

FRUIT JUICE  
SCIENCE CENTRE



# FRUIT JUICE SCIENCE CENTRE

## REPORT 2025

# CONTENTS

<b>CHAPTER 1</b>	3
What's in a glass of orange juice?	
<b>CHAPTER 2</b>	9
The surprising facts about fruit juice, health and wellbeing	
<b>CHAPTER 3</b>	11
Consumer understanding	
<b>CHAPTER 4</b>	14
Conclusion and final thoughts	
References	16

## EXECUTIVE SUMMARY

A new survey of over 8,000 Europeans,<sup>1</sup> commissioned by the Fruit Juice Science Centre (FJSC), reveals that over half feel exposed to conflicting advice from health experts, causing confusion as to what guidance to follow. Whether fruit juice is good or bad for us is a prime example, with the growing influence of social media as a source of nutrition information — especially among younger audiences — contributing significantly to this confusion.

Recently, fruit juice has been the subject of criticism from some influencers lacking nutritional expertise, for having a harmful effect on blood sugar and health. Unfortunately, this has shaken public perception of 100% fruit juice — a product packed with nutritional benefits. Highlighting the issue, the FJSC research shows that almost four in 10 (38%) incorrectly think 100% juice can cause significant spikes in blood sugar, while a third are unclear on the health benefits.

Drawing from the FJSC survey data, evidence from the latest research, and commentary from experts in nutrition, this report unearths fresh insights on consumer behaviour in relation to understanding of the scientifically proven health benefits.



# CHAPTER 1

## What's in a glass of orange juice?

Fruit juice is bursting with nutritional components that benefit the body. A 150 ml glass of orange juice (OJ), for example, provides an average of 75 mg vitamin C, making it possible to achieve over 90% of the recommended daily intake (80mg) before leaving the breakfast table.

The vitamin C in OJ supports:

- A healthy immune system
- Reducing tiredness and fatigue
- Protecting cells from free radical damage
- Supporting iron absorption
- Making collagen for healthy bones, teeth and skin
- Nervous system health

Yet, people often do not meet recommended vitamin C targets, according to a new analysis of the UK's National Diet and Nutrition Survey (NDNS),<sup>2</sup> which revealed intakes below the Reference Nutrient Intake (RNI) in around a quarter of the UK adult population.

In Germany, the median intake of vitamin C among adults generally meets or slightly exceeds the reference values laid out by the D-A-CH-Referenzwerte framework.<sup>3</sup> However, certain groups, such as smokers, individuals with chronic illnesses, or those with unbalanced diets, may have lower intakes and could be at risk of vitamin C insufficiency.

In France, consumption data from the Étude Individuelle Nationale des Consommations Alimentaires (INCA study) show that the average vitamin C intake among adults represents about 82% of the recommended daily intake (110 mg/day) set by ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail), meaning that French adults on average fall short by around one fifth.<sup>4</sup>

Food item	Vitamin C per 100 g*	Vitamin C per 80 g serving of whole fruit	Vitamin C per 150 g serving of juice/drink
Apple juice concentrate, unsweetened, commercial	49 mg		73.5 mg
Apples, eating, raw, flesh and skin	6 mg	4.9 mg	
Grapefruit juice, unsweetened	31 mg		46.5 mg
Grapefruit, flesh only, raw	35 mg	28 mg	
Orange juice, commercial	50 mg		75 mg
Orange juice, freshly squeezed	74 mg		111 mg
Oranges, flesh only	52 mg	41.6 mg	
Passion fruit juice	21 mg		31.5 mg
Passion fruit, flesh and pips	23 mg	18.4 mg	
Pineapple juice, unsweetened	11 mg		16.5 mg
Pineapple, flesh only, raw	53 mg	42.4 mg	

\*McCance and Widdowson's 'composition of foods integrated dataset' on the nutrient content of the UK food supply. (2021). Public Health England.<sup>5</sup> Except commercial and freshly squeezed orange juice, where data was taken from Salar FJ, et al. (2024).<sup>6</sup>

This is unsurprising considering the FJSC research shows a third (32%) are unclear on the health benefits of 100% juice, rising to almost half (45%) for younger generations, compared with around a quarter (27%) of those aged 65+.

A 150 ml glass of OJ also provides 19 mcg folate (vitamin B9). The authors of a comparative analysis from 2024 found that around 10% of daily folate requirements across all life stages could be met from one daily 200 ml serving (26 mcg folate) of orange juice.<sup>7</sup>

#### **The folate in OJ supports:**

- Immune system health
- Reducing tiredness and fatigue
- Nervous system health
- Forming blood and tissue: the reason it is so important during pregnancy

A 200 ml glass of commercial OJ provides nearly 11% of potassium requirements for adults (3,500 mg/day).<sup>7</sup>

#### **The potassium in OJ supports the:**

- Nervous system
- Muscles
- Healthy blood pressure

Research shows that commercial orange juice contains “nutritionally significant” levels of polyphenols – the flavanones hesperidin and naringenin specifically. In fact, OJ contains more polyphenols than vitamin C, showing that it is a concentrated source. Industrial squeezing processes lead to commercial juices having up to four times higher concentrations of polyphenols than home-squeezed juices.<sup>7</sup>

#### **The polyphenols in OJ support:**

- Heart health
- Brain health
- Metabolic health
- Healthy immune and inflammatory responses

While a sizeable majority (74%) know that OJ contains vitamin C, they are much less likely to know about these other key nutrients found in their glass of OJ. Only 14% know about its folate content, 11% know about its potassium, and just 4% know about OJ’s polyphenols.

## **Health perceptions**

While most Europeans consider supporting immune function the most important benefit of OJ, French respondents most frequently cited fatigue reduction as the key advantage.

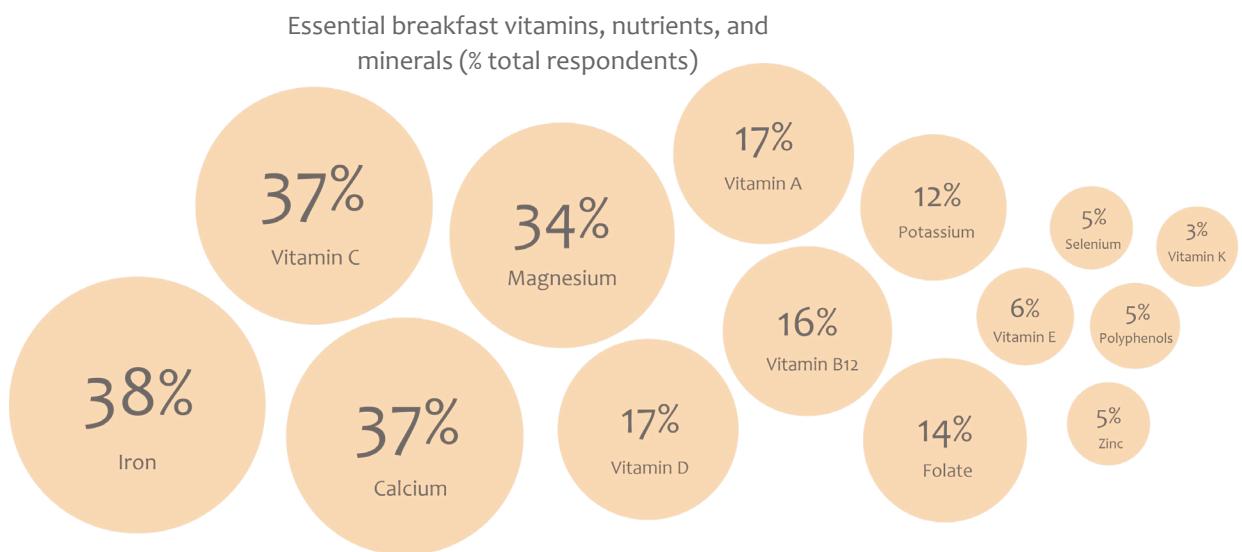
More than a third (36%) of those surveyed believe they are failing to get the nutrients their body needs despite eating breakfast, rising to 50% of 18-24-year-olds and 51% of 25-34-year-olds but dropping to 20% in the 65+ group.

This may be due to nearly half (44%) not knowing what nutrients they need to support their body properly in the morning, perhaps owing to the barrage of conflicting information about what constitutes a healthy breakfast (48%).

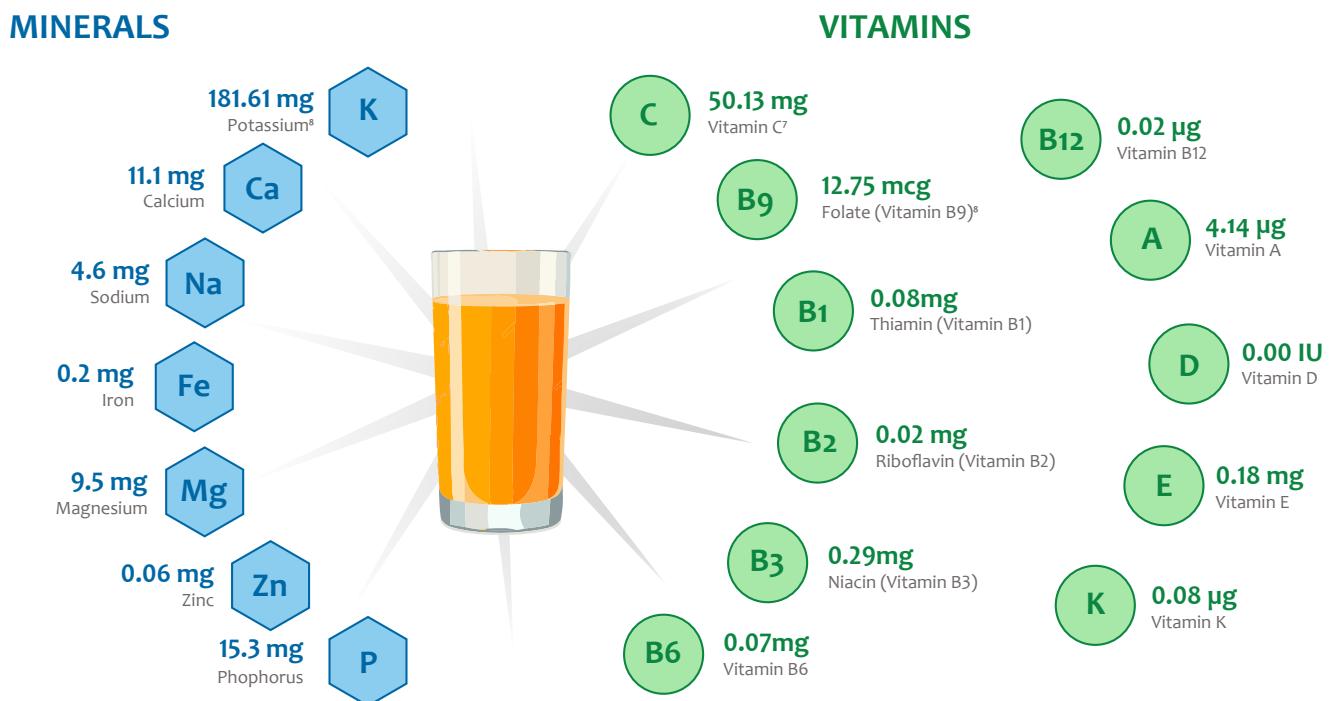
Besides, over a third are unable to correctly identify the recommended daily intake of any vitamins or minerals with just 1% able to correctly identify them all.



Iron, Vitamin C, and Calcium are believed to be the most needed nutrients in breakfast foods to help fuel the rest of the day



Vitamins and minerals in 100% orange juice per 100 ml



## Vitamin and minerals: natural sources vs. supplements

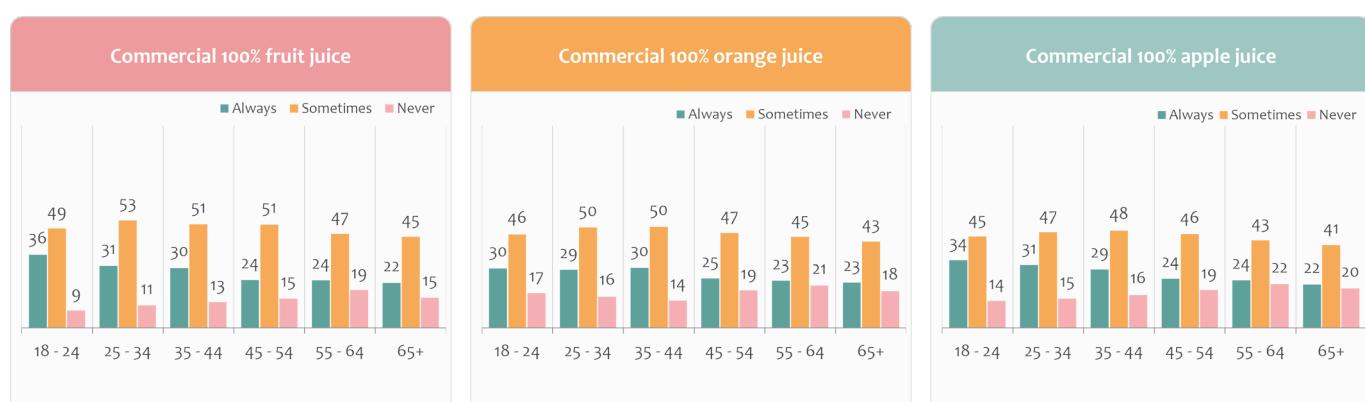
It is no surprise, then, that two fifths (41%) find it difficult to ensure they get all their vitamins and minerals for the day, with 45% consuming vitamin and/or mineral supplements as a way of achieving their recommended daily intake. This is highest in the UK (55%) and lowest in France (35%). It is also much higher among the 18-34-year-olds (57%) than it is among the 65+ years age group (31%).

Over a third (36%) do not get enough vitamins and minerals from food, opting for supplements as a quick fix. Sugar concerns also influence the decision to supplement instead of consuming fruits (18%).

While supplementation has its place, relying on it solely for nutrient intake means foregoing other beneficial components of food, like polyphenols and fibres.

## Globally, younger people aged 18-34 years old are most likely to believe there is always added sugar in fruit juices; this belief declines with age

Believed to have added sugars (% total respondents)



## Fruit juice consumption in Europe: perception vs. reality

Despite concerns around overconsumption of fruit juice, Europeans still consume less than the recommended daily serving.

A 2024 review of national food consumption surveys shows that, when people are regular consumers of fruit juice, their serving size is in line with food-based dietary guidelines. Adults drink around one 150 ml glass daily, while children consume less.<sup>9</sup> However, a third to half of people, depending on the country, report that they don't drink fruit juice.

This review also shows that fruit juice contributes:

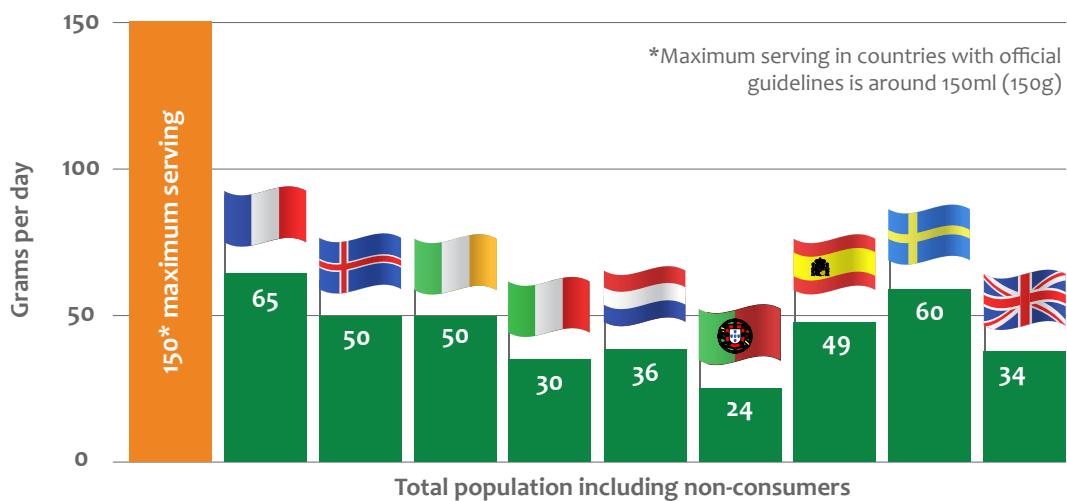
- Just 1-2% of our daily calories and 2-14% of free sugars – far less than expected
- Up to a quarter of our daily vitamin C (4-26%) and up to 7% of folate and potassium

This means that fruit juice delivers higher amounts of beneficial nutrients for a relatively small amount of calories and sugar. Indeed, it's apparent that more than 80% of the sugar in our diets comes from other foods and drinks, not fruit juice.

## Country comparisons

When we look at whole populations, including non-consumers, adults in France consume the most fruit juice (65 g/day), compared to adults in Portugal who consume the least (24 g/day).

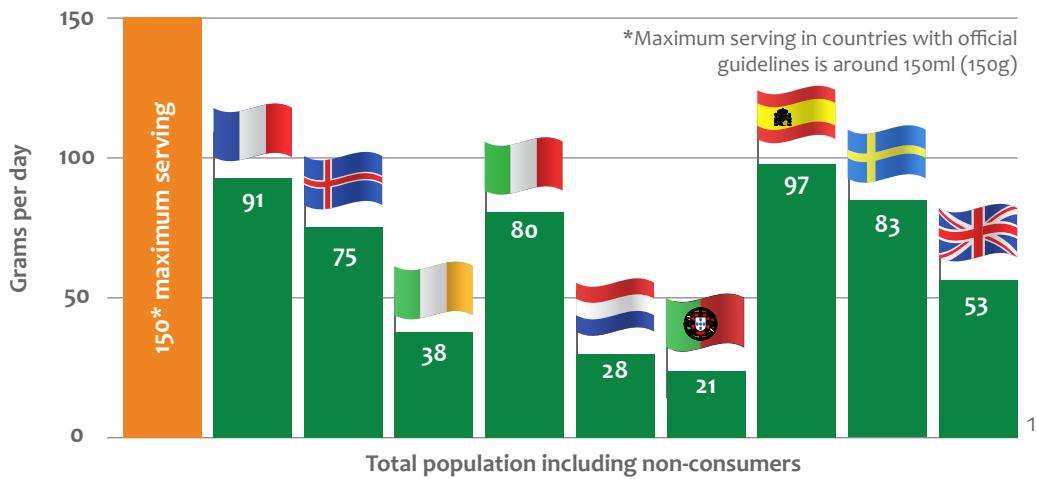
### ON AVERAGE, EUROPEAN ADULTS DRINK LESS THAN 70G OF FRUIT JUICE DAILY



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

Again, based on the total population including non-consumers, children in Spain consume the most fruit juice (97 g/day) – still far short of the recommended maximum serving of 150 ml/day (150 g/day).

### ON AVERAGE, EUROPEAN CHILDREN DRINK LESS THAN 100G OF FRUIT JUICE DAILY



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

The recommended daily serving of fruit juice in several countries is 100-200 ml daily. This ties in with official advice to consume five daily servings of fruit and vegetables.<sup>10</sup> Limiting consumption to one daily glass of fruit juice allows space in the diet for other plant foods, ensuring variety and a wide range of nutrients and health benefits. Several health agencies also advise that fruit juice is consumed with a meal. This actually benefits nutrient absorption as the vitamin C in fruit juice can help boost iron absorption from plant foods.

<sup>10</sup>German data was excluded as the country's dietary survey did not differentiate between nectars and 100% fruit juice.

## EUROPEAN FRUIT JUICE RECOMMENDATIONS<sup>11</sup>

### GERMANY

Minimum 5 portions (110g each) of fruit and vegetables daily

1 portion (200g) of juices a week

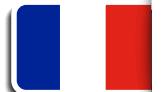


### SPAIN

Minimum 5 servings of fruit and vegetables daily

### UNITED KINGDOM

Minimum 5 portions of a variety of fruit and vegetables every day, including fresh, frozen, tinned, dried or juiced



### FRANCE

Minimum 5 portions (80-100g each) of fruit and vegetables daily - no specification for juice

*“Almost half of German consumers believe that 100% orange juice is a highly processed product. However, this is simply not true: 100% orange juice is only minimally processed and, by law, may not contain any added sugar. A glass of 100% orange juice can count as one serving of fruit and thus, contributes to a balanced diet. People in Germany still consume too little fruit and vegetables, which makes 100% orange juice a valuable part of their nutrition.*

*New data show clear differences between age groups. Younger and older consumers often have very different perceptions of 100% orange juice – influenced by nutritional literacy and personal experience. It is important to underline that 100% orange juice must not contain any added sugar.*

*The health benefits of fruit and 100% orange juice apply to all age groups. They are rich in vitamins and minerals – especially vitamin C, folate, and potassium – which play an important role in immune function, energy metabolism, and overall health. A glass of 100% fruit juice complements daily recommendations to eat at least five servings of fruit and vegetables.”*

Hon. Prof. PhDr. Sven-David Müller,  
M.Sc., Lecturer, Nutritionist and Author

# CHAPTER 2

## The surprising facts about fruit juice, health and wellbeing

Fruit juices support health in a wide range of ways, from protecting the heart by lowering blood pressure, to immunity support, controlling inflammation and improving cognitive function.

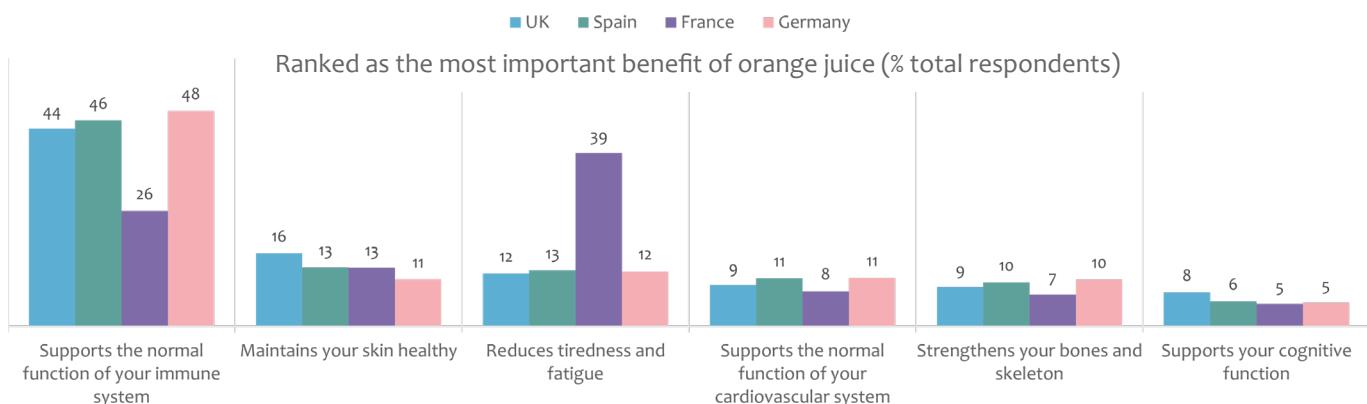
### Heart and blood pressure

“Potassium contributes to the maintenance of normal blood pressure,” is an authorised health claim in the EU and UK.<sup>12</sup> This is supported by a meta-analysis of 19 clinical trials, which found that drinking fruit juice significantly reduced diastolic blood pressure (the small number in the blood pressure test).<sup>13</sup>

Additionally, the World Health Organization (WHO) recommends increasing potassium from food sources to reduce the risk of high blood pressure, heart disease and stroke.<sup>14</sup> This is supported by consistent evidence collated by the European Food Safety Authority (EFSA) that consuming less than 3,500 mg/day potassium is linked to a higher risk of stroke.<sup>15</sup> In fact, EFSA identified a lack of potassium in European diets as a matter for concern and recommended policy action.

Yet according to the FJSC survey, only one in 10 people think supporting the normal function of the cardiovascular system is the most important benefit of drinking fruit juice, and just 14% think OJ provides any benefit to heart health.

**The most important perceived benefit of drinking orange juice is to support normal immune function, whilst reducing tiredness and fatigue was the most important benefit in France**



## How proactive are Europeans about their health?

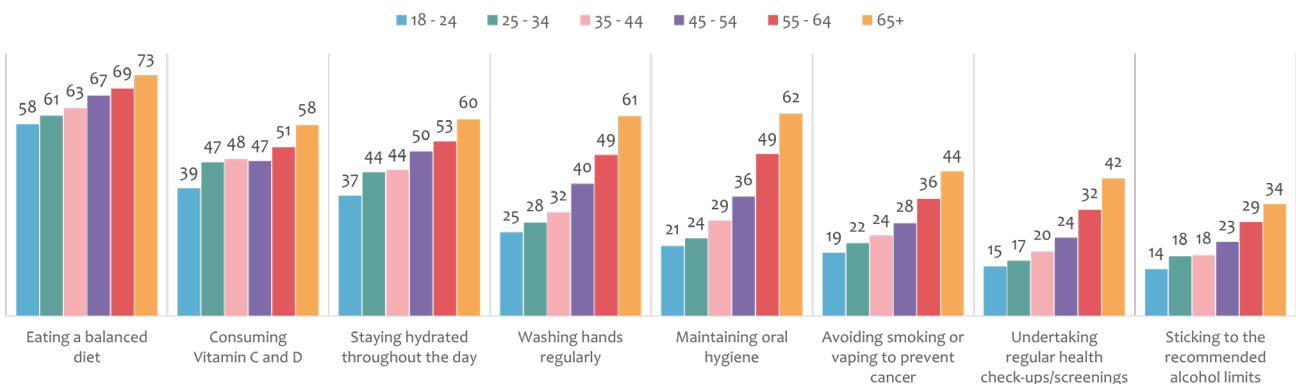
Over half (55%) say they take action to ensure they are living a healthy lifestyle, rising to 62% in the UK but only 44% in France.

Two thirds (66%) say they eat a balanced diet whenever possible to strengthen the immune system and support normal body function, with people in Spain being most likely to prioritise diet (72%) compared to France, where people are least likely to do so (59%).



### Proactive measures typically increase with age, particularly those changes relating to physical health and wellbeing

Proactive measures taken to ensure a healthy lifestyle (% those who take preventative measures)



*"Studies clearly show that 100% natural fruit juices, have specific nutritional benefits: they are sources of vitamins, particularly vitamin C, folates (vitamin B9), polyphenols and carotenoids, which are essential micronutrients and important phytoconstituents that contribute to cardiometabolic and cognitive health. Their high potassium content helps maintain normal blood pressure. Unlike sugary drinks, consuming them in normal quantities is not associated with an increased risk of metabolic syndrome or diabetes in adolescents and adults."*

Dr. Jean-Michel Lecerf, Endocrinologist,  
Diabetologist, Nutritionist



# CHAPTER 3

## Consumer understanding

**The FJSC survey reveals insights for where people source their health information as well as their understanding of the natural sugar content of fruit juice.**

Unsurprisingly, the younger generation favour social media for healthcare advice over other platforms, with 18-24 year olds more likely to turn to social media (32%) above online sources (including the NHS website), mobile apps (31%), traditional media (10%), and publications by health, nutrition and fitness experts (6%).

This supports the findings from a 2022 study based on insights from online conversations, which concluded that the majority of young adults get their health information from social media.<sup>18</sup>

### What are we searching for?

Cold and illness remedies are the top health search overall (42%). Additionally, 18-24-year-olds (35%) and 25-34-year-olds (40%) are more than twice as likely as the 65+ (17%) group to search around dietary choices, including special diets and food allergies / intolerances.

Whether online or offline, reassuringly, consumers are most likely to trust healthcare professionals (82%), followed by:

- Nutritionists and dietitians (74%)
- Friends and family (56%)
- Journalists and traditional media (35%)
- Influencers (23%)

This suggests the majority continue to make sensible decisions surrounding where they should turn for trustworthy advice.



Yet, social media is not an inherently bad place to find information. As a 2021 study highlights, social media lets people find and share health-related information, get social support in an online community, and track and share their health activities and statuses.<sup>19</sup>

What's more, the majority of young people are finding their information this way, as evidenced by a survey of 1,000 Gen Z-ers by personal training app Zing Coach. This survey found that over half (56%) get health and wellness advice from TikTok, which is the primary source of health knowledge for a third of those surveyed.<sup>20</sup>

The danger is that the health information available on these platforms is unregulated, meaning social media influencers can freely peddle myths – including that fruit juice ‘spikes’ blood glucose in healthy people.



## Sugar misconceptions

Among several issues with their claims, some influencers have drawn conclusions about the glycaemic index (GI; a measure of post-meal blood glucose concentration) of foods using data from people with diabetes without making this clear. Another trick is using continuous glucose monitors on themselves – which can give inaccurate glucose readings and doesn't translate into how other people respond to foods and drinks. Experts now agree that continuous glucose monitors are only useful and accurate for people with diabetes and can't be used to predict blood glucose changes in the general population.<sup>21</sup>

So, it is no surprise that more than half of those surveyed feel they are exposed to conflicting advice from health experts, and are confused about what guidance to follow. Over a third (38%) worry unnecessarily that 100% fruit juice can cause significant spikes in blood sugar, resulting in almost three in 10 (28%) actively avoiding drinking it.

By law, 100% fruit juice never contains added sugars or sweeteners. Yet, nearly two in five (38%) think this is the case, rising to nearly half (48%) of 18-34-year-olds. In France, people are most likely to think fruit juice contains added sugars (42%), while the German population is the least likely to hold this belief (34%).

## NATURAL SUGARS VS. ADDED SUGARS

What is the difference?



Data source: McCance & Widdowson's Composition of Foods database; serving sizes based on manufacturers' information

On top of this, almost a third (32%) think 100% OJ is “ultra processed,” and 28% actively avoid buying it as a result. This figure spikes significantly among the German population (43%). The fact is, according to the NOVA classification, fruit juice is minimally processed – exactly the opposite of ultra processed.<sup>22</sup>

Unfortunately, the WHO’s classification of naturally occurring fruit sugars in pure juice as “free sugars” bolsters these concerns. Yet, the WHO’s assertion assumes 100% of the sugars in fruit juice lie outside of the cell wall, which is yet to be confirmed in practice. Neither has any harm relating to consuming moderate amounts of 100% fruit juice been demonstrated in clinical studies.

In contrast, there’s plenty of evidence for a range of potential health benefits – including better heart health and brain function – far outweighing any perceived harm from consuming fruit sugars.<sup>23</sup>

Additionally, consuming 100% juice during childhood was found in a meta-analysis to make little to no difference to metabolic health markers, including BMI, % body fat, or chances of developing overweight or obesity.<sup>24</sup>

Indeed, apart from the fibre, fruit juice provides the full range of vitamins, minerals and plant bioactives found in whole fruit. This is why some countries say that one daily glass is equivalent to one serving of fruit.

Therefore, fear of fruit juice serves no beneficial purpose and only exacerbates the struggle of people across Europe to achieve the WHO’s recommended daily 400 g (5 x 80 g portions) of fruit and vegetables.<sup>10</sup>

*“Not all free sugars are the same.*

*Of course, the amount matters — but beyond quantity, the source of those free sugars is also crucial. Fruit juices contain no added sugar, and although they are a source of free sugars, they also deliver bioactive compounds with positive physiological effects on the body.*

*For this reason, a fruit juice represents a completely different food matrix from sugar-sweetened water or*

*soft drinks. When consumed in appropriate amounts, fruit juice can actually be beneficial for health — not only because it provides vitamins and minerals, but also due to its non-nutrient bioactive compounds, which have measurable effects on our physiology.*

*The scientific evidence supporting this is strong and consistent.”*

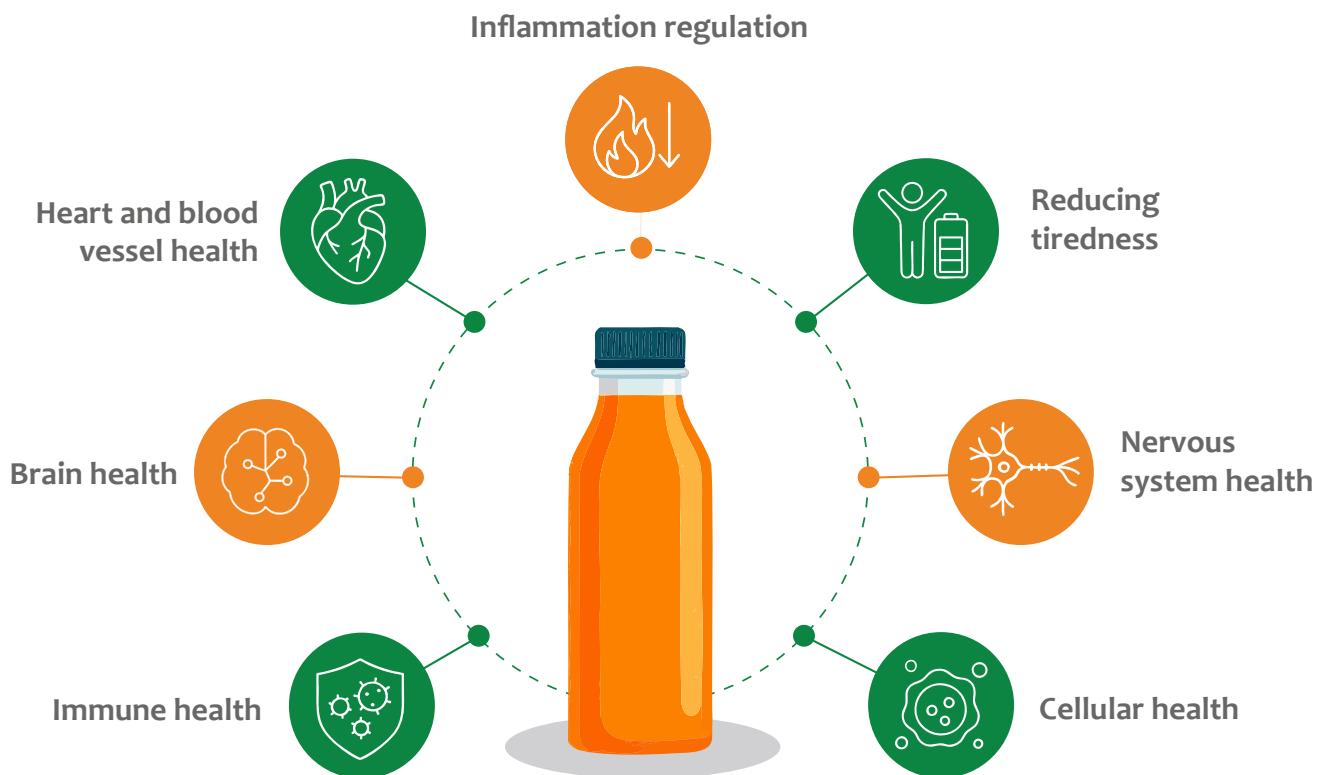
Dr Ramón de Cangas, Dietician, Nutritionist



# CHAPTER 4

## Conclusion and final thoughts

### KEY HEALTH BENEFITS OF OJ



Despite hazy awareness of the nutrition and health benefits of fruit juice, encouragingly, nearly two thirds (63%) say they would recommend OJ to family members.

However, there is work ahead in untangling the web of patchy knowledge and myths surrounding fruit juice. For example, over a quarter (26%) wrongly think shop-bought as opposed to home-squeezed juices always contain added sugar.

The focus must shift in the public consciousness from the minimal amounts of natural sugars – which do no harm according to clinical trials - to the wealth of nutritional benefits in pure fruit juices. Indeed, drinking up to 200 ml/day has been shown to help protect the heart, with higher intakes associated with significantly improved blood vessel function, blood pressure and inflammatory response.<sup>25</sup>

Additionally, no clinically significant negative impact on obesity, metabolic markers or type 2 diabetes risk has been found from drinking a range of daily amounts of 100% fruit juice, except in cases where calorie intake exceeds calorie expenditure.

**To bridge this knowledge and nutritional gap requires policymakers to promote public health initiatives which encourage moderate regular consumption of fruit juice to complement whole fruit intakes.**

## UK-based dietitian, Dr Carrie Ruxton, says:

“When people enjoy consuming a food, there have to be good reasons for advising them not to do it. We don’t have these reasons for 100% fruit juice. We are often warned about the sugar yet study after study shows that a daily glass of fruit juice has no negative effects on body weight, calorie intakes, blood glucose control, cholesterol or inflammation. Indeed, clinical trials sometimes show benefits for health - such as lower blood pressure or stroke risk - as a consequence of the rich polyphenol and vitamin C content of fruit juices. Given that fruit intakes are so low across Europe, enjoying a daily glass of fruit juice can be a convenient way to add some fruit-based nutrients into your diet. In fact, just one glass can provide more than 90% of our daily recommendation for vitamin C - an important antioxidant nutrient which supports normal immune function. As intake data show, most consumers drink fruit juice moderately as part of a balanced diet and don’t overdo it. After knowing more about the potential benefits of fruit juice, I hope that many more people will consider starting their day with a glass”.



## Country-specific attitudes and behaviours

	UK	France	Germany	Spain
Immune system support is the most important benefit of OJ	44%	26%	48%	46%
Reducing tiredness and fatigue is the most important benefit of OJ	12%	39%	12%	13%
Wrongly believe shop-bought fruit juice always contains sugar	25%	27%	25%	30%
Take proactive measures to live a healthy lifestyle	62%	44%	56%	59%
Eat a balanced diet to strengthen immune system and bodily functions	70%	59%	60%	72%
Wrongly believe OJ is “ultra-processed”	28%	31%	43%	26%
Do not get enough vitamins/minerals from food, so take supplements as a quick fix	38%	34%	40%	31%

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