



Health Care Professional Newsletter



Dried Fruit and Health - Dilemma, Controversy or Compromise?

Positive and negative impacts as a healthy snack and ingredient – strength of the evidence?

Distinguishing dried fruits:

Consumers are confused, many assume all dried fruit has added sugar and may not appreciate its potential to contribute to fibre intake.

No added sugar:

- **Traditional dried fruits:** dates, figs, prunes, raisins, apricots, peaches, apples, pears and currants

Traditional dried fruits are a healthy and convenient alternative to fresh fruit

Dried fruit contains fibre and a range of micro-nutrients eg prunes contain potassium, vitamins K and B6, manganese and copper; and raisins contain potassium, copper and manganese.

Added sugar:

- Sugar infused dried fruits: blueberries, cranberries, cherries, strawberries, mangoes
- Candied fruit: papayas and pineapples
- Processed fruit snacks: fruit pieces/puree/juice concentrate; other added ingredients...

Processed fruit snacks can be only considered an alternative to confectionery

California Prune Snack Skewers *Did you know hard cheese and nuts (peanuts)^{1,2} are protective to teeth?*

Ingredients – Serves: 4

- 4 apples cored and each cut into 8 wedges
- 16 fresh basil leaves
- 160g hard cheese, cubed into 16 pieces
- 16 California Prunes, pitted
- 16 toothpicks or short skewers



Method

Thread two pieces of apple and one each of the remaining items onto skewers and serve.

TIP: good for packed lunches – keep the apple whole and pre-prepare the other ingredients. Then store in an airtight plastic tub for up to 3 days in refrigerator. Don't forget to eat with the apple!

For an easy trail mix recipe: <http://www.californiaprunes.co.uk/recipe/trail-mix/>

¹ Moynihan P, Petersen P (2004) Diet, nutrition and the prevention of dental diseases. *Public Health Nutrition*. **7**, 201–226.

² Moynihan P (2002) Dietary advice in dental practice. *British Dental Journal*. **193**, 563–568.

³ SACN (2015) Carbohydrates and health. Scientific Advisory Committee on Nutrition. London, TSO.

⁴ Harold J, Hughes G, Boyland E et al (2014) Dried fruit (prune) consumption does not undermine active weight management or produce adverse gastrointestinal effects. As presented at The European Congress on Obesity by The European Association for the Study of Obesity, 2014: <http://bit.ly/1EYFYt>

⁵ Patel B, Lohovy B, Mollard R et al (2013) A pre-meal snack of raisins decreases mealtime food intake more than grapes in young children. *Applied Physiology, Nutrition, and Metabolism*. **38**, 382-389.

⁶ Kanellos P, Kaliora A, Tentolouris N et al (2014) A pilot, randomized controlled trial to examine the health outcomes of raisin consumption in patients with diabetes. *Nutrition*. **30**, 358–64.

⁷ Patel B, Bellissimo N, Lohovy B et al (2013) An After-school snack or raisins lowers cumulative food intake in young children. *Journal of Food Science*. **78**, 5–10.

⁸ Anderson J, Weiler K, Christian A et al (2014) Raisins compared with other snack effects on glycemia and blood pressure: a randomized, controlled trial. *Postgrad Med*. **126**, 37–43.

⁹ Farajian P, Katsagani M, Zampelas A (2010) Short-term effects of a snack including prunes on satiety in normal weight individuals. *Eating Behaviors*. **11**, 201-203.

¹⁰ Hooper B, Spiro A, Stanner S (2015) 30 g of fibre a day: An achievable recommendation? *Nutrition Bulletin*. **40**, 118-129.

¹¹ NHS choices. 5 A Day: what counts? Available at <http://www.nhs.uk/1/ivewell/5ADAY/Pages/Whatcounts.aspx> [accessed 31/05/17].

¹² PHE (2016) Government 5 A Day logo. Licensing guidelines. Available at <https://www.gov.uk/government/publications/government-5-a-day-logo> [accessed 31/05/17].

¹³ Rekdal O (2014) Academic urban legends. *Soc Stud Sci*. **44**, 638-54.

¹⁴ PHE (2016) The Eatwell Guide Booklet. Available at <https://www.gov.uk/government/publications/the-eatwell-guide> [accessed 01/06/17].

¹⁵ PHE (2016) The Eatwell Plate: external reference group review. Available at <https://www.gov.uk/government/publications/the-eatwell-plate-external-reference-group-review> [accessed 01/06/17].

¹⁶ Public Health England & Department of Health (2017) Delivering better oral health: an evidence-based toolkit for prevention. Third edition. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/605266/Delivering_better_oral_health.pdf [accessed 31/05/17].

¹⁷ Gustafson B, Quensel C, Lanke L et al (1954) The Vipeholm dental caries study; the effect of different levels of carbohydrate intake on caries activity in 436 individuals observed for five years. *Acta Odontol Scand*. **11**, 232–264.

¹⁸ Sadler M (2016) Dried fruit and Dental Health. *Int J Fd Sci Nut*. **67**, 944-59.

¹⁹ NHS. How to cut down on sugar in your diet. Available at <http://www.nhs.uk/Livewell/Goodfood/Pages/how-to-cut-down-on-sugar-in-your-diet.aspx> [accessed 01/06/17].

We hope you found this newsletter useful and feel free to pass onto other colleagues.

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Traditional dried fruit is simply fresh fruit with water removed:

Dried fruit has no more sugar per fruit than fresh and compares well nutritionally

- It is inappropriate to compare dried fruit with fresh fruit per 100g
- The nutrients remain similar, eg total sugars and dietary fibre (except for vitamin C) = one fresh plum becomes 1 dried plum/prune

Dried fruit is NOT classified as containing 'free sugars'³

SACN³ recommend 'free sugars' intake to not exceed 5% of total dietary energy. Previously UK classed 50% of sugar in dried fruit as non-milk extrinsic sugars (NMES), a term which has now been effectively dropped, as not easily understood or comparable with free or added sugars.

Size of a single fruit is *naturally* variable for fresh *and therefore* dried fruit too as fruit is a natural food, with many varieties.

% moisture content of dried fruit varies with the grade/end use/retailer, hence this can affect portion size/number of individual fruits per portion.

E.g.: There are 8 prune size grades from: 20/30 prunes/lb to 60/70 prunes/lb



Drying fruit is an ancient custom and offers convenience/all year-round consumption

Dried fruit has a long shelf life = **it's the convenience fruit.**



Like fresh fruit, there's no evidence people over consume dried fruit, in fact, there is growing evidence that dried fruit can be included in weight management diets due to their satiety effects.⁴⁻⁹

Patel⁵ compared cumulative energy intake of mid-morning snack (water, grapes, raisins or almond and raisin trail mix) and lunch (pizza meal) following a standard breakfast, in 2 separate groups of 26 children (fed ad libitum or as a 150kcal snack), over 4 separate mornings, 7 days apart. During the ad lib experiment, children consumed significantly less pizza following the raisin snack compared to all other groups and significantly less cumulative energy than when consuming grapes and trail mix ($p < 0.05$). Cumulative energy intake following 150kcal grapes or trail mix snacks was significantly higher compared to water, cumulative energy intake with 150kcal raisins was similar to water.

Traditional dried fruits are high in fibre, offering a convenient fibre boost



SACN³ recommends 30g fibre/day for adults, which Hooper *et al* have shown is difficult to achieve with the average UK diet¹⁰: This BNF paper used simple dietary modelling to investigate the feasibility of consuming 30g of AOAC fibre a day in the context of a healthy diet that meets other dietary recommendations.

They found that "following the current food-based dietary guidelines to base meals on starchy foods, choosing mainly wholegrain varieties and consuming five portions of fruit and vegetables each day would provide around 22g of dietary fibre per day... in order to achieve 30g each day, fibre-rich snacks (e.g. seeds, nuts and dried fruit) and other high-fibre foods (e.g. pulses) would also need to be included in the diet."

The paper concludes that achieving this population recommendation will be a considerable challenge and will mean not 5 but around 8 portions daily of fruit and vegetables is required.

Current recommendations:

5 A Day: '30g of dried fruit (this is equivalent to around 80g fresh fruit) counts as one 5 A Day portion'.¹¹

Since we ideally need to eat more fruit and veggies than 5 A Day, dried fruit can help contribute to achieving higher plant foods and higher fibre intakes. Overall variety of fruit and vegetable is key.

30g portion is an arbitrary figure.

Current advice around 5 A Day is confusing as current recommendations are NOT suggesting limiting intakes of dried fruit to only one portion per day, which they are for fruit juice and beans.

PHE and 5 A Day have recently updated their websites to be clearer on this point, BUT not all yet updated¹² and/or the wording is unclear¹¹ – so beware!



“Many of the messages presented in respectable scientific publications are, in fact, based on various forms of rumours. Some of these rumours appear so frequently and in such complex, colourful and entertaining ways that we can think of them as academic urban legends.”¹³

What do we know about dried fruit and dental health?

Dentists currently recommend dried fruit is limited to mealtimes and *not* consumed as a snack due to concerns about dental health. This advice remains within UK public health messages.^{11,14}

This topic was raised during the EATWELL review but no evidence, references or rationale to support the ‘mealtime only’ recommendation is available.¹⁵ Public Health England were actioned ‘to discuss with dental health colleagues the evidence base for the effects of dried fruit on teeth’. The results of any discussion are not available online, nor is this outstanding action point subsequently mentioned.

PHE’s evidence-based toolkit for better oral health, on which current dental health advice is based, provides no references specific to dried fruit. The main evidence relates to sugar consumption generally: *‘The frequency and amount of sugary food and drinks should be reduced and, when consumed, limited to mealtimes.’*¹⁶ The report provides no justification for singling out dried fruit.

Stickiness – based on one paper¹⁷ that was of poor design and did not mention dried fruit.

According to a review by Sadler¹⁸ there are only limited, old (1951-1991) and poorly designed studies that form the evidence around oral retention of dried fruit.

Like most foods, salivary pH drops on eating and fruit is no exception. However, current public health advice repeatedly singles out dried fruit and includes traditional dried fruit in examples of processed foods with added sugar.

According to a review by Sadler¹⁸ the evidence around dried fruit causing a harmful reduction in plaque pH is inconsistent, with 2 studies using only 5 subjects; and the third study (20 children) *“suggests that raisins do not show demineralisation potential in children.”*

PHE dental health team in their evidence based toolkit¹⁶ makes an exception for fresh fruit as regards dental erosion but not for dried fruit.



Most foods are cariogenic, especially CHO foods. Current snacking advice suggests examples such as *‘instead of two biscuits have one’*¹⁹

Evidence is lacking to conclude that dried fruit is any more harmful than consuming a biscuit as a snack

In reviewing the research around dried fruit and dental health Sadler 2016 concludes that there is: *“limited and unconvincing evidence to draw conclusions regarding dried fruit and dental caries and a lack of high quality information on which to formulate evidence-based advice on the unsuitability of dried fruits as a snack.”*¹⁸

Sadler suggests: On balance, *“both positive and negative attributes of dried fruits on dental health need to be considered.”*¹⁸

The following positive attributes by which dried fruit may have a positive effect on dental health have been proposed¹⁸:

- Need to chew and organoleptic qualities – encourage salivary flow
- Contain polyphenols – potentially anti-microbial
- Contain dietary fibre – potential cleansing action
- Non-cariogenic sorbitol content (prunes, dried apricots/pears)
- Low content of sucrose



More research is needed to better understand the relative cariogenicity of traditional dried fruit compared to other foods in the diet. In the meantime, dried fruit could be making a useful contribution to reaching hard-to-achieve, recommended fibre intakes. Dried fruit has the potential to encourage those who are currently poor fruit/vegetable consumers to take that first step towards increasing their fruit intakes, by switching from confectionery and biscuits to traditional dried fruit. Not to mention those occasions where convenience is the main driver for food choice. Can common sense prevail?



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