

# The Health Benefits of Citrus Fruits

## Nutrient Profiles

	KJ	Water (g)	Protein (g)	Dietary Fibre (g)	Total Fat (g)	Carbohydrate (g)	Sugars (g)	Calcium <sup>1</sup> (mg)	Iron <sup>1</sup> (mg)	Magnesium <sup>1</sup> (mg)	Phosphorous <sup>1</sup> (mg)	Potassium <sup>1</sup> (mg)	Sodium <sup>2</sup> (mg)	Zinc <sup>1</sup> (mg)	Copper <sup>2</sup> (mg)	Manganese <sup>2</sup> (mg)	Selenium <sup>2</sup> (mcg)	Vitamin A Retinol Equivalents <sup>1</sup> (ug)	Beta-carotene <sup>1</sup> (ug)	Vitamin C <sup>1</sup> (mg)	Vitamin E <sup>2</sup> (mg)	Thiamin <sup>1</sup> (mg)	Riboflavin <sup>1</sup> (mg)	Niacin <sup>1</sup> (mg)	Pantothenate <sup>2</sup> (mg)	Vitamin B6 <sup>2</sup> (mg)	Folate <sup>1</sup> (mg)	
Per Serve																												
Orange (120g)	187	104	1.2	2.4	0.12	9.5	9.5	35	0.5	13	29	174	0	0.2	0.06	0.04	0.6	25	156	62	0.29	0.13	0.04	0.6	0.30	0.07	36	
Lemon (100g)	95	89	0.6	2.5	0.2	1.8	1.8	20	0.3	9	20	120	2	0.1	0.04	0.03	0.4	2	10	48	0.24	0.04	0.02	0.3	0.19	0.08	11	
Mandarin/Tangerine (60g)	97	53	0.5	1.2	0.12	4.8	4.8	16	0.2	7	11	85	1	0.1	0.02	0.02	0.3	9	52	28	0.14	0.04	0.02	0.2	0.12	0.04	11	
Grapefruit – half (100g)	111	90	0.9	0.6	0.2	4.8	4.8	21	0.2	8	16	120	0	0.1	0.05	0.01	1.4	4	25	36	0.25	0.03	0.03	0.6	0.28	0.04	25	
Lime (50g)	44	44	0.4	1.0	0.1	0.6	0.6	11	0.2	5	9	75	2	0.05	0.1	0.01	0.8	3	15	24	0.00	0.02	0.01	0.1	0.11	0.05	0	
RDI for Adults	6500-13700	-	45-55	30	-	-	-	800-1000	5-16	270-320	1000	1950-5460	920-2300	12	-	-	70-85	750	-	30-40	0.7-1.1	0.7-1.1	1.0-1.7	11-19	5-10	0.8-1.9	200	

<sup>1</sup>Data source: AUSNUT 1999 (ANZFA)  
<sup>2</sup>Data source: USDA Database for Standard Reference, Release 14 (2001)



One Orange =

- Double the RDI for vitamin C
- Significant contributions of folate, beta-carotene, potassium and dietary fibre
- A powerful antioxidant boost
- Hundreds of bioactive phytochemicals

Australian Seasons

**Oranges** (*Citrus sinensis*) – May to October (Navels), October to April (Valencias)

**Grapefruit** (*Citrus paradisi*) – All year, best November to April

**Mandarins** (*Citrus reticulata*) – March to November, best May to October

**Lemons** (*Citrus limon*) – All year

**Limes** (*Citrus aurantifolia*) – All year, best January to April

# Components & Health Benefits

Component	Prevalence in Citrus	Health Benefits
<b>Antioxidants</b> Includes vitamin C, non-nutrient carotenoids, polyphenols such as flavonoids, glutathione and various enzyme systems.	Citrus fruits generally have the highest antioxidant activity of all fruit classes.	Boosts immune system; may protect against cancer, heart disease, cataracts, degeneration of the macular area of eyes and infection.
<b>Vitamin C</b> (Ascorbic acid)	High One orange has 62mg, nearly double the RDI.	Antioxidant; boosts immune system; may protect against cancer, heart disease, cataracts and infection; assists absorption of iron and zinc.
<b>Carotenoids</b> Includes beta-carotene, alpha carotene, lutein, zeaxanthin, cryptoxanthin.	Moderate to high levels generally with over 60 present Particularly good source of beta-carotene. One orange = 3% RDI for vitamin A retinol equivalents.	Antioxidant; boosts immune system; may protect against cancer, heart disease, cataracts and infection.
<b>Folate</b> (Folic acid)	High One orange = 18% RDI.	Prevents neural tube defects in children, stabilises genetic material, and may also be protective for cancer and heart disease.
<b>Potassium</b>	Generally high One orange = 6% RDI.	High potassium and low sodium level may help in prevention of high blood pressure.
<b>Dietary Fibre</b> Includes soluble and insoluble polysaccharides, resistant starch and some other components.	Good source One orange contains 2.4g fibre = 8% RDI.	Decreases transit time of food in the gut, improves gut microflora and certain fibres help lower blood fats. May reduce risk of certain cancers and heart disease, and relieve gastric conditions such as constipation.
<b>Non-nutrient Phytochemicals</b> (Generic name for hundreds of different components eg polyphenols, flavonoids, coumarins, terpenes and phytosterols).	Rich source Citrus contain a number of phytochemical classes and individual phytochemical components. An orange has over 170 different phytochemicals.	Anti-inflammatory, anti-tumour and blood clot inhibiting properties; strong antioxidant effects; may protect against some of the common chronic diseases such as cancer and cardiovascular disease, degenerative eye and cognitive conditions, and general damage caused by ageing.
<b>Polyphenols</b> Includes simple phenols, hydroxycinnamic acid derivatives and flavonoids including catechins, anthocyanins, flavones and flavonols.	Good source	Shown to have a range of health related effects including antioxidant, anti-viral, anti-allergic, anti-inflammatory, anti-proliferative and anti-carcinogenic. Most interest has centred on a possible role in cancer and heart disease, and recently in brain functions such as learning and memory.
<b>Flavonoids</b> (Sub-group of polyphenols) Includes flavanones, flavones, flavanols and anthocyanins.	Particularly abundant in citrus plants. More than 60 individual flavonoids have been identified.	May help protect against cancer, viral infections, inflammatory disease, allergies, fungal conditions and heart disease.
<b>Coumarins</b> (Class of phytochemicals)	Good source Auraptene is the most common coumarin in citrus.	Shown in animal studies to inhibit growth of tumours, colonic aberrant crypts, and oral and large bowel cancer. Experimental studies suggest that these substances might protect against human cancer.
<b>Terpenes</b> (Class of phytochemicals) Includes mono terpenes and tri-terpenes.	Good source of some terpenes The most abundant terpenes in citrus are liminoids.	Liminoids stimulate a detoxifying enzyme system and inhibit tumour formation. Limonene shown in animal studies to have powerful anti-cancer properties, and has caused complete regression of mammary and pancreatic tumours. Other terpenes have been shown to shrink tumours in animals, including pancreatic cancer.
<b>Energy</b>	Low in dietary energy and energy density (energy/unit weight) One orange = 187kj (RDI 6500-13700kj)	Low energy foods with high nutrient value are of great importance in Australia where obesity is reaching epidemic proportions. Overweight and obesity increase the risk of heart disease, certain cancers, diabetes, blood pressure and stroke, and add to the symptoms of other conditions like arthritis.