Yogurt Nutrition Digest
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#Yogurt4Health

YOGURT IN NUTRITION
INITIATIVE FOR A BALANCED DIET

This Digest is all about #Snack #Yogurt and #Definitions #Recommendations

What is a Healthy Snack?

Do you like to snack? If so you aren't alone. Money spent on snacking is increasing year on year; the global annual market is currently worth $374 billion [1], and research points to snacking making a significant contribution to average daily energy intakes [2].

Making healthier food choices and reducing calorie intake in our food-filled environment can be challenging. It requires planning, nutrition knowledge, portion control, label reading skills and calorie awareness. Strategies that simplify the process and provide more structure have been shown to be helpful. For example, using goal setting techniques with a specific plan of how to achieve the goal, creating meal and snack plans, advising on portion controlled foods, and devising shopping lists [3].

Snacking is often considered undesirable, but it all depends on what you choose to eat! Reach for a low sugar cereal bar and you'll be contributing to your fibre intake, popcorn offers you whole grains and a pot of yogurt will bring a healthy serving of calcium and protein. Such foods may be particularly important for children who may have inadequate fibre or calcium intakes.

What does the evidence say? Does it depend on what we choose to snack on? And how can we tell if a snack is healthy or not?

To snack or not to snack?

How snacking influences nutrient intakes

It is important to look at the overall contribution of snacks and whether they provide a nutrient dense addition to the diet, or whether they are a source of what's often called "empty calories".

Snacking may be associated with higher nutrient intakes

Some studies show that eating snacks has been linked to greater intakes of vitamins and minerals [4-8]. In a study of UK children aged 11–12, Adams et al. [5] found no evidence to suggest the nutrient composition of snacks was any more or less healthy than that of foods eaten during meals. Perhaps surprisingly, snacking may also not lead to a higher intake of sodium (salt), as the sodium contribution from meals (from foods such as bread, cheese and cured meats) has been associated with higher sodium intakes [9].

More research is needed, but based on current evidence, snacking and increased eating frequency may not be necessarily detrimental to diet quality and may be associated with a higher nutrient intake. However, careful snack choice by individuals remains important to avoid the risk of excessive intakes of energy, fat, sugar or salt [2].

Snacking and energy for activity

Snacking may help to provide the energy needed to maintain an active lifestyle and increase the motivation to be physically active – for example, by avoiding the gastric discomfort and lethargy that can be experienced after consuming large meals [10].

Snacking and satiety

There are benefits to eating a planned snack. Knowing how a snack can affect your feelings of fullness can help you reduce your portion size

We eat a meal, and hunger gradually builds up until the next eating occasion. There has been a wealth of research on whether people tend to compensate for the energy intake of a snack, and there is some evidence to suggest that feelings of hunger are reduced at a subsequent meal when you eat a snack [11-16].

A high-protein snack may also delay the request of the subsequent meal compared with a high carbohydrate snack. Research has shown a reduction in food intake after a high-protein snack compared with a high-fat or carbohydrate-containing one when a meal is given at a set time [17, 18]. These appetite effects are possibly due to lower insulin secretion after the high protein snack [19].

Research is also looking at the ideal time delay between a satisfying snack, such as a protein-rich yogurt, and a subsequent meal to optimise the snack's effects on energy intake. The delay must be long enough to allow the optimal impact of satiety mechanisms but not so long that any energy intake benefits are overridden at that next meal. A systematic review of preload (meal, snack, beverage) studies, found that energy compensation was maximized when the preload was in semi-solid or solid form and the inter-meal interval was between 30–120 min [20].

There is evidence that familiarisation with the satiety effects of foods can positively influence portion sizes and energy intake, reinforcing the benefits of regular planning and consumption of a familiar satisfying snack [21].

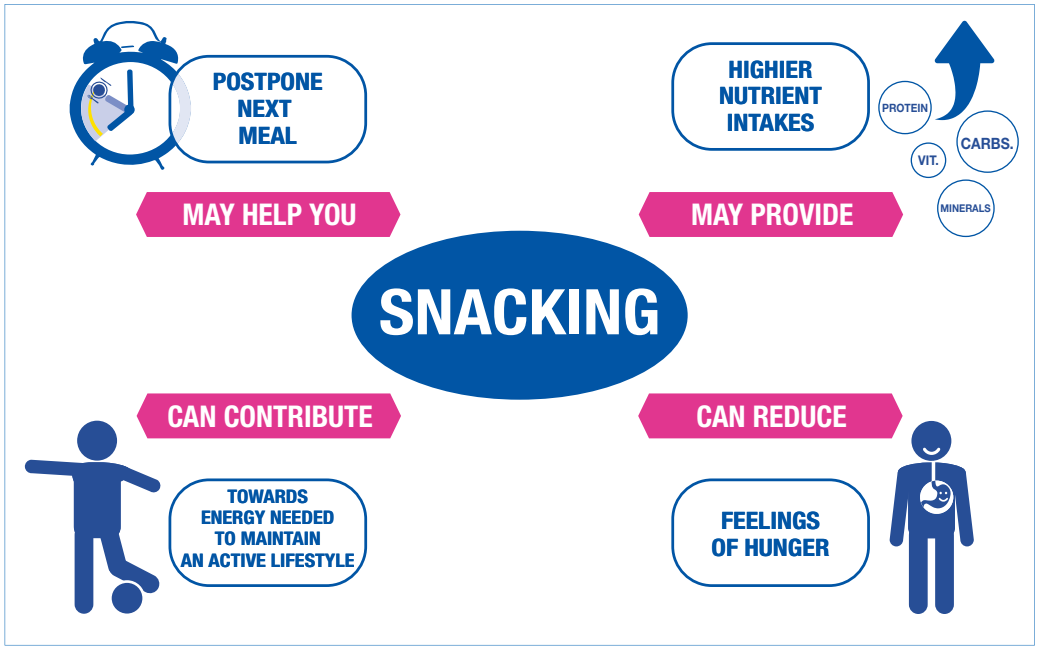


Figure 1: Potential benefits of snacking

Snacking and your weight

There is no clear association between snacking and weight gain

Snacking often conjures up feelings of guilt and a fear of weight gain. However, the current balance of evidence indicates no clear association between snacking, weight gain and obesity. For example, observational studies have shown positive associations [22, 23, 24], inverse associations [25-30] or no association between snacking and bodyweight [5, 31-34].

The healthy snack: definition and recommendations

There is currently no consensus on the definition of 'snacking' and this is reflected in the wide variations in snacking study design. The lack of a clear definition has been repeatedly highlighted as a barrier to evidence-based dietary recommendations for consumers [35]. Despite this fact, a healthy snack should:

- Contribute to nutrient intake to help ensure adequacy is obtained
- Allow for variety, which will increase pleasure and help consume a variety of essential nutrients
- Be composed in such a portion size that so that calories, fat, sodium and added sugar are not over-consumed
- Be enjoyed mindfully
- Leave you feeling full and satisfied
- Have a positive physiological effect, e.g. cognitive performance, energy for activity

If planned properly, healthy snacking can help build a nutritious diet!

Snacking can be good for you if you make a wise choice!

Many country-specific recommendations focus on the choice of snacks rather than frequency of consumption [36].

Snacking or eating frequency is not defined in these recommendations. However, dental-related guidance often recommends limiting the frequency of eating occasions of foods and drinks containing fermentable carbohydrate to 5-6 occasions per day [37].

In Sweden, the recommendation is more specific, with 1-3 snacks advised per day [38]. The UK Food Standards Agency recommends snacks contribute to 20% of daily energy intake in their guidance for institutional meal planning [39].

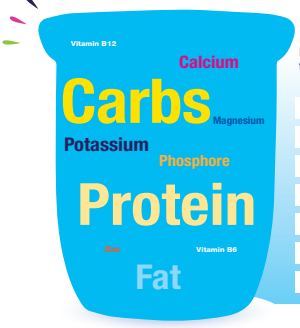
Food and nutrient needs of individuals vary depending on many individual factors, including age and activity level [40]. Therefore the importance of snacking can vary accordingly, which makes it difficult to standardize recommendations.

What makes yogurt a healthy snack?

It's packed with nutrients!

Yogurt provides more than just calcium. Most 8 ounce/225g servings in US and 140g in EU are sources of calcium, phosphorus, and riboflavin, and provide smaller but valuable amounts of a range of other micronutrients.

Yogurt: more than just calcium!



Intake for a low-fat fruit yogurt	140g	% DRI adult woman	% DRI child 8 years
Protein (g)	5.88	-	-
Fat (g)	1.54	-	-
Carbohydrates (g)	19.18	-	-
Potassium (mg)	285.6	6%	8%
Calcium (mg)	196	20%	25%
Phosphorus (mg)	168	24%	34%
Magnesium (mg)	21	7%	16%

Intake for a low-fat fruit yogurt	140g	% DRI adult woman	% DRI child 8 years
Zinc (mg)	0.7	9%	14%
Vitamin B1 (mg)	0.168	15%	28%
B2 (mg)	0.294	27%	49%
B3 (mg)	0.14	1%	2%
B9 (µg)	22.4	6%	11%
B12 (µg)	0.42	18%	35%

*DRI = Dietary Reference Intakes, based on US values (41)

Figure 2: Nutrient content of a pot of low-fat fruit yogurt from McCance and Widdowson's Composition of Foods Integrated Dataset [42]

Can yogurt affect your "brain power"?

In a study some years ago comparing the impact of a yogurt snack to a diet soft drink on cognitive performance, the yogurt snack improved the subjects' capacity to solve arithmetic problems, and less time was needed to solve these problems [43]. Additional studies need to be done to build on this research.

Yogurt and health

A recent study by Zhu and colleagues [44] reported that frequent yogurt consumption (once per week) was associated with better diet quality and insulin sensitivity in children compared to infrequent consumers. Wang et al [45] found that yogurt consumption in adults was associated with lower levels of circulating triglycerides and glucose, lower systolic blood pressure, lower insulin resistance and a healthier diet pattern compared to non-consumers.

Yogurt is rich in high quality protein

Quality counts

Milk and yogurt are excellent sources of high quality protein (contain all 9 essential amino acids in the proportions that cells need for protein synthesis). The protein content of yogurt is generally higher than that of milk because of the addition of non-fat dry milk during yogurt production. Further, when natural yogurt is strained, it is higher in protein weight for weight compared to non-strained yogurt. Proteins in yogurt have been found to be more digestible than proteins in unfermented (standard) milk. [46]

The sugar story

There is often concern about the healthiness of snack foods with added sugar. However, the overall nutrient density and benefits of the snack needs to be considered. For example, the 2010 Dietary Guidelines for Americans (DGA) state the following:

- Added sugars are best used to increase the palatability of nutrient dense foods.
- Plain low-fat and fat-free milk and yogurt, as well as flavoured versions containing moderate amounts of sugar, can help Americans get the recommended servings of dairy per day, while staying within daily calorie limits to help maintain a healthy weight.

The nutritional value of the whole food needs to be considered – it's not just about sugar

A recent paper by the American Academy of Pediatrics [47] suggested that nutritional value, portion size and overall diet quality are more effective methods of improving eating habits in children than focussing on elimination of added sugars. A little bit of sugar can help children to enjoy nutrient-rich food and drinks.

A NHANES analysis of added sugars in children's diets found that flavoured yogurt contributes about 1% of added sugars to the diets of adults. In comparison, soft drinks contributed 28.1%. [48]

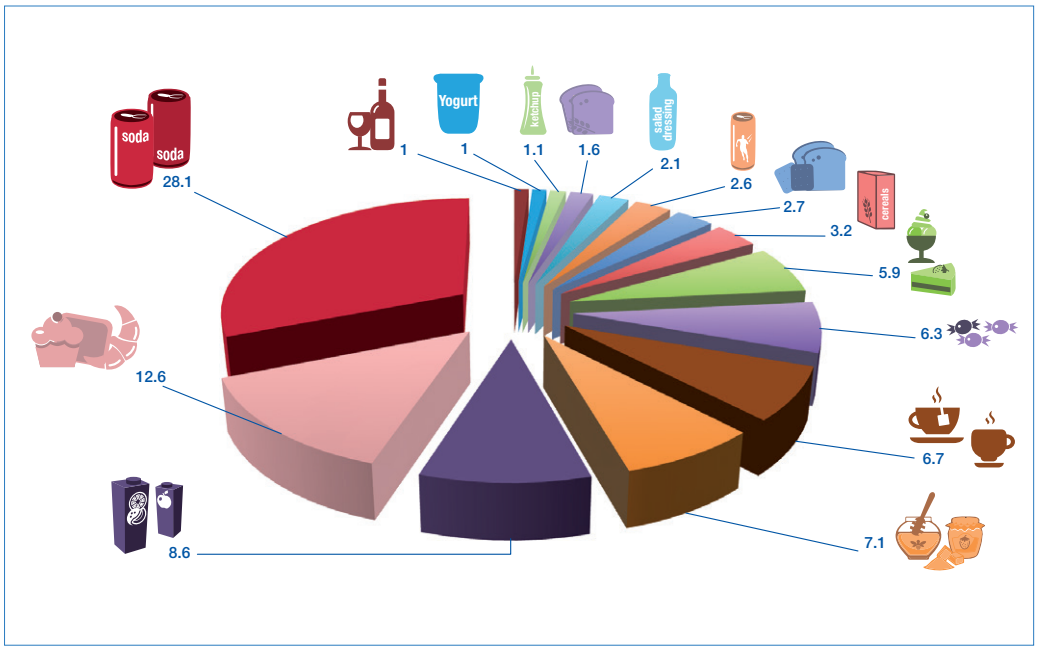


Figure 3: Food Sources of added sugar in diets of US adults (NHANES), adapted from Ref 48

In general, sugar intakes need to be limited for good health. But, sugar makes food tasty! Small amounts as part of an overall healthy diet and lifestyle are perfectly acceptable. What's important here is the matrix within which sugar is present: sugar in cakes and biscuits typically brings fewer nutrients than sugar in a pure fruit compote, or fruit yogurts.

In addition, in a recent study, El Khoury et al found that a strawberry yogurt with the same calories had a better palatability than plain yogurt and that this did not affect post-prandial blood glucose concentration and subsequent energy intake [49].

IN CONCLUSION...

- Snacks can provide important nutrients to the diets of adults and children. Choosing nutrient-dense snacks could help to lower the risk of nutrient deficiencies.
- The media sometimes attributes the obesity epidemic to our increasing snacking culture, yet the balance of current evidence does not suggest an association between snacking, body weight and obesity.
- There is currently no consensus on the definition of a snack. International dietary guidance typically focuses on the choice of snacks rather than frequency of consumption.
- Snacking may have a positive effect on health and it should not be discouraged, so long as guidance is given on the choice of nutritious snacks in appropriate portion sizes.
- With its protein content and nutrient density, yogurt, including sweetened yogurt, can be a nutritious and potentially satisfying snack for people of all ages and activity levels.

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Look out for your next issue of Yogurt Nutrition Digest: Yogurt, weight and curves.

What did you think of Yogurt Nutrition Digest 4? Tweet us your feedback **@YogurtNutrition - #Yogurt4Health**

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