The 36th International Vegetable Training Course
From Harvest to Table and Beyond
Food Processing and Nutritional Quality of Vegetables and Fruits

Maximum nutrient losses for common food processing methods (freezing, drying, cooking, and reheating)

The tables below compare the typical maximum nutrient losses for common food processing methods. These tables are included as a general guide only. Actual losses will depend on many different factors, including type of food and cooking time and temperature. For additional data on specific preparation methods, please see the USDA Table of Nutrient Retention Factors (Release 6, December 2007). Web site: http://www.ars.usda.gov/nutrientdata

Vitamin	Typical maximum nutrient losses (% as compared to raw food)				
	Freeze	Dry	Cook	Cook+Drain	Reheat
Vitamin A	5	50	25	35	10
Retinol Activity Eq.	5	50	25	35	10
Alpha Carotene	5	50	25	35	10
Beta Carotene	5	50	25	35	10
Beta Cryptoxanthin	5	50	25	35	10
Lycopene	5	50	25	35	10
Lutein+Zeaxanthin	5	50	25	35	10
Vitamin C	30	80	50	75	50
Thiamin	5	30	55	70	40
Riboflavin	0	10	25	45	5
Niacin	0	10	40	55	5
Vitamin B6	0	10	50	65	45
Folate	5	50	70	75	30
Food Folate	5	50	70	75	30
Folic Acid	5	50	70	75	30
Vitamin B12	0	0	45	50	45

Mineral	Typical maximum nutrient losses (% as compared to raw food)				
	Freeze	Dry	Cook	Cook+Drain	Reheat
Calcium	5	0	20	25	0
Iron	0	0	35	40	0
Magnesium	0	0	25	40	0
Phosphorus	0	0	25	35	0
Potassium	10	0	30	70	0
Sodium	0	0	25	55	0
Zinc	0	0	25	25	0
Copper	10	0	40	45	0