

# Orange juice is a natural source of health, youth and longevity

Tkacheva Natalia, phytotherapist, nutritionist

Eliseeva Tatyana, editor-in-chief of the EdaPlus.info project

E-mail: tkacheva.n@edaplus.info, eliseeva.t@edaplus.info

**Abstract.** The juice of the most common citrus plant on the planet is also one of the most popular drinks. As statistics show, orange fresh is included in the daily diet of almost 20% of the inhabitants of the Earth. Which is not at all surprising. The refreshing drink contains many useful vitamins and microelements, has an exquisite taste and aroma, which allows it to be widely used both in traditional medicine and in cosmetology and cooking.

Keywords: orange, orange juice, useful properties, contraindications, composition, caloric content

### **Composition and calories**

Orange juice contains a small amount of calories (46 kcal per 100 grams of product) and quite a lot of water (88.2%), practically does not contain fat and protein (0.32 and 0.73 grams, respectively), [1] which allows you to include delicious fresh juice in the diet of people who monitor weight.

**Note!** The calorie content of a store-bought product is usually higher, since sugar is added to it as a preservative. Therefore, it is better not to use such a product for compiling dietary menus. If you are really serious about the issue of improving the body and losing weight, it is better to cook fresh juice yourself from natural fruits.

The composition of a delicious citrus drink includes many useful substances. Mainly:

• Vitamin C (26.9 mg). Improves collagen production and skin condition <sup>[2]</sup>, helps fight colds and depression. <sup>[3]</sup>

- Folic acid <sup>[4]</sup> (30 mcg). It is recommended as a mandatory vitamin supplement during pregnancy to prevent the development of intrauterine fetal pathologies. <sup>[five]</sup>
- Potassium (180 mg). Helps to maintain normal blood pressure to avoid the risk of heart attacks, strokes. [6]
- <u>Calcium</u> (13 mg). Useful in the prevention and treatment of osteoporosis <sup>[7]</sup>, regulates heart rate and blood pressure, eliminates the problem of muscle spasm (convulsions).
- Phosphorus (18 mg). Phosphates improve metabolism, help the body produce energy, improve the functioning of the human nervous and muscular systems.
- Magnesium (10.6 mg). Helps to normalize the nervous system (to cope with depression, anxiety, insomnia) [8], eliminate muscle cramps [9] and joint pain.

The fruit has a fairly low glycemic index (does not cause sharp spikes in blood sugar), which will allow even people with diabetes to drink the drink.

### **Top 11 Health Benefits of Orange Juice**

## 1. Helps Fight Obesity

Orange juice, in particular, fresh from red oranges, especially rich in active compounds such as anthocyanins, flavonoids, ascorbic acid, has a beneficial effect on reducing body mass index and body volume. <sup>[10, 11]</sup> Just drink a glass of refreshing citrus juice between meals and see how your mirror image will change dramatically within a few weeks!

## 2. Suppresses Appetite

Studies show that drinking orange juice with a meal speeds up satiety and dulls hunger for a longer time. <sup>[12]</sup> Just a few glasses of fresh juice throughout the day will significantly reduce the size of servings on plates.

### 3. Prevents the development of cardiovascular diseases

The use of orange juice helps to reduce the amount of "bad" cholesterol in the blood <sup>[13]</sup>, to avoid the development of such dangerous diseases as angina pectoris, stroke, myocardial infarction.

#### 4. Reduces inflammation in the intestines

Citrus flavonoids have high anti-inflammatory properties [14, 15]—they reduce inflammatory processes in tissues, in particular, relieve the symptoms of such a dangerous disease as enteritis, inflammation of the small intestine. [sixteen]

### **5. Helps Lower Blood Pressure**

Daily consumption of 500 ml of juice squeezed out of orange pulp can reduce blood pressure in the subjects no worse than special pharmacy products. [17]

### 6. Protects Against Kidney Stones

Orange juice is better than other citrus fresh juices in the function of preventing salt deposits in the kidneys. Drinking a delicious refreshing drink every day is a great way to prevent kidney stones.

#### 7. Protects Against Cancer

Orange juice, especially with red pulp, contains a huge amount of antioxidants and unique beneficial substances, limonoids. Studies show that citrus flavonoids block the reproduction of cancer cells much more effectively than some drugs. [19,20]

# **8. Improves Cognitive Function**

With age, many functions of the body gradually fade away. This also applies to mental abilities. The brain of older people for normal functioning must be supplied with additional useful substances. As scientists have found out, the necessary vitamins and amino acids are contained in sufficient quantities in the pulp of an orange. Studies have shown that people who have introduced a refreshing citrus drink (at least 500 ml) into their daily diet, after two months, memory improves by 8%, reaction and speech functions are restored. [21]

# 9. Strengthens bones

The use of orange juice rich in calcium and vitamin D has a positive effect on the condition of the bone tissue of children and adults, and significantly reduces the risk of fractures. [22]

### 10. Helps fight anemia

The daily presence of fresh orange juice in the diet promotes better absorption of iron. The veracity of this version was confirmed by an experiment in which 21 children aged 4 to 8 years participated. In children over 6 years old who drank fresh orange, the absorption of iron increased by almost 2 times.

[23]

### 11. Prevents the development of scurvy

A rather rare disease today, caused by a lack of vitamin C in the body. That is why it is recommended to include orange juice in the diet of babies and adults at risk as a preventive measure. [24]

You can also use orange juice as a tonic. A self-made cosmetic product perfectly refreshes, brightens and tightens the dermis, tightens pores and eliminates oily sheen.

#### Contraindications and possible harm of orange juice

Orange juice is a fairly strong allergen <sup>[25]</sup>. Therefore, it is not recommended for people with individual intolerance to the product.

Orange juice should not be washed down with some medicines, as this affects their benefits. Specifically, this warning applies to a drug used to lower high blood pressure, celiprolol. The citrus flavonoid, antioxidant, hesperidin contained in the drink significantly reduces the absorption of the drug [26] and neutralizes the benefits of taking it.

Dentists recommend using a straw when drinking a sweet and sour drink to minimize its contact with tooth enamel, as well as thoroughly rinsing the mouth from the remnants of the liquid after tasting it. This is due to the high erosive properties of orange acid, which are reflected in tooth enamel. [27]

## How much orange juice can you drink per day

In order to fully saturate the body with all the necessary vitamins and minerals, an adult is recommended to drink about half a liter of refreshing orange juice daily. Children's norm below - 1

glass. But this amount of drink should be distributed over several doses so that the baby receives no more than 30-50 grams of juice at a time.

To begin acquaintance of crumbs with citrus juice should be no earlier than 12 months of age. You need to introduce a new product into the diet gradually, starting with a teaspoon. If there are no unpleasant consequences for the body, you can gradually increase the dose.

# How to prepare and store orange juice

To saturate the body with vitamins and nutrients, it is recommended to use self-made orange juice, and not factory analogues. Studies show that a store-bought drink contains practically no flavonoids <sup>[28]</sup>, that is, the antioxidant capacity of such a drink is practically zero.

**Note!** Mechanically squeezed juice is 3-10 times more aromatic than a hand-pressed drink. This is due to the fact that the fresh obtained by the first method is squeezed together with the peel. It is the oils contained in the orange peel that contain the largest amount of aromatic volatile substances <sup>[29]</sup>. If you want the prepared drink to have a brighter smell, use not only the pulp, but also the peel of the orange for squeezing.

To make juice, you will need a citrus juicer. If there is none, you can use a regular blender, then squeezing the resulting puree through a sieve.

It is recommended to drink freshly squeezed juice immediately, as over time it loses its beneficial properties, harmful microorganisms begin to multiply in it. If you've made too much food, you can freeze the leftovers and then use ice cubes to chill other drinks on a hot summer day.

#### **Expert comment**

### Tatyana Eliseeva, nutritionist, nutritionist

Orange juice perfectly quenches thirst, improves mood and well-being, helps protect the body from many diseases. I recommend that you include this healthy and affordable drink in your family's daily diet and make sure that the natural medicines that nature itself gives us work no worse than pharmacy products!

#### Literature

- 1. Orange juice, no pulp, not fortified, from concentrate, refrigerated https://fdc.nal.usda.gov/fdc-app.html#/food-details/2003591/nutrients
- 2. Pullar, JM, Carr, AC, & Vissers, MC (2017). The roles of vitamin C in skin health. Nutrients, 9(8), 866. DOI: 10.3390/nu9080866
- 3. Moritz, B., Schmitz, A.E., Rodrigues, A.L.S., Dafre, A.L., & Cunha, M.P. (2020). The role of vitamin C in stress-related disorders. The Journal of Nutritional Biochemistry, 85, 108459. DOI: 10.1016/j.jnutbio.2020.108459
- 4. Öhrvik, V., & Witthöft, C. (2008). Orange juice is a good folate source in respect to folate content and stability during storage and simulated digestion. European journal of nutrition, 47(2), 92-98. DOI: 10.1007/s00394-008-0701-3
- 5. Wilson, C. B. (2009). genetics. author house. DOI: 10.1016/s1701-2163(15)30230-9
- 6. Aaron, KJ, & Sanders, PW (2013, September). Role of dietary salt and potassium intake in cardiovascular health and disease: a review of the evidence. In Mayo Clinic Proceedings (Vol. 88, No. 9, pp. 987-995). Elsevier. DOI: 10.1016/j.mayocp.2013.06.005

- 7. Li, K., Wang, XF, Li, DY, Chen, YC, Zhao, LJ, Liu, XG, ... & Deng, HW (2018). The good, the bad, and the ugly of calcium supplementation: a review of calcium intake on human health. Clinical interventions in aging, 13, 2443. DOI: 10.2147/CIA.S157523
- 8. Eby, GA, & Eby, KL (2006). Rapid recovery from major depression using magnesium treatment. Medical hypotheses, 67(2), 362-370. DOI: 10.1016/j.mehy.2006.01.047
- 9. Garrison, S.R., Korownyk, C.S., Kolber, M.R., Allan, G.M., Musini, V.M., Sekhon, R.K., & Dugré, N. (2020). Magnesium for skeletal muscle cramps. Cochrane Database of Systematic Reviews, (9). DOI: 10.1002/14651858.CD009402.pub3
- 10. Barberis, A., Deiana, M., Spissu, Y., Azara, E., Fadda, A., Serra, PA, ... & Sanjust, E. (2020). Antioxidant, antimicrobial, and other biological properties of Pompia juice. Molecules, 25(14), 3186. DOI: 10.1080/14786419.2014.1000897
- 11. Rampersaud, G.C., & Valim, M.F. (2017). 100% citrus juice: Nutritional contribution, dietary benefits, and association with anthropometric measures. Critical Reviews in Food Science and Nutrition, 57(1), 129-140. DOI: 10.1080/10408398.2013.862611
- 12. Da Silva, A., ROCHA, D., MAYUMI, U., LOPES, LL, BRESSAN, J., & HERMSDORFF, HHM (2020). High-saturated fatty meals with orange juice intake have subjective appetite sensations suppressed: Acute, postprandial study. Anais da Academia Brasileira de Ciências, 92. DOI: 10.1590/0001-3765202020191085
- 13. Motallaei, M., Ramezani-Jolfaie, N., Mohammadi, M., Shams-Rad, S., Jahanlou, AS, & Salehi-Abargouei, A. (2021). Effects of orange juice intake on cardiovascular risk factors: A systematic review and meta-analysis of randomized controlled clinical trials. Phytotherapy Research, 35(10), 5427-5439. DOI: 10.1002/ptr.7173
- 14. Martinez, PF, Carvalho, MRD, Mendonça, MLM, Okoshi, MP, & Oliveira-Junior, SAD (2021). Antioxidant and Anti-Inflammatory Effects of Orange Juice. Arquivos Brasileiros De Cardiologia, 116, 1137-1138. DOI: 10.36660/abc.20210418
- 15. Cara, K.C., Beauchesne, A.R., Wallace, T.C., & Chung, M. (2022). Effects of 100% Orange Juice on Markers of Inflammation and Oxidation in Healthy and At-Risk Adult Populations: A Scoping Review, Systematic Review, and Meta-analysis. Advances in Nutrition, 13(1), 116-137. DOI: 10.1093/advanced/nmab101
- 16. Cirmi, S., Randazzo, B., Russo, C., Musumeci, L., Maugeri, A., Montalbano, G., ... & Levanti, M. (2021). Anti-inflammatory effect of a flavonoid-rich extract of orange juice in adult zebrafish subjected to Vibrio anguillarum-induced enteritis. Natural Product Research, 35(23), 5350-5353. DOI: 10.1080/14786419.2020.1758096
- 17. Fraga, LN, Coutinho, CP, Rozenbaum, AC, de Castro Tobaruela, E., Lajolo, FM, & Hassimotto, NMA (2021). Blood pressure and body fat% reduction is mainly related to flavanone phase II conjugates and minor extension by phenolic acid after long-term intake of orange juice. Food & function, 12(22), 11278-11289. DOI: 10.1039/d1fo02664j
- 18. Barghouthy, Y., & Somani, BK (2021). Role of Citrus Fruit Juices in Prevention of Kidney Stone Disease (KSD): A Narrative Review. Nutrients, 13(11), 4117. DOI: 10.3390/nu13114117
- 19. Grosso, G., Galvano, F., Mistretta, A., Marventano, S., Nolfo, F., Calabrese, G., ... & Scuderi, A. (2013). Red orange: experimental models and epidemiological evidence of its benefits on human health. Oxidative medicine and cellular longevity, 2013. DOI: 10.1155/2013/157240
- 20. Guthrie, N., & Carroll, KK (1998). Inhibition of mammary cancer by citrus flavonoids. Flavonoids in the living system, 227-236. DOI: 10.1007/978-1-4615-5335-9\_16
- 21. Alharbi, MH, Lamport, DJ, Dodd, GF, Saunders, C., Harkness, L., Butler, LT, & Spencer, JP (2016). Flavonoid-rich orange juice is associated with acute improvements in cognitive function in healthy middle-aged males. European journal of nutrition, 55(6), 2021-2029. DOI: 10.1007/s00394-015-1016-9
- 22. Lee, SG, Yang, M., Wang, Y., Vance, T., Lloyd, B., Chung, SJ, ... & Chun, OK (2014). Impact of orange juice consumption on bone health of the US population in the National Health and

- Nutrition Examination Survey 2003–2006. Journal of medicinal food, 17(10), 1142-1150. DOI: 10.1089/jmf.2013.0072
- 23. Balay, KS, Hawthorne, KM, Hicks, PD, Griffin, IJ, Chen, Z., Westerman, M., & Abrams, SA (2010). Orange but not apple juice enhances ferrous fumarate absorption in small children. Journal of pediatric gastroenterology and nutrition, 50(5), 545-550. DOI: 10.1097/MPG.0b013e3181b1848f
- 24. Rajakumar, K. (2001). Infantile scurvy: a historical perspective. Pediatrics, 108(4), e76-e76. DOI: 10.1542/peds.108. 4.e 76
- 25. Zhu, S.L., Ye, ST, & Yu, Y. (1989). Allergenicity of orange juice and orange seeds: a clinical study. Asian Pacific Journal of Allergy and Immunology, 7(1), 5-8. PMID: 2751771
- 26. Uesawa, Y., & Mohri, K. (2008). Hesperidin in orange juice reduces the absorption of celiprolol in rats. Biopharmaceutics & drug disposition, 29(3), 185-188. DOI: 10.1002/bdd.603
- 27. de Melo, MA, Passos, VF, Lima, JP, Parente, GC, Rodrigues, LK, & Santiago, SL (2015). Erosive potential of processed and fresh orange juice on human enamel. Journal of Dentistry for Children, 82(1), 10-15. PMID: 25909837
- 28. Hou, M., Combet, E., & Edwards, CA (2019). Pulp in shop-bought orange juice has little effect on flavonoid content and gut bacterial flavanone degradation in vitro. Plant Foods for Human Nutrition, 74(3), 383-390. DOI: 10.1007/s11130-019-00739-5
- 29. Perez-Cacho, P.R., & Rouseff, R.L. (2008). Fresh squeezed orange juice odor: a review. Critical reviews in food science and nutrition, 48(7), 681-695. DOI: 10.1080/10408390701638902

An extended HTML version of this article is available on the edaplus.info website

Received 18.10.2022

### Orange juice is a natural source of health, youth and longevity

Tkacheva Natalia, phytotherapist, nutritionist

Eliseeva Tatyana, editor-in-chief of the project EdaPlus.info

E-mail: tkacheva.n@edaplus.info, eliseeva.t@edaplus.info

**Abstract.** The article discusses the main properties of orange juice and its effect on the human body. A systematic review of modern specialized literature and relevant scientific data was carried out. The chemical composition and nutritional value of the drink are indicated, the use of orange juice in various types of medicine and the effectiveness of its use in various diseases are considered. The potentially adverse effects of orange juice on the human body under certain medical conditions and diseases are analyzed separately.