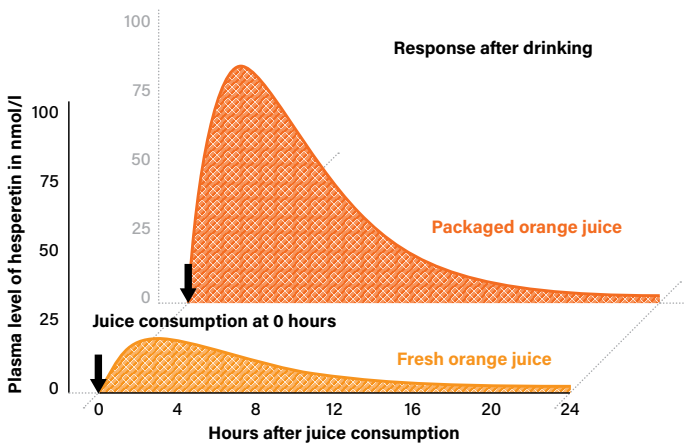


ADDRESSING THE FIVE KEY MISCONCEPTIONS AROUND 100% ORANGE JUICE



FACT 1: 100% ORANGE JUICE CONTAINS HESPERIDIN

100% orange juice delivers more hesperidin than vitamin C according to data from the independent organisation SGF International¹ which show that 100 mL typically provides 52 mg of hesperidin, or 78 mg per 150 mL serving. By comparison, the average vitamin C content is 36.4 mg per 100 mL. Various studies have demonstrated the high bioavailability of hesperidin from 100% orange juice compared with whole oranges.² In addition, packaged 100% orange juice contains three times more hesperidin than freshly squeezed orange juice due to the more efficient juicing process.³



A glass of packaged orange juice (POJ) contains around three times more hesperidin (a flavanone) than a glass of fresh orange juice (FOJ). Consequently, around 2.8-fold more of hesperidin's main metabolite, hesperetin, reached the plasma when consuming POJ as compared to when consuming FOJ.

Silveira JQ et al. (2014) Pharmacokinetics of flavanone glycosides after ingestion of single doses of fresh-squeezed orange juice versus commercially processed orange juice in healthy humans. *J Agric Food Chem* 62: 12576-84.

Surprisingly, 100% orange juice is one of the few naturally rich sources of the flavonoid, hesperidin, which is a polyphenol that exists in the white peel and membrane of citrus fruits. Studies show that hesperidin and its metabolites exhibit anti-inflammatory⁴ characteristics, and can impact positively on human microvascular function (elasticity and tone of blood vessels).⁵

FACT 2: 100% ORANGE JUICE CONTAINS THREE NUTRIENTS THAT ARE PROVEN TO SUPPORT NORMAL HEALTH: VITAMIN C, POTASSIUM AND FOLATE

New data⁶ collected by SGF International reconfirm the strong nutrient matrix of 100% orange juice. A typical small glass (150 mL) of 100% orange juice provides 67.5 mg of vitamin C, which is more than 80% of the Nutrient Reference Value (NRV), the recommended daily amount for maintaining general health. A serving also provides 16% of the NRV for folate and 13% of the NRV for potassium.

	100 mL	150 mL	200 mL
Energy (kcal)	41	62	82
Total sugars (g)	9	14	18
Vitamin C (mg)	45	67.5	90
Potassium (mg)	176	264	352
Folate (mcg)	21.5	32.3	43
Total carotenoids (mg)	0.7	1.1	1.4
Hesperidin (mg)	52	78	104
Pectins (mg)	33.4	50.1	66.8

Figure 1: What's in a glass of 100% OJ? Data from SGF International (2018) and other sources. 1-2 medium-sized oranges per glass of 100% OJ based on published calculations from Tetra Pak.⁷



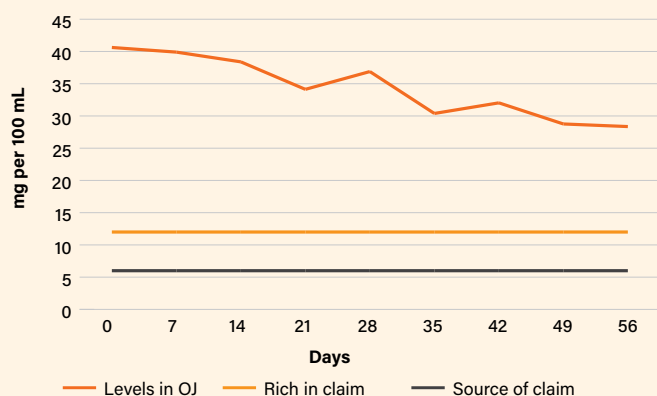
As shown above, 100% orange juice contains enough vitamin C, folate and potassium ($\geq 7.5\%$ NRV per 100 g) to allow nutrition claims to be made. Each of these nutrients has a set of authorised health claims in Europe⁸ such as:

Vitamin C	Folate	Potassium
Increases iron absorption	Helps normal psychological function	Supports the maintenance of normal blood pressure
Helps the immune system to work normally	Helps the immune system to work normally	Helps muscles to work normally
Helps protect cells from oxidative stress	Has a role in the process of cell division	Contributes to normal functioning of the nervous system
Helps reduce tiredness and fatigue	Helps reduce tiredness and fatigue	

FACT 3: PASTEURISATION AND STORAGE OF 100% ORANGE JUICE PRESERVE NUTRIENT STRENGTH

There is often confusion about the production process of 100% orange juice and its nutrient content during manufacturing and storage. Research from AMC Juices & AMC Innova⁹ confirms that levels of vitamin C in 100% orange juice are well above the legal threshold of 12 mg per 100 mL to be described as a product that is “rich in” this vitamin¹⁰, even after refrigeration for 56 days. Hesperidin is even more resistant to degradation by oxygen or temperature than vitamin C. It shows a 2% loss after 6 months at 4 °C and a 9% loss after 6 months at 18 °C. This confirms that freshly squeezed or packaged 100% orange juice continues to contain a complex nutrient matrix that is beneficial to health.

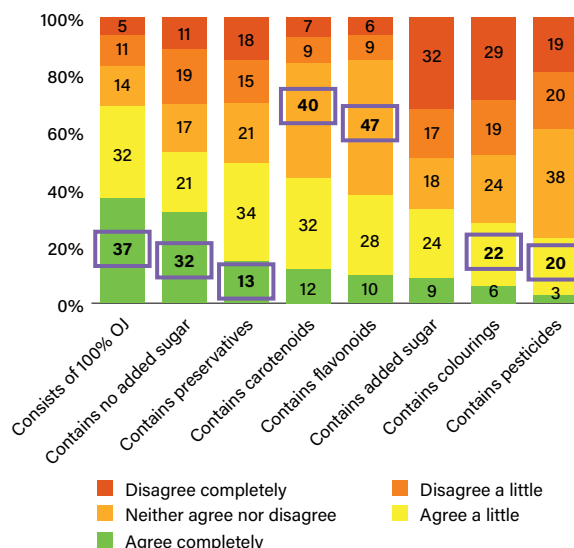
Vitamin C content of pasteurised 100% OJ



FACT 4: “100% FRUIT JUICE” ON PACK MEANS NOTHING IS ADDED

An IPSOS survey¹¹ across 2,099 healthcare professionals showed that there were strong misconceptions about the purity of 100% orange juice. Worryingly, 31% of healthcare professionals were not convinced that “100% orange juice” on a label meant that the product was 100% juice, while 28% wrongly believed that colourings were added and 47% wrongly thought that preservatives were used.

Misperceptions clearly exist around the purity of packaged 100% OJ
Knowledge about 100% OJ: agreement with statements



In fact, European regulations strictly control the production of 100% fruit juice so that nothing artificial can be added, and nothing can be removed.

FACT 5: 100% ORANGE JUICE MADE FROM CONCENTRATE HAS USEFUL AMOUNTS OF NUTRIENTS AND BIOACTIVES

Contrary to some beliefs, 100% orange juice made from concentrate does not contain added sugars, preservatives or nutrient fortification. Vitamin C levels in 100% orange juice made from concentrate are considered “high” as per EU regulations and are in the same range as the vitamin C levels in juices which were not made from concentrate, all commonly ranging from 36–53 mg/100 mL juice depending on orange variety and season, juicing processes and storage conditions. In addition, hesperidin and potassium levels are similar whether 100% orange juice is made from concentrate or is freshly squeezed.⁴

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