

FRUIT JUICE ACROSS THE LIFECYCLE: OLDER PEOPLE

KEY POINTS

- Simple and cost effective way to obtain vitamin C, potassium and folate.
- A 150 ml glass of orange juice contains 68% of the Nutrient Reference Value (NRV) for vitamin C and 16% of the NRV for folate.
- 100% fruit juice is a source of fluid, contributing to normal hydration.
- In many countries, a glass of 100% juice contributes to fruit and vegetable goals.



NUTRITION REQUIREMENTS AND CHALLENGES

Older people can be healthy and vigorous, or may require additional support. However, according to the UK Office of National Statistics, adults are living longer but are still spending almost one fifth of their life in ill-health.¹ Issues which affect nutritional status include:

Obesity – 66% of people aged 65-74 years and 59% of people aged ≥ 75 years have a body mass index in excess of 25, putting them in the overweight or obese categories.²

Malnutrition – This can range from 10% of independently living older persons to 50% of people in hospitals or care homes, not including the greater numbers at risk from developing malnutrition.³ Malnutrition includes calorie/protein deficit as well as micronutrient deficit due to malabsorption or inadequate dietary intakes.

Disability – Physical and/or cognitive disability can limit access to a healthy diet through difficulties getting out to shop for food, being able to cook meals, or to eat independently.

Disease – Either the condition itself or the medication/treatment can influence appetite, saliva flow, taste sensitivity and mood state. Specialist diets can be costly or difficult to access.

Hydration – Older people may restrict their fluid intake, for example due to lower thirst sensitivity or concerns about incontinence. This may lead to poor hydration.⁴

Oral health – Poor dentition and infections limit the ability to eat a range of foods.⁵

100% FRUIT JUICE: BENEFITS FOR OLDER PEOPLE

100% 'pure' juice is made by squeezing or crushing fruit. This means that the nutritional composition reflects that of the fruit used in the processing. Nutrient values are similar whether juice is 'from concentrate' or 'not from concentrate'. It is prohibited by European law to add sugars, or any other ingredient, to 100% fruit juice regardless of the production method.⁶ Juice from concentrate is an inexpensive option for older people on a fixed budget.

The nutritional composition of 100% orange juice per 100 g is shown below. One 150 ml glass contains 60 kcal (calories), 13.6 g of naturally occurring sugars and 55 mg of vitamin C (Nutrient Reference Value is 80 mg). Values in blue represent official 'source of' claims that can be made in Europe.

Nutritional composition of 100% orange juice per 100 ml

Energy	41 kcal
Calcium	11 mg
Iron	0.2 mg
Magnesium	9.5 mg
Phosphorus	15.3 mg
Potassium	152 mg
Zinc	0.06 mg
Vitamin C	36.4 mg
Thiamin	0.08 mg
Riboflavin	0.02 mg
Niacin	0.29 mg
Folate	21.5 µg
Vitamin B6	0.07 mg
Vitamin B12	0.02 mg
Vitamin A	4.1 µg
Vitamin D	0.0 µg
Vitamin E	0.18 mg
Vitamin K	0.08 µg

The nutrients found in 100% fruit juice have recognised roles in supporting normal health as per EU authorised health claims.⁷

- Vitamin C contributes to the protection of cells from oxidative stress and supports normal immune function.
- Vitamin C also contributes to normal collagen formation (important for bones and skin) and improves the absorption of non-haem iron, which helps to support normal iron status.
- Folate reduces tiredness and fatigue as well as having a role in normal psychological function.
- Folate also contributes to normal homocysteine metabolism. High homocysteine levels have been associated with a greater risk of heart disease.
- Potassium helps maintain normal blood pressure and contributes to normal muscle function.

In addition, emerging evidence from randomised controlled trials in adults suggests that:

- 100% orange juice has significantly more favourable effects on fat mass and glucose/insulin control compared with a sugar-sweetened soft drink⁸, probably due to its lower glycemic index and higher nutrient content.

- Drinking 500 ml 100% orange juice daily, as part of a reduced calorie diet, was more effective at lowering insulin, insulin resistance (HOMA), total cholesterol, low density lipoprotein cholesterol and C-reactive protein than a reduced calorie diet alone.⁹ Weight loss and fat loss were similar between the two diets over 12 weeks. The diet containing 100% orange juice was significantly higher in folate and potassium than the control diet, but no other significant energy and nutrient differences were found.

INCLUDING FRUIT JUICE IN THE DIET

Depending on your country's guidelines, a portion of 100% fruit juice can be 150-250 ml per day (around one small glass) and counts towards fruit and vegetable targets.

As vitamin C enhances the bioavailability of non-haem iron (for example, from fortified foods, supplements and green leafy vegetables), fruit juice is best consumed with a meal. Surveys suggest that low iron status is an issue for elderly populations.¹⁰

Older people with limited dentition may find it difficult to chew fruit. In these cases, it may be beneficial to increase the daily intake of 100% fruit juice to two or three small glasses, or create smoothies using whole fruits, vegetables and natural yogurt. This can also be an option for elderly and those with disabilities who experience difficulties cutting or peeling fruit.

Grapefruit juice is known to interact with some medications, such as statins, and drugs for impotence, arrhythmia and hypertension, so ensure that patients are aware of this and can check with their general practitioner.

TIPS FOR PATIENTS

Fruit Juice Matters has created a linked one-page leaflet, **Why fruit juice? FOR OLDER PEOPLE**, which you may find useful to give to your patients. Click [here](#) to download a copy.

Disclaimer: Every effort has been made to ensure that the information contained in this document is reliable and has been verified. The information is intended for non-commercial communication to health care professionals only. The information given in this dossier does not constitute dietary advice.

1. Office of National Statistics (UK) www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/healthstatelifeexpectanciesuk/2014to2016#females-live-three-years-longer-in-not-good-health-than-males-in-the-uk.

2. http://ec.europa.eu/eurostat/statistics-explained/index.php/Overweight_and_obesity_-_BMI_statistics.

3. Visser M et al. (2017) Tackling the increasing problem of malnutrition in older persons: The Malnutrition in the Elderly (MaNuEL) Knowledge Hub. *Nutr Bull* 42: 178-186.

4. Kenney WL & Chiu P (2001) Influence of age on thirst and fluid intake. *Med Sci Sports Exerc* 33: 1524-1532.

5. Kossioni AE et al. (2018) Oral health in older people: time for action. *Euro Geriatr Med* 9: 3-4.

6. European Parliament and of the Council (2012) Fruit juice directive. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:115:0001:0011:EN:PDF>.

7. EU register of authorised health claims http://ec.europa.eu/food/safety/labelling_nutrition/claims/register/public/?event=register.home&CFID=289871&CFTOKEN=412e98b139a96490-3D871B69-99EF-047F-75B17F49E11D55B4.

8. Büsing F et al. (2018) High intake of orange juice and cola differently affects metabolic risk in healthy subjects. *Clin Nutr* in press.

9. Ribeiro C et al. (2017) Orange juice allied to a reduced-calorie diet results in weight loss and ameliorates obesity-related biomarkers: A randomized controlled trial. *Nutr* 38: 13-19.

10. Fairweather-Tait SJ et al. (2014) Iron status in the elderly. *Mech Ageing Dev* 136-137: 22-28.