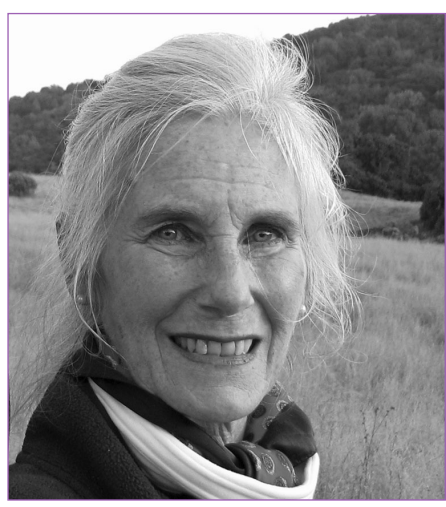




Health Care Professional Newsletter

Issue 3 – July 2017



An interview with the California Prune Board's US Nutrition Consultant and Dietitian Mary Jo Feeney on the Board's approach to nutrition research:

Mary Jo has coordinated the CPB's nutrition research program since 1997. A registered dietitian/nutritionist, Mary Jo is a charter Fellow of the American Dietetic Association (now the Academy of Nutrition and Dietetics (AND)) and served on the Board of Directors of both the AND and its Foundation. A past recipient of the Academy's Medallion Award recognising leadership, she also received her graduating institution's 1991 Alumna of the Year Award. She has completed twelve marathons and lives in the San Francisco Bay Area with her running partner husband.

Tell us about the Board's interest in nutrition research and how it sets priorities

The Board had a long and rich history of working with researchers in the California university system as needed (*California being a prime prune growing country*). However, in the mid 1990s, it recognised the need – and benefit – of having a formalised approach to nutrition research, to provide the scientific basis for consumer communications. The Board formed a Nutrition Research Panel with scientific expertise in the broad areas of women's health, consumer education, dietary fibre, carbohydrate composition and bioactive compounds. The role of the Panel is to help set research priorities in these and emerging areas of research and review proposals the Board receives in response to requests for proposals. We now work with researchers around the world, especially with leaders in specific disciplines.

Describe some of the successful outcomes of the nutrition research initiative

Two decades ago (1997) the Board funded the first research projects under this process. Since that time over 30 projects have been funded, resulting in over 35 publications, abstracts or presentations at scientific meetings. Health professionals have access to these findings on the Board's website, thus expanding their knowledge about prunes. (See latest research update in this newsletter and for full research overview see *Prune research information* at <http://www.californiaprunes.co.uk/resource-centre/hcp-nutritionist/>)

From Bowels to Bones!

Over time the scope, diversity and outcomes of proposals have changed – with the rather serendipitous discovery of the role of prunes in bone health, which remains a priority. The Board's research on the role of prunes in laxation resulted in the successful approval of the EU-authorized health claim on prunes and maintenance of normal bowel function^a. To maintain momentum in the area of digestive health, research is now exploring the role of prunes' effect on the gut microbiota.

Describe how nutrition research supports the strategic goals of the California Prune industry

The California Prune industry wants consumers, health professionals and the media to have confidence in the information it disseminates about prunes' role in health promotion. The food, nutrition and health landscape is extremely crowded and confusing, making it critical for the prune industry to have a robust, scientific basis to support credible communications efforts. In addition, to maintain the industry's regarded reputation, robust research is essential to support nutrient or health claims governed by regulations.

Because the prune industry understands these issues, it has historically and consistently contributed financially to nutrition research discovery resulting in the outcomes described above. In addition, as nutrition research on prunes gains momentum, others are conducting research on their own initiative and approaching federal (government) agencies for funding. This kick start by the industry has raised the profile of California Prunes as a nutritious whole food and functional ingredient that has stimulated researchers' own interests.

What is planned for the future of prune nutrition research?

The California Prune industry has a presence in the global marketplace, with Asia in general being a market leader and Japan and Italy as examples of leaders in the premium product market. Because there is the need for robust science to support messaging consistent with country specific regulations, the prune industry is now developing a European Union nutrition panel and potentially a more international panel in the future. Panellists from the US and European Union will meet jointly in September to begin the next exciting chapter in prune research.

For more on the development of nutrition research on US agriculture products, Phyllis Bowen, PhD, RD, member of the CPB's Nutrition Research Panel, provides a useful insight using California Prunes as a case study. **Bowen P. Role of Commodity Boards in Advancing the Understanding of the Health Benefits of Whole Foods. 2017. Nutrition policy Vol. 52; issue 1; pages 19-25. Freely available at <http://journals.lww.com/nutritiontodayonline/Pages/ArticleViewer.aspx?year=2017&issue=01000&article=00005&type=Fulltext>**

Latest news on prune nutrition research

Digestive Health

Prunes are the only natural, whole fruit to achieve an authorised health claim in Europe: Prunes contribute to normal bowel function when 100g are eaten daily. Recent studies to further support their benefit to gut health includes Shamloufard *et al*^b who assessed bowel function in postmenopausal women consuming 50-100g/d for 6 months verses a control – prune consumption at this level did not produce adverse effects.



Publications in the FASEB Journal provide some preliminary insights into the possible mechanisms of how prunes effect gut health: Seidel *et al*^c used a rat model of colon carcinogenesis which supports the role of prunes positively, both directly and indirectly, in improving the colon luminal metabolome; and Washburn *et al*^d measured cytokine production in epithelial cells following the addition of polyphenols from prunes. Results indicate that prune polyphenols can work to down regulate IL-6 in the gut.

Bone Health

Building on from the promising human and animal research into the beneficial role of prunes in bone health, a comprehensive literature review^e of cell, animal, population and clinical studies has recently

been published. This review concludes that prunes 'may be a bone healthy option for postmenopausal women wishing to satisfy daily requirements for fruit' and it may be influenced by prunes phenolic and nutrient content, including being high in vitamin K.

Arjmandi *et al*^f provides further detailed evidence to support the role of prunes in postmenopausal women by reviewing the research in rodents and humans. The paper also includes follow up results of 20 women from the original 100 in an earlier study. These results suggest that women who consumed 100g prunes a day for a year retained bone density in the lumbar spine and ulna to a greater extent than the control group (dried apples) after 5 years, even though they no longer regularly consumed prunes.

The benefits are further supported by a recent small cell culture study^g, where serum of 5 healthy women was collected 1 and 2 hours after the consumption of 100g prunes to monitor changes in osteoblast cell activity and gene expression over 3 and 9 days. Results indicate that osteoblast activity and function were increased.



Wholefoods Approach to Osteoporosis Prevention

Osteoporosis is a prevalent and debilitating condition with no signs of subsiding. Rising numbers of people consuming nutrient-poor diets coupled with ageing populations and sedentary lifestyles appear to be the main drivers behind this. Aside from calcium and vitamin D, there is growing evidence that wholefoods and other micronutrients have roles to play in primary and potentially secondary osteoporosis prevention. A review of 20 papers^h has concluded that greater efforts are needed to employ preventative strategies which involve dietary and physical activity modifications, if the current situation is to improve.



Key findings include:

- Fruit and vegetables are still not being eaten in adequate amounts and yet contain micronutrients and phytochemicals useful for bone remodelling (bone formation and resorption) and essential for reducing inflammation and oxidative stress.
- Dried fruits, such as prunes, provide significant amounts of vitamin K, manganese, boron, copper and potassium which could help to support bone health. Just 50g of prunes daily have been found to reduce bone resorption after six months when eaten by osteopaenic, postmenopausal women.
- Dairy foods have an important role in bone health. Carbonated drinks should not replace milk in the diet.
- A balanced diet containing food groups and nutrients needed for bone health across the whole lifecycle may help to prevent osteoporosis.
- Paper freely available at <http://www.efortopenreviews.org/content/2/6/300>

Sensible Success - the prune way!

The **Prune It Eating Plan** from California Prunes was developed by a registered dietitian and a registered nutritionist. It is a lifestyle approach to healthy, balanced eating based on research carried out by the University of Liverpoolⁱ, and encompasses sensible messages based on government recommendations. The two-week plan shows how prunes can sensibly be added to the diet both as a snack and within recipes.



Rosemary Shrager is a massive fan having dropped 3 dress sizes.

Visit <http://www.californiaprunes.co.uk/prune-it/> for full details.



★★★ BONE-FRIENDLY RECIPE ★★★

High in manganese, magnesium, vitamin K, phosphorus and zinc, and a source of calcium, which all contribute to the maintenance of normal bones.

Creamy Cashew Nut, California Prune and Almond Loaf

<http://www.californiaprunes.co.uk/recipe/creamy-cashew-nut-california-prune-almond-loaf/>

Preparation time:

1 hour 20 minutes

Servings: 4

Ingredients

2 tbsp olive oil
 1 red onion, peeled and finely diced
 1 clove garlic, crushed
 2 carrots, peeled and coarsely grated
 1 courgette, coarsely grated
 1 stick celery, finely diced
 1 red pepper, deseeded and diced
 ½ tbsp thyme leaves
 150g cashew nuts
 100g ground almonds
 125g California Prunes, chopped
 1 tbsp tomato purée
 seasoning to taste

Instructions

- Lightly grease a 2lb loaf tin and preheat the oven to 180°C/350°F/gas mark 4.
- Heat the oil in a pan and sauté the onion and garlic for 2–3 minutes until softened. Add the carrots, courgette, celery, red pepper and thyme and mix well.
- Reduce the heat, cover the pan and leave to sweat for 10 minutes, stirring just a couple of times.
- Meanwhile, put the cashew nuts in a food processor and blitz until they look like breadcrumbs (but not powdery). Stir the cashew nuts, almonds, California Prunes and tomato purée into the softened vegetables and season well.
- Pour the mixture into the prepared tin and smooth over the top. Place in the oven and bake for 40–45 minutes until just lightly golden on top.
- Remove from the oven, run a knife around the edges and turn out onto a plate. Serve either hot or cold with a crisp green salad.



Micronutrient content per 250g portion:

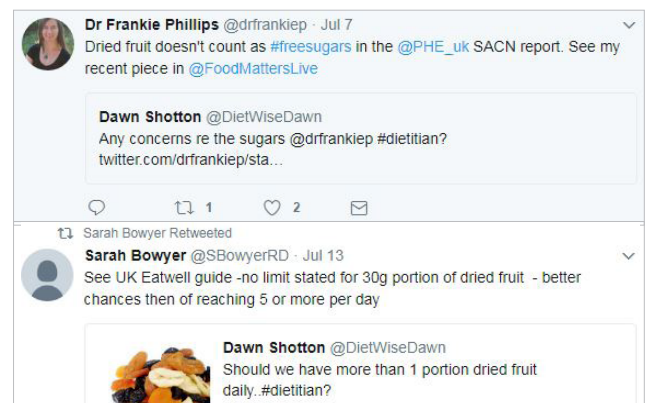
Calcium (mg)	131
Manganese (mg)	1.07
Magnesium (mg)	195
Vitamin K (µg)	38
Phosphorus (mg)	365
Zinc (mg)	3.29

Dried Fruit and Health - Dilemma, Controversy or Compromise? Positive and negative impacts as a healthy snack and ingredient - strength of the evidence?

Have you joined the debate following our JUNE 2017 HCP newsletter?

<http://www.californiaprunes.co.uk/resource-centre/hcp-nutritionist/>

#dietitian #driedfruit



¹ EFSA Panel on Dietetic Products, Nutrition and Allergies (2012) Scientific Opinion on the substantiation of health claims related to dried plums of 'prune' cultivars (*Prunus domestica* L.) and maintenance of normal bowel function (ID 1164, further assessment) pursuant to Article 13(1) of Regulation (EC) No 1924/2006. EFSA Journal 10: 2712. Available at <http://www.efsa.europa.eu/en/efsajournal/pub/2712>

² Shamloufard P, Kern M, Hooshmand S. Bowel function of postmenopausal women: Effects of daily consumption of dried plum. 2016 International Journal of Food Properties.

³ Seidel DV, Taddeo SS, Azcarate-Peril MA, Carroll RJ, and Turner ND. Dried plums modify the colon luminal metabolome in a rat model of colon carcinogenesis. The FASEB Journal April 2017. Vol. 31 No. 1 Supplement 590.5.

⁴ Washburn K. Polyphenolic Compounds Downregulate IL-6 in Gut Epithelial Cells under Inflammatory Conditions. The FASEB Journal April 2017. Vol. 31 No. 1 Supplement 166.6

⁵ Wallace T. Dried plums, prunes, and bone health: A comprehensive review. Nutrients 2017, 9, 401; doi:10.3390/nu9040401

⁶ Arjmandi B et al. Bone-Protective Effects of Dried Plum in Postmenopausal Women: Efficacy and Possible Mechanisms. Nutrients 2017, 9, 496; doi:10.3390/nu9050496

⁷ Delgado Cuenca P, Almalmán L, Schenk S, Kern M, Hooshmand S. Dried Plum Ingestion Increases the Osteoblastogenic Capacity of Human Serum. J Med Food. 2017; 7:653-658.

⁸ Higgs J, Derbyshire E, Styles K. Nutrition and osteoporosis prevention for the orthopaedic surgeon. 2017; 2:300-308. DOI: 10.1302/2058-5241.2.160079. Freely available at <http://www.eforopenreviews.org/content/2/6/300>

⁹ Harrold J, Hughes G, Boyland E, Williams N, McGill R, Blundell J, Finlayson G, Higgs J, Harland J, Halford J (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/1EYFyl>



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

Have a question? Just email us at: CPB@foodtofit.co.uk

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