

May Nutrition Bulletin



Happy Spring from the Almond Board of California! This month's issue features almond research from the premier nutrition conference Environmental Biology, data about the connection between magnesium intake and blood glucose control, and an almond and kale chips recipe to help spring clean your snacking!

News from Environmental Biology in Boston

The American Society of Nutrition's Scientific Sessions and Annual Meeting, held in conjunction with Experimental Biology 2015 (EB) featured more than 14,000 scientists and exhibitors representing six sponsoring societies and multiple guest societies, in the fields of anatomy, physiology, pathology, biochemistry, nutrition and pharmacology.

Five preliminary almond-related studies were presented as poster sessions at the conference. While the research that was presented is considered preliminary, as it has not yet been published in peer-reviewed journals, the studies provide

insights about the effects of almond consumption on overall diet quality, glycaemic control and brain activity. Three are summarized below:

Effect of Almonds on Neural Responses

In this study conducted by Dr. Rick Mattes at Purdue University (US), 13 overweight or obese participants (BMI: 30.8 + 1.4 kg/m²; age 36 + 3.5 years) completed two (2) functional magnetic resonance imaging (fMRI) studies before and after a 12-week weight loss intervention to measure responses in the brain's taste and reward centers, which are primarily located in the left insula. During each fMRI, left insula activity was measured



while participants ate either 42 grams (about 1.5 servings) of almonds or a control food with the same number of calories. Palatability ratings were collected and were higher for almonds compared to control both before and after weight loss. Left insula activity was not different at pre- vs. post-weight loss when eating almonds; however, left insula activity decreased when eating the control food post-weight loss. There was a significant positive correlation between palatability rating and left insula activity for almonds, but not for control. Further research is needed to evaluate the responses from other foods.

Effect of Almonds on Glucose Control and CVD Risk Factors

Almond consumption was shown to be beneficial for glycaemic control in patients with type 2 diabetes in this randomised, crossover, controlled feeding trial conducted by a team of researchers in Taiwan. The study examined the effects of eating ~60 grams (about 2 servings) of almonds per day compared to an isocaloric control diet without almonds on glucose control and CVD risk factors in 33 Chinese adults with type 2 diabetes. There were no differences in risk factors observed in the full group of 33 participants, but differences were observed in the 21 patients that complied with the treatment. Among 17 of these 21 patients with baseline HbA1c ≤ 8 , the diet with almonds decreased post-study fasting HbA1c by 4% and fasting glucose by 11% as compared to the control diet. Similarly, in a glucose tolerance test, almonds lessened postprandial

glucose increase at 30, 60, and 90 min and area under the glucose curve by 7, 7, 6, and 6% compared to the control diet. Blood cholesterol was not decreased by the almond diet, which was likely due to well-controlled TC and LDL-C at baseline.

Effect of Almonds on Diet Quality of Parents and Children

This randomised crossover study evaluated the feasibility of incorporating almonds, and their effect on overall diet quality, into the diets of 29 parent (34.9 ± 2.9 years) and child (4.5 ± 1.1 years) pairs. Parents and children consumed 42 grams and 15 grams (about $\frac{1}{2}$ serving), respectively, of almonds and/or almond butter for 3 weeks and then consumed no almond products during the 3-week control period. Average energy intake and Healthy Eating Index-2010 (HEI) score, an assessment of diet quality with a maximum score of 100, were calculated based on self-reported dietary recalls. During the almond intervention, total HEI score increased from 53.7 ± 1.8 to 61.4 ± 1.4 for parents and from 53.7 ± 2.6 to 61.4 ± 2.2 for children ($P < 0.001$). Parent and child component scores increased for fatty acids, total protein, and seafood and plant protein and decreased for empty calories. Component scores for parents also decreased in whole fruit and sodium; however, energy intake did not change, which suggests that almonds may have replaced fruit or salty empty-calorie foods in the diet. In all, the study suggests that almonds are easily incorporated into the family diet and improve diet quality for both parents and children.





Research Spotlight:

Hruby A, Meigs JB, O'Donnell CJ, Jacques PF, McKeown NM. Higher magnesium intake reduces risk of impaired glucose and insulin metabolism and progression from prediabetes in middle-aged Americans. *Diabetes care* 2014 Feb;37(2):419-27. doi: 10.2337/dc13-1397. <http://www.ncbi.nlm.nih.gov/pubmed/24089547>

Magnesium is a nutrient thought to play a role in supporting cardiovascular health and the regulation of blood glucose, among other important functions. This study suggests that getting enough magnesium in the diet may reduce the risk of diabetes, especially for those who are already at high risk. This is especially important as the majority of people worldwide do not eat enough magnesium in their daily diet.

This study looked at the relationship of magnesium intake to measures of diabetes risk over a 7-year period in a large population of 2,582 American adults (average age: 54 years), and found that healthy people with the highest magnesium intake were 37% less likely to develop diabetes than those consuming the least magnesium. In participants that already had elevated fasting blood sugar or high insulin levels, those consuming the most magnesium were 32% less likely to develop diabetes. One 30-gram serving of almonds contains 81mg of magnesium, making this snack an ideal recommendation to help bolster one's daily intake of this key micronutrient.

Snack Happy Campaign:

Despite a desire to be healthier, recent research by the Almond Board of California has shown that 73% of women push their health to the bottom of their list of priorities. What's more, nearly four out of five women in the

UK are prone to 'Snack Amnesia' – a habit which leads them to inadvertently snack without any idea of what, how much or why they are eating.

One way to train the brain to suppress subconscious snacking, and instead reach for these nutritious nuts, is with the Snack Happy Challenge. The Almond Board of California is encouraging women to give it a go: snack on a handful* of almonds once a day for 21 days (the length it takes to form a new habit) and conquer those 'Snack-Amnesiac' impulses.

If you have clients who are keen to try the challenge, or want more information and some tasty almond snacking combinations, please direct them to: www.almonds.co.uk

As an additional resource, we have developed a snacking quiz to help identify your snacking style. You can take the quiz here:

www.almonds.co.uk/find-your-snacking-style



Save the Date

Join us for an Almond Board symposium at the 12th Annual Federation of European Nutrition Societies (FENS) in Berlin on 22 October. Researchers Dr. David Baer and Prof. John Blundell will discuss the mechanisms of weight management from appetite regulation to energy absorption. Come meet us at the conference and take part in this informative event. Stay tuned for more details!



Featured Snack Inspiration

Almonds with Homemade Kale Crisps

Almonds and kale make a complete snack combination – giving a nutritious boost with the protein of almonds and the vitamin C of kale.

Makes 12 servings

Ingredients:

- 120g whole natural almonds
- 100g kale
- 1 tbsp vegetable oil
- Pinch of sea salt

Preparation:

- Preheat the oven to 140°C, fan oven 120°C (Gas Mark 1).
- Lightly oil 2 to 3 baking sheets.
- Trim and discard the central stem from the kale leaves. Tear or cut the leaves into small pieces and place in a bowl.

Drizzle with the oil and then use your fingers to gently ‘massage’ the oil into each leaf so that they are very lightly coated. Spread them out onto the baking sheets so that they’re not too crowded.

- Bake for about 1 hour to dry them out, turning once, and opening the oven door occasionally to let the steam escape. When they are crisp, remove and leave until completely cold.
- Mix gently with the almonds and serve, sprinkled with sea salt.

TIP: If you wash the kale first, you must make sure that it’s completely dry before you add the oil. You need slow, gentle heat to dry out the kale leaves – anything too hot will roast and burn them!

Calories	217 kcal*	Fibre	4g
Fat	19g	Cholesterol	0mg
Saturated Fat	2g	Sodium	394mg
Monounsaturated fat	10g	Calcium	113mg
Polyunsaturated fat	7g	Magnesium	88mg
Protein	7g	Potassium	343mg
Carbohydrate	6.5g	Vitamin E	10mg**

** total alpha-tocopherol equivalents

* In a study by Novotny et al. (2012)², it was determined that almonds contribute fewer calories than what we estimate using the traditional Atwater factors. Measuring digestibility, the researchers found that we actually absorb about 20% fewer calories from whole almonds than stated on the nutrition facts label.



Update from the Orchard:

Did you know? Green almonds are a rare delicacy: you can eat the entire green almond (fuzzy outside and all), and it tastes like a cross between a grape and a green apple. Plus, almond hulls, the fuzzy green outer coating of the nut, provide feed for dairy cows and are a part of their balanced diet. Another way that almonds prove their sustainability as a crop!



Almond Board of California NUTRITION BULLETIN

More recipes and nutrition brochures are on Almonds.co.uk. Encourage your clients or patients to follow us on Facebook for inspired snacking ideas. As always, please call +44 (0) 79191 01167 or email Kimberly.Haider@PorterNovelli.co.uk with any questions or if you would like to receive the new 2015 portion-control almond tin.

Kind Regards,

The Almond Board of California Team



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