Fruit juice’s unique role in immune health: nutritional content and nutrient synergy

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Understand confusion surrounding immunity

Identify synergistic nutrients to increase immune response

Highlight the role of 100% OJ in immunity
What do we mean by ‘immunity’?

• The immune system is made up of a combination of cells working together to fight foreign substances, or damaged internal cells to protect the body.

• ‘Immunity’ is the body’s ability to fight infection, bacteria or diseases – this can range from fighting a common cold to more serious diseases like cancer.

• Auto-immune diseases occur when the immune system cannot detect the difference between foreign and internal cells – and start to attack the body.
A healthy balanced diet containing a combination of vitamins and minerals helps to **support the normal functioning** of the immune system – but cannot ‘boost’ it.
There is a lot of confusing information around immunity in the media.
What is it?

Intravenous (IV) vitamin therapy is a method of administering vitamins and minerals **directly** into the bloodstream.

Are there any health benefits?

Some clinics claim vitamin drips ‘stimulate’ or ‘boost’ the immune system. There have been **no clinical studies** to show that IV vitamin therapy of this type offers any health benefit.

Are there any risks?

These clinics often claim to provide vitamins in **large excess** of the recommended levels. These excess volumes of water-soluble vitamins are likely to be excreted in the urine – however **fat-soluble vitamins** (A, D, E, K) may cause **harm in high doses**.
What is it?
Vitamin vaping. Some companies claim it is more efficient to inhale your vitamins than to take them orally – promotes the idea that nutrition is just a puff away.

Are there any health benefits?
These products often contain **high doses** of the vitamins, sometimes as high as **20x** the RNI.
There is **no scientific research** to substantiate the use of vitamin vapor.

Are there any risks?
Vaping albeit better for your health than smoking, may still **irritate the respiratory tract** – but long-term impact of vaping is currently unknown.
What is it?
Goop is a ‘lifestyle’ brand started by Gwyneth Paltrow, with a particular onus on ‘wellness’. A search of ‘immune’ in the wellness articles comes with many results of how to ‘boost’ your immunity.

What are the claims?
Goop claims there are various ways to ‘boost’ your immune system. Such as consuming high levels of vitamin D. Consuming mushrooms to ‘heal’ your body, and give your immune system a ‘work out’.

Are there any benefits or risks?
Vitamin D contributes to the normal function of the immune system, and it is recommended we all get 10µg/day in the winter months.

However more doesn’t always mean better, vitamin D is a fat-soluble vitamin, which when consumed in high quantities, over a sustained period can lead to toxicity.
What is it?
High vitamin C supplements to ‘prevent’ common cold or flu.

Are there any health benefits?
Taking vitamin C every day to try to prevent colds won’t protect most people from colds, but it may help shorten the time it takes you to get better. Starting to take vitamin C once you already have a cold won’t have any effect on your cold.

Are there any risks?
Some vitamin C supplements have more than 1000µg of vitamin C, which is more than 10x the recommended daily amount. Because the body can’t store vitamin C, the excess vitamins are usually flushed out of the body in urine within a few hours.
The main risk here is an upset stomach, and an unnecessary dent on your bank balance.
What can we **REALLY** eat to help our immune system?

- Vitamin D
- Iron
- B vitamins (B6, Folate, B12)
- Vitamin A
- Zinc
- Vitamin C

All of these *nutrients* contribute to the normal functioning of the **immune system**.
Nutrient synergies help your body to absorb certain nutrients.

Vitamin C helps the absorption of iron (particularly from plant sources).

Vitamin D helps the absorption of calcium.

Vitamins and minerals are often combined in supplements too.
Carotenoids and immunity

- Carotenoids are pigments that produce the bright yellow, red, and orange colours in fruits and vegetables (carrots, orange juice, red pepper)
- Carotenoids must be consumed through the diet, and are best absorbed through a source of fat

They have associated health benefits
- Contribute to **eye health**
- Contribute to **immune function**
- Lowering **inflammation** – may reduce the risk of chronic diseases such as CVD and cancer
New research: Boost the bioaccessibility of carotenoids in orange juice

**Fresh orange juice (FRESH)**
- Pasteurised orange juice (PAST)
  - (90°C for 30s, immediately cooled in ice bath to 1.8°C)
- Ultra-frozen orange juice (UF-RT)
  - (-80°C) thawed at room temperature (20°C)
- Ultra-frozen orange juice (UF-FG)
  - (-80°C) thawed in the fridge (4°C)
- Ultra-frozen orange juice (UF-MW)
  - (-80°C) thawed in microwave (800w for 20s to 35°C)

Total carotenoid bioaccessability in orange juice tested

- **PAST**: 26%
- **UF-MW**: 18%
- **UF-RT**: 14%
- **UF-FG**: 12%
- **FRESH**: 8%

Orange juice has a **unique** role to play in maintenance of the immune system

- **150ml** of fruit juice contains around **60-80 calories**, which is **4%** of total calories in a typical 2,000 calorie diet
- One **150ml serving** provides an affordable and palatable way to get **one of five-a-day** and helps meet five-a-day target
- One 150ml serving orange juice provides:
  - Vitamin C – 149% of DRV (excellent source)
  - Potassium – 11% of DRV
  - Folate (vitamin B9) – 19% of DRV (source)
  - Phytochemicals – flavonoids, carotenoids
- The vitamin C in orange juice also works in **synergy** to help the absorption of iron from plant foods
Any questions?