

# Why citrus fruits & their juices?



## BOOSTS FRUIT INTAKE

Food-based dietary guidelines around the world agree that **getting people to eat more healthful core foods like fruit is a top nutrition priority**. Regular fruit eaters tend to live longer, with better health and lower risk of chronic diseases, but more than half of Australian adults don't eat enough<sup>1</sup>. A serve of fruit includes 1 whole citrus fruit or ½ cup of 100% citrus juice<sup>2</sup>.



## MORE THAN SUGARS & VITAMIN C

Most people, including health professionals, focus on sugars and vitamin C when they are asked what's inside citrus fruits and their juices. But **they provide many other essential nutrients** that support everyday health, such as potassium, B vitamins, magnesium, and folate. They also contain a wide diversity of non-nutrient plant compounds (bioactives) like carotenoids and polyphenols.



## UNIQUE PLANT COMPOUNDS (BIOACTIVES)

'Bioactives' refers to the thousands of different beneficial components in foods that are not essential (lack a recommended daily intake) but are increasingly understood to be important for health. **Citrus fruits and their juices contain bioactives not found in any other foods**, including hesperidin, naringenin and naringin<sup>3</sup>. These are flavonoids that have potent anti-inflammatory and antioxidant effects.



## A HEALTHY HEART

Citrus fruits & their juices appear to protect against cardiovascular diseases like stroke and heart disease in a way that is more powerful than many other types of fruit<sup>4</sup>. Studies also show that **100% juices (including citrus juices) lower blood pressure, improve the health of our arteries, and limit inflammation**<sup>5</sup>. The vitamins, minerals and unique bioactives in citrus fruits likely all play a role, working together to help dilate the blood vessels, reduce oxidative stress, and make the blood less sticky<sup>6-7</sup>.



## BRAIN-BOOSTING

Researchers have found that citrus fruit and their juices also appear to have a more potent brain benefit than other fruits<sup>8-9</sup>, including improving thinking skills, and lowering the risk of memory loss as we age. Citrus juice has also been shown to lower depressive symptoms<sup>10</sup>. **The unique bioactives in citrus fruits help to protect the brain** and are believed to play a key role: they increase blood flow to the brain, reduce brain inflammation, increase helpful brain proteins, and improve brain signaling pathways<sup>11-12</sup>.



## PREBIOTICS

The beneficial bioactives in citrus fruits have a prebiotic effect, which means they can improve overall health by feeding the good gut bacteria. Recent studies have shown that **drinking 100% citrus juice each day improves the composition of our gut bacteria**<sup>13-14</sup>. This leads to the production of beneficial compounds that have benefits throughout the body and is thought to be one reason why citrus fruits and their juices have a powerful effect on our brain and heart health.



## AFFORDABLE & EASY

**Fruit juices can provide more nutrition per dollar than any other food group**<sup>15</sup>, and whole citrus fruits stay fresher for longer than most other fruits. Both can be part of most contemporary diets, including plant-based, Mediterranean-style, gluten-free, and minimally processed, and are available year-round. These factors are important to consider when helping people to make lasting improvements to their diets.



# Questions & answers on 100% citrus juices:



## Q “Too high in sugars?”

Once upon a time, eggs were too high in cholesterol, nuts were too high in fat, and dairy was too high in saturated fat. This was considered the best available evidence at the time, but the scientific understanding today is that these foods also contain many positive nutritional components and support good health.

Likewise, 100% citrus juices provide vitamins, minerals and beneficial bioactives, are minimally processed with no additives, and can support good health. For 100% citrus juices, we too must consider all its nutritional components, not just sugars.

## Q “Heard it makes you gain weight?”

Whenever the media have reported that fruit juice leads to weight gain, it has always been from research that is unable to say with confidence that the drink being consumed is 100% fruit juice.

On the other hand, there are over 20 studies analysing body weight where we are confident that 100% juice is being consumed. And in every single one of these studies, it was found that 100% juice does not lead to weight gain<sup>5</sup>.

## Q “Bad for dental health?”

Citrus juices could contribute to poorer dental health because they contain sugars and acids, but evidence in real-world settings is limited<sup>16</sup>. They also contain positive nutrients that support good dental health<sup>17</sup>.

When it comes to 100% juice, changing how we drink it can be better for our overall health than stopping it all together. For 100% fruit juices, you can drink at mealtimes, in one sitting, through a straw, and swish your mouth with water afterwards.

## Q “What about water?”

What do you think are the leading sources of common beneficial plant compounds in our diet? The answer is tea, coffee, and orange juice<sup>18</sup>.

Water should be encouraged, but Dietary Guidelines say that we can drink a range of drinks alongside water, including 100% fruit juice, tea, coffee, and milk, and these drinks help to boost the intakes of healthful nutritional components not found in water.

## Q “Whole fruit is best?”

Whole fruit has more fibre than juice and can be more filling. But imagine that it is a hot summer afternoon, and you are feeling dehydrated and thirsty. You open the fridge door and see a glass of thirst-quenching juice and a whole piece of fruit. Which option is best?

Whole fruit and juice satisfy two different needs, hunger and thirst, and so it doesn't make sense to always compare the two. In many situations, fruit juice helps people to make more nutritious drink choices and increases total fruit intake<sup>19</sup>.

## Q “Low in fibre?”

While 100% citrus juices have less fibre than whole fruit, they can contain more of other gut-friendly nutritional components, like carotenoids<sup>20</sup>. Fruit juices also contain more fibre than most other drinks.

If fibre intake is low, we need to consider the whole diet. For some people, this could mean drinking less juice and eating more whole fruit, but for others, it could mean eating less discretionary foods and eating more whole grains, nuts, beans or vegetables.

## Q “Ultra-processed?”

100% fruit juices are often grouped together with sugar-sweetened beverages like soft drinks by researchers, public health organisations and the media, but they are processed very differently.

While sugar-sweetened drinks are classified as ultra-processed, 100% fruit juices are classified as minimally processed. This is true for both home-made and store-bought 100% juices.

## Q “Causes blood sugar spikes?”

100% citrus juices have a low glycemic index and do not cause blood sugar spikes. Instead, the blood sugar response is typically similar to that for a whole orange<sup>21</sup>.

This is likely due in part to the beneficial plant compounds in citrus juices, which help to slow the digestion and absorption of the natural fruit sugars.

## References:

1. Australian Institute of Health and Welfare (2024), 2. NHMRC Australian Dietary Guidelines (2013), 3. Kumar Saini (2022) <https://doi.org/10.3390/antiox11020239>, 4. Joshipura (1999) <https://doi.org/10.1001/jama.282.13.1233>, 5. D'Elia (2021) <https://doi.org/10.1007/s00394-020-02426-7>, 6. Mahmoud (2019) <https://doi.org/10.1155/2019/5484138>, 7. Morelli (2020) <https://doi.org/10.3390/antiox9121227>, 8. Yuan (2019) <https://doi.org/10.1212/wnl.0000000000006684>, 9. Nurk (2010) <https://doi.org/10.1017/s0007114510001807>, 10. Choi (2022) <https://doi.org/10.3390/nu15010145>, 11. Macready (2009) <https://doi.org/10.1007/s12263-009-0135-4>, 12. Spencer (2012) <https://doi.org/10.1016/j.mam.2011.10.016>, 13. Correa (2023) <https://doi.org/10.3389/fmicb.2023.1199383>, 14. Fidelix (2020) <https://doi.org/10.1039/c9fo02623a>, 15. Blumfield (2021) <https://doi.org/10.3390/ijerph18115771>, 16. Liska (2019) <https://doi.org/10.3389/fpubh.2019.00190>, 17. Kaur (2019) <https://doi.org/10.1016/j.jnim.2019.100105>, 18. Noronha (2024) <https://doi.org/10.1007/s13668-024-00530-2>, 19. Benton (2019) <https://doi.org/10.1093/nutrit/nuz031>, 20. Ruxton (2021) <https://doi.org/10.3390/nu13061815>, 21. Papandreou (2019) <https://doi.org/10.3390/nu11092171>.