reactions and hepatotoxicity.

3.14

Niacin equivalent niacin equivalent; NE Since part of the niacin in the body is derived from the conversion of tryptophan, the dietary niacin intake is expressed as niacin equivalent, and the calculation is given by formula (2).

)tryptophan () niacin (nicotinic acid equivalent (mgmgmg 60/1) =NE ... (2) 3.15 Choline One of the B vitamins. Is an organic base, a component of phosphatidylcholine and

sphingomyelin, involved in the synthesis of methyl donors Metabolism is the precursor of the neurotransmitter acetylcholine. Choline deficiency can cause liver steatosis. Excessive choline can cause vomiting, runny, sweating, Fish body odor and gastrointestinal discomfort.

3.16

Biotin

One of the B vitamins. Participation in the carboxytransportation process in the body as a coenzyme in fat and sugar metabolism. A lack of diet is relatively rare.

3.17

Vitamin C vitamin C

Ascorbic acid

Participates in the redox reaction and hydroxylation reaction in the body. Vitamin C deficiency can cause scurvy. Excessive vitamin C can cause urinary oxalate Increased discharge increases the risk of urinary stone formation.

4 Chinese residents' dietary water-soluble vitamin reference intake

The reference intake of dietary water-soluble vitamins for Chinese residents is shown in Table 1.

Table 1 Reference intake of dietary water-soluble vitamins by Chinese residents
age)

/physiological condition	Vitamin B1	vitamin B2	vitamin B6	EAR	Mg/d	AI	Mg/d	RNI	Mg/d	EAR	Mg/d	AI	Mg/d	RNI	Mg/d	UL	Mg/d
Men, women, men, women and men	0~	-	-	0.1	-	-	-	0.4	-	-	0.2	-	-	0.5	-	-	0.3
0~	-	-	0.1	-	-	0.4	-	-	0.2	-	-	0.5	-	-	0.3	-	0.5
1 to 5	0.5	-	0.6	0.6	0.5	0.5	-	0.6	0.6	0.5	-	0.6	20	4	to	0.6	0.6
6 to 10	0.6	-	0.6	0.6	0.5	0.6	-	0.6	0.6	0.5	-	0.6	0.8	0.8	0.6	0.6	0.7
11 to 15	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
16 to 20	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
21 to 25	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
26 to 30	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
31 to 35	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
36 to 40	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
41 to 45	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
46 to 50	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
51 to 55	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
56 to 60	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
61 to 65	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
66 to 70	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
71 to 75	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
76 to 80	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
81 to 85	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
86 to 90	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
91 to 95	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
96 to 100	0.7	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	0.6	-	0.7	25	7
Pregnant women (1 week to 12 weeks)	1.0	-	1.2	1.0	-	1.2	1.9	-	2.2	60	Pregnant women (13 weeks to 27 weeks)	1.1	-	1.4	1.1	-	1.4
Pregnant women (>=28 weeks)	1.2	-	1.5	1.2	-	1.5	1.9	-	2.2	60	Breastfeeding	1.2	-	1.5	1.2	-	1.5
	1.2	-	1.5	1.2	-	1.5	1.4	-	1.7	60							

Note 1: "-" means not formulated.

Note 2: Some vitamins do not have UL, the main reason is that the research data is not sufficient, does not mean that there is no health risk of excessive intake.

Table 1 (continued 1)