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WS

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

WS/T 578.4-2018

**Chinese dietary reference intakes - Part 4: Lipid-soluble vitamin
(English Translation)**

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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 fourth part of WS/T 578.

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

1 Scope

This section of WS/T 578 specifies dietary reference intakes of fat-soluble vitamin A, vitamin D, vitamin E, and vitamin K in Chinese residents.

This section is applicable to the evaluation and guidance of the intake of dietary fat-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] 3.5 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] 3.6 Fat soluble vitamin lipid-soluble vitamin A class of vitamins that are soluble in organic solvents and insoluble in water, including vitamin A, vitamin D, vitamin E and vitamin K. After absorption and fat Protein or some specific protein is transported in combination. It can be stored in the body and excreted slowly. If it is excessively ingested, it can cause accumulation poisoning.

Vitamin A vitamin A

All compounds with retinol biological activity, including vitamin A1 and vitamin A2. Participate in visual function, reproductive system, machine Various physiological processes such as body immunity and metabolism, bone development, and embryonic organ establishment. The safe intake range is small. Lack of visual impairment Injury, reproductive dysplasia, etc. Excessive intake of animal-derived vitamin A produces significant toxicity; excess vitamin A in pregnant women and infants More sensitive, leading to abortion or abnormal development.

Retinol activity equivalent retinol activity equivalents; RAE Indicates the unit of the retinol active substance content in the diet. Conversion between substances with retinol activity,

and retinol activity the calculation method of the sex equivalent (μg) is shown in formula (1) and formula (2), respectively.

Protocarotenoids A other dietary vitamins μg 24 carotene meal all-trans μg 12 Carotene - all-trans μg 2 all-trans retinol μg 1 (RAE) retinol active equivalent μg 1 from supplements == == beta -..(1))g carotenoids (μ Original other dietary vitamins 241) g carotene (μ -meal full trans 121) g carotene (μ -all-trans Supplement pure 21) g trans retinol (full of μ diet or supplement source) μg , RAE retinol activity equivalent (A = ... (2) 3.9 Vitamin D vitamin D A group of fat-soluble vitamins. The most biologically active forms are cholecalciferol (vitamin D3) and ergocalciferol (vitamin D2). Having dimensions the function of balancing calcium and phosphorus metabolism. Vitamin D deficiency can cause rickets, osteomalacia and osteoporosis. Excessive hypercalcemia and high Calcitonin. In general, plant foods have low levels of vitamin D, and vitamin D can be synthesized in the body by exposure to sunlight or ultraviolet rays.

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Vitamin E vitamin E

Tocopherol A group of fat-soluble vitamins including strontium-, beta-, gamma-, delta-tocopherol and alpha-, beta-, gamma-, delta-trienol tocopherols Oxidative activity, wherein alpha-tocopherol is the most active. Possible side effects of excessive vitamin E are damage to the blood coagulation mechanism, leading to the appearance of certain individuals Bleeding tendency.

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--tocopherol equivalent alpha-tocopherol equivalents; alpha-TE the total amount of vitamin E bioactive substances in the diet is expressed in milligrams of strontium-tocopherol equivalent (mg -TE). For the calculation, see equation (3).

) mg tocotrienol (-3.0) mg tocopherol (02.0) mg tocopherol (-1.0) mg tocopherol (-5.0) mg tocopherol (1) mg (x-xxx-x=- TE ... (3) [WS/T 476-2015, definition 3.6.2.5] 3.12 Vitamin K vitamin K A group of compounds showing anti-hemorrhagic activity is a generic term for 2-methyl-1,4-naphthoquinone and its derivatives. Including vitamin K1, vitamin K2 and vitamin K3, necessary for the formation of active coagulation factor II, factor VII, factor XI and factor X. In the absence of vitamin K Prolongs clotting time and causes bleeding disorders. Vitamin K is widely found in green leafy vegetables, and intestinal bacteria can also be synthesized. Generally not in the diet Will be lacking, but vitamin K can not pass through the placenta, newborns have no intestinal bacteria, there may be a lack.

4 Chinese residents' dietary fat-soluble vitamin reference intake

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

Table 1 Reference intake of dietary fat-soluble vitamins in Chinese residents

age)

/physiological condition Vitamin A Gg RAE/d Vitamin D Gg/d Vitamin E Mg alpha-TE/d
 Vitamin K Gg/d EAR RNI UL EAR RNI UL AI UL AI Men and women 0 to - 300 a 600 - 10 a
 20 3 - 2 0.5 to - 350 a 600 - 10 a 20 4 - 10 1 to 220 310 700 8 10 20 6 150 30 4~ 260 360
 900 8 10 30 7.200 40 7~ 360 500 1500 8 10 45 9 350 50 11~ 480 450 670 630 2100 8 10
 50 13 500 70 14~ 590 450 820 630 2700 8 10 50 14 600 75 18~ 560 480 800 700 3000 8
 10 50 14 700 80 50 to 560 480 800 700 3000 8 10 50 14 700 80 65~ 560 480 800 700
 3000 8 15 50 14 700 80 80~ 560 480 800 700 3000 8 15 50 14 700 80 Pregnant women (1
 week ~ 12 week) 480 700 3000 8 10 50 14 700 80 Pregnant women (13 weeks ~ 27 week)
 530 770 3000 8 10 50 14 700 80 Pregnant women (>=28 weeks) 530 770 3000 8 10 50 14
 700 80 Nursing mother 880 1300 3000 8 10 50 17 700 85 Note. "-" means not established.

AI value.