


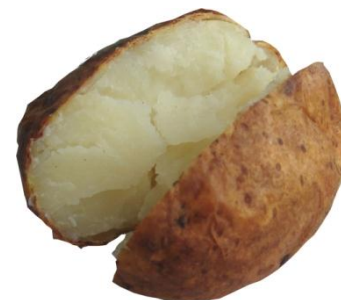


## Nutritional changes during food processing

Effect of processing and cooking on energy, fat, vitamin c and fibre content of potato products per 100g

	Potato crisps	Potato waffles, frozen, cooked	Old potatoes, chipped	Old potatoes, roasted	Old potatoes, mashed	Old potatoes, boiled	New potatoes, canned, reheated	Instant potato powder, made up with water
<b>Energy (kJ)</b>	2275	842	796	630	438	306	271	245
<b>Total fat (g)</b>	37.6	8.2	6.7	4.5	4.3	0.1	0.1	0.1
<b>Vitamin c (mg)</b>	27	36	9	8	5	6	5	23
<b>Fibre (g)</b>	4.9	2.3	2.2	1.8	1.1	1.2	0.8	1.0

**Source** – Holland B, Unwin ID and Buss DH, Vegetables, Herbs and Spices. *The fifth Supplement to McCance and Widdowson's The composition of Foods* (4<sup>th</sup> Edition). Cambridge: The Royal Society of Chemistry, 1991.





## Summary of factors (✓) which may reduce the nutrients in food

Nutrient	Heat	Light	Air	Water (by leaching)	Acid	Alkali	Other
Protein	✓ If prolonged						
Minerals				✓			
Vitamin A	✓ With air		✓ With heat				Metals
Thiamin	✓		✓	✓		✓	Sulphur dioxide
Riboflavin		✓		✓		✓	
Folate	✓		✓ (but protected by vitamin c)	✓		✓	
Vitamin C*	✓	✓	✓ (but protected by sulphur dioxide)	✓		✓	Enzymes; metals

\* Least stable to cooking and storage.

Source – Ministry of Agriculture, Fisheries and Foods. *Manual of Nutrition*. 10<sup>th</sup> Edition. London: HMO, 1995.

## Stability of some nutrients in peas through a variety of processes

	Raw peas				Frozen peas				Canned peas		
	Protein (%)	Vitamin C (mg/100g)	Iron (mg/100g)		Protein (%)	Vitamin C (mg/100g)	Iron (mg/100g)		Protein (%)	Vitamin C (mg/100g)	Iron (mg/100g)
Picked	25	130	9.6	Frozen then cooked	26	65	7.4	Canned and cooked	24	50	6.9
Cooked with minimum water	26	116	9.3	Frozen for 3 months and cooked	26	61	7.1	Canned and cooked after 3 months	25	40	7.0
1 day old and cooked	24	90	6.9	Frozen for 9 months and cooked	24	63	5.8	Canned and cooked after 9 months	24	38	6.7
4 days old and cooked	15	57	6.8								

Source – Campden Food Preservation Research Association, 1987.