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# Are Plant-Based Drink Products Healthy Dairy Substitutes?



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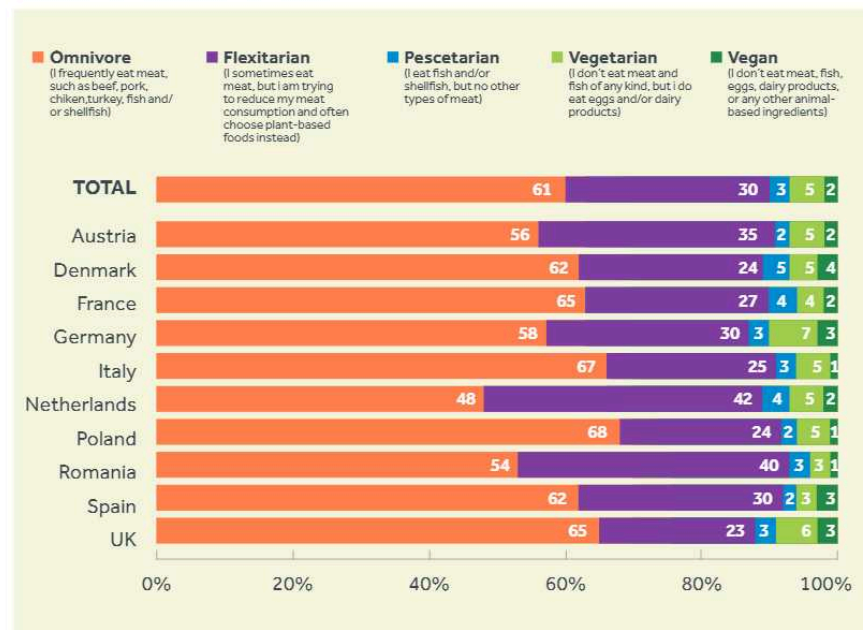
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Vegetable alternatives are popular products that continue to emerge. According to the European project, Smart Protein, in the last two years, the sales of vegan products have increased by 49% in Europe <sup>(1)</sup>.

It is estimated that the vegetarian community continues to grow in Western countries, being more than 600 million people worldwide, according to the International Vegetarian Union <sup>(2)</sup>. From a survey completed by 7,590 European participants, the prevalence of people who follow a plant-based diet seems to be 37% <sup>(3)</sup>. The European country with the highest prevalence of people with a plant-based dietary lifestyle is Netherlands and the country with lowest prevalence is Poland (Figure 1).

Figure 1. Dietary lifestyle by country



Question: Which category best describes your current dietary lifestyle?

Modified from: Smart protein. What consumers want: a survey on European consumer attitudes towards plant-based foods with a focus on flexitarians. November 2021. Available from: [https://smartproteinproject.eu/wp-content/uploads/FINAL\\_Pan-EU-consumer-survey\\_Overall-Report-.pdf](https://smartproteinproject.eu/wp-content/uploads/FINAL_Pan-EU-consumer-survey_Overall-Report-.pdf)



Nowadays, one of the most exploited plant-based food industry categories is plant-based drinks. This category is made up of vegetable dairy replacements, based on soy, nuts, seeds, grains or other ingredients, and can be fortified with minerals and vitamins, such as calcium or vitamin B12 (4).

Nut-based vegetable drinks, such as the almond drinks, have long been consumed for their flavor. These drinks were primarily marketed as an alternative dairy beverage for children and adults suffering from health conditions including cow's milk allergy and lactose intolerance. In fact, scientific evidence suggests that its consumption can be an effective solution for these individuals (5). Another reason why the consumption of nut-based drinks has increased is because of the multiple benefits that nut consumption can provide. Nuts have high content of unsaturated fatty acids, being also a source of protein, fiber, vitamin E, manganese and other phytochemicals. Multiple systematic reviews and meta-analyses have demonstrated that nut consumption reduces the levels of low-density lipoproteins in blood and have several cardiometabolic benefits (4).

Homogenization and heat treatment used to manufacture almond drinks can cause deviations in physical and nutritional properties. Within 100 ml of unsweetened almond drink, a low-calorie content was found with a median of 35 Kcal, and carbohydrates and proteins ranging between 1 and 5 grams. It must be taken into account that these data are extracted from samples without the addition of sugar. However, many vegetable drinks such as almond, walnut or hazelnut drinks have added sugars, with poorer nutritional value, as added sugar in excess has been shown to increase the risk of disease (4). Calcium relies on fortification to mimic the same levels as cow's milk (6).

Non-dairy or plant-based yogurts in the market are usually made from nuts such as almonds, cashews and walnuts, but there are also combinations with proteins from legumes, coconut and cereals. Nut-based yogurts are usually products providing less energy but more sugar than other non-dairy yogurts. Usually, alternatives based on almonds and cashews tend to be fortified in calcium, being products low in sodium and low in fat and saturated fat except the ones that contain coconut. Pectin, locust bean gum and inulin are the fibers most commonly used to increase consistence (7).

Dairy cheese is a good source of protein and calcium. Therefore, consumers of non-dairy cheese alternatives choose ones that are similar in taste, texture and appearance, as well as in a nutritional profile. However, recent studies have shown that these vegetable alternatives are poor in protein and calcium because they are not fortified compared to alternatives for milk or yogurt. The alternatives with the highest level of protein are those made from cashews, being also low in saturated fat (between 0-1 g per serving) and sugar. Therefore, they are low-calorie products compared to dairy cheeses (7, 8). One recent study analyzing the non-dairy cheese alternatives has shown that the nutritionally healthier option of this category is a cashew-based spread. Since they contain 50% cashew, they may provide some of the health benefits of nut consumption (8). As a vegetable alternative, the future of non-dairy cheeses lies in the production of cashew-based cheese alternatives—due to their nutritional profile—and those made with almond paste and peanut oil, containing low amounts of saturated fatty acids and providing a good texture, comparable to alternatives using coconut oil (7).

In short, plant-based dairy substitutes that have positive characteristics (low levels of saturated fat, sodium, and sugars) are a good alternative for the industry in order to cover the growing demand in the world for plant-based products.

Due to the lack of scientific evidence and the increased manufacturing and popularity of these new vegetarian alternatives, future research is needed to focus on the impact of these products on health. ■

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