

Overview on Tolerable Upper Intake Levels as derived by the Scientific Committee on Food (SCF) and the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA)

The Tolerable Upper Intake Level (UL) is the maximum level of total chronic intake of a nutrient from all sources judged to be unlikely to pose a risk of adverse health effects in humans.

Following a request from the European Commission, the Scientific Committee on Food (SCF), which was the predecessor of EFSA, started off in the year 2000 with giving scientific advice in relation to ULs for vitamins and minerals. The task was then taken over by EFSA when it became operational.

This document provides an overview about the outcome of the SCF's and EFSA's scientific deliberations. The detailed reasoning for establishing individual values can be found in the related opinions of the SCF and NDA Panel. Links to the respective documents are included in Table 3 of this document.

Table 1: Summary of Tolerable Upper Intake Levels (UL) of **minerals**

	Unit	Age/Life-stage group								
		0-1 y	1-3 y	4-6 y	7-10 y	11-14 y	15-17 y	Adults	Pregnancy	Lactation
Boron	mg/d		3	4	5	7	9	10	10	10
Calcium	mg/d	No adequate data to derive a UL						2500	2500	2500
Chloride		No adequate data to derive a UL								
Chromium (trivalent)		No adequate data to derive a UL								
Copper	mg/d		1	2	3	4	4	5	Insufficient data	
Iodine	µg/d		200	250	300	450	500	600	600	600
Iron		No adequate data to derive a UL								
Magnesium^(a)	mg/d		Insufficient data	250	250	250	250	250	250	250
Manganese		No adequate data to derive a UL								
Molybdenum	mg/d		0.1	0.2	0.25	0.4	0.5	0.6	0.6	0.6
Nickel		No adequate data to derive a UL								
Phosphorus		No adequate data to derive a UL								
Potassium		No adequate data to derive a UL								
Selenium	µg/d		60	90	130	200	250	300	300	300
Silicon		No adequate data to derive a UL								
Sodium		No adequate data to derive a UL								
Tin		No adequate data to derive a UL								
Vanadium		No adequate data to derive a UL								
Zinc	mg/d		7	10	13	18	22	25	25	25
	Unit	Age/Life-stage group								
		0-1 y	1-3 y	4-8 y	9-14 y	15-17 y	Adults	Pregnancy	Lactation	
Fluoride	mg/d		1.5	2.5	5	7	7	7	7	

d, day; y, year

^(a) Readily dissociable Mg salts (e.g. chloride, sulphate, aspartate, lactate) and compounds like MgO in food supplements, water or added to foods; does not include Mg naturally present in foods and beverages.

Table 2: Summary of Tolerable Upper Intake Levels (UL) of **vitamins and certain fatty acids**

	Unit	Age/Life-stage group									
		0-6 mo	6-12 mo	1-3 y	4-6 y	7-10 y	11-14 y	15-17 y	Adults	Pregnancy	Lactation
VITAMINS											
Biotin		No adequate data to derive a UL									
β-Carotene		No adequate data to derive a UL									
Folic acid (synthetic)	µg/d			200	300	400	600	800	1000	1000	1000
Niacin											
Nicotinamide	mg/d			150	220	350	500	700	900	Inadequate data	
Nicotinic acid	mg/d			2	3	4	6	8	10	Inadequate data	
Pantothenic acid		No adequate data to derive a UL									
Vitamin A^(a)	µg RE/d			800	1100	1500	2000	2600	3000 ^(b)	3000	3000
Vitamin B1		No adequate data to derive a UL									
Vitamin B12		No clearly defined adverse effects									
Vitamin B2		No adequate data to derive a UL									
Vitamin B6	mg/d			5	7	10	15	20	25	25	25
Vitamin C		No adequate data to derive a UL									
Vitamin D	µg/d	25	35	50	50	50	100	100	100	100	100
Vitamin E	mg/d			100	120	160	220	260	300	300	300
Vitamin K		No adequate data to derive a UL									
FATTY ACIDS											
DHA, EPA, DPA		No adequate data to derive a UL									

d, day; DHA, docosahexaenoic acid, DPA, docosapentaenoic acid; EPA, eicosapentaenoic acid; mo, month; RE, retinol equivalents; y, year

^(a) Retinol and retinyl esters

^(b) Does not apply to post-menopausal women, as it may not provide adequate margin of safety in relation to the possible decrease in bone density and the risk of bone fracture.

Table 3: Links to Scientific Opinions on Tolerable Upper Intake Levels

General principles	Fatty acids
http://www.efsa.europa.eu/sites/default/files/efsa_rep/blobserver_assets/ndatolerableuil.pdf	EPA, DHA, DPA: http://www.efsa.europa.eu/en/efsajournal/pub/2815
Vitamins	Minerals
Biotin, β -Carotene, Folate, Niacin, Pantothenic acid, Vitamin A, Vitamin B1, Vitamin B12, Vitamin B2, Vitamin B6, Vitamin E, Vitamin K: http://www.efsa.europa.eu/sites/default/files/efsa_rep/blobserver_assets/ndatolerableuil.pdf Vitamin D: http://www.efsa.europa.eu/en/efsajournal/pub/2813 Vitamin D in infants (update 2018) : https://www.efsa.europa.eu/en/efsajournal/pub/5365	Boron, Chloride, Chromium, Copper, Fluoride, Iodine, Iron, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Sodium, Tin, Vanadium, Zinc: http://www.efsa.europa.eu/sites/default/files/efsa_rep/blobserver_assets/ndatolerableuil.pdf Calcium: http://www.efsa.europa.eu/en/efsajournal/pub/2814
DHA, docosahexaenoic acid, DPA, docosapentaenoic acid; EPA, eicosapentaenoic acid	