

Fruit juice and vitamin C

Key points

- 100% fruit juice (FJ) contains a similar amount of vitamin C to the whole fruit it is made from.
- A small glass of 100% orange juice contains 67.5mg vitamin C, or more than 80% of the Nutrient Reference Value for vitamin C.
- In European populations FJ contributes up to 26% of daily vitamin C intakes.
- Although freshly squeezed juice contains more vitamin C, packaged FJ still provides a rich source of vitamin C.

Vitamin C is an essential micronutrient which has many roles in the body. There are several authorised health claims in Europe which demonstrate how vitamin C can benefit human health, including that it¹:

- contributes to normal energy-yielding metabolism;
- contributes to the normal function of the immune system;
- contributes to normal collagen formation;
- contributes to the reduction of tiredness and fatigue;
- increases iron absorption in the gut.

FIGURE 1

IRON ABSORPTION AND FRUIT JUICE

Vitamin C

increases iron absorption.
Fruit juice is a rich source
of vitamin C.



¹ Based on EU and GB authorised health claim

Fruit juice and vitamin C intake

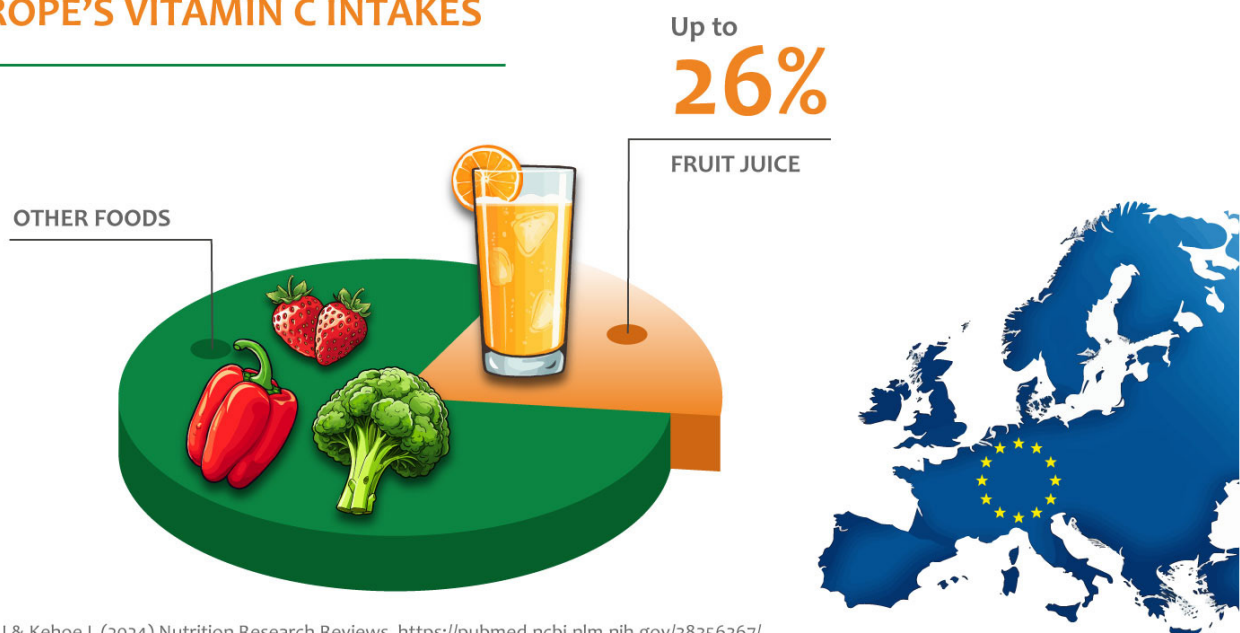
Fruit juice contains similar amounts of vitamin C to the whole fruit it is made from. For example, 100% orange juice contains 45mg vitamin C per 100mL whereas the whole fruit contains 52mg per 100g (equivalent to a small orange). A 150mL glass of orange juice therefore contains 67.5mg vitamin C which is equivalent to more than 80% of the Nutrient Reference Value for maintaining general health. This is why 100% orange juice can legally be considered a 'rich source' of vitamin C.

Europeans who are regular consumers of FJ, on average, drink less than 130mL a day, which is below the recommended serving size in the UK and several other countries². This modest amount nevertheless contributes 4 to 26% of our daily vitamin C intakes (Figure 2). Across the lifecycle, the contribution of fruit juice to daily vitamin C intakes ranges from 4 to 20% in infants; 6 to 26% in children; 8 to 20% in teenagers; 8 to 19% in adults; and 6 to 19% in older adults.

A 2020 study of 34,351 participants in Canada found that frequent consumption of FJ was associated with improved adequacy of vitamin C intake for adults³. In addition, studies have suggested that a higher blood vitamin C level is associated with a reduced risk of developing type 2 diabetes⁴.

FIGURE 2

FRUIT JUICE PROVIDES 4-26% OF EUROPE'S VITAMIN C INTAKES



Walton J & Kehoe L (2024) Nutrition Research Reviews. <https://pubmed.ncbi.nlm.nih.gov/38356367/>

Processed juice vs freshly squeezed juice

There is sometimes confusion as to whether freshly squeezed or packaged FJ is best, in terms of nutritional value. One study tested vitamin C levels in freshly squeezed orange juice versus heat-treated and packaged 100% orange juices sold in Spain, the UK, Germany, and France⁵. Although vitamin C was significantly higher in freshly squeezed orange juice compared with packaged juices, levels of the vitamin in the fresh product started to decline within 48 hours. Packaged orange juice, while being initially lower in vitamin C, still provided more than 80% of the Nutrient Reference Value⁶ in a standard glass (150mL). This suggests that it is an appropriate beverage for meeting vitamin C needs in the general population.

Conclusion

Vitamin C is an important and essential micronutrient to support many areas of health. Fruit juice is a rich source of vitamin C, according to several studies, and contributes up to 26% of daily vitamin C intakes, based on current average intakes in regular consumers. However, a small glass of 100% orange juice could contribute more than 80% of the daily recommendation. A key study concludes²: that there is an “important role of fruit juice in the context of vitamin C intakes in population groups with little contribution to energy intakes”. While freshly squeezed juice contains more vitamin C initially, the convenient option of packaged juice is still considered to be a rich source of vitamin C.

References

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