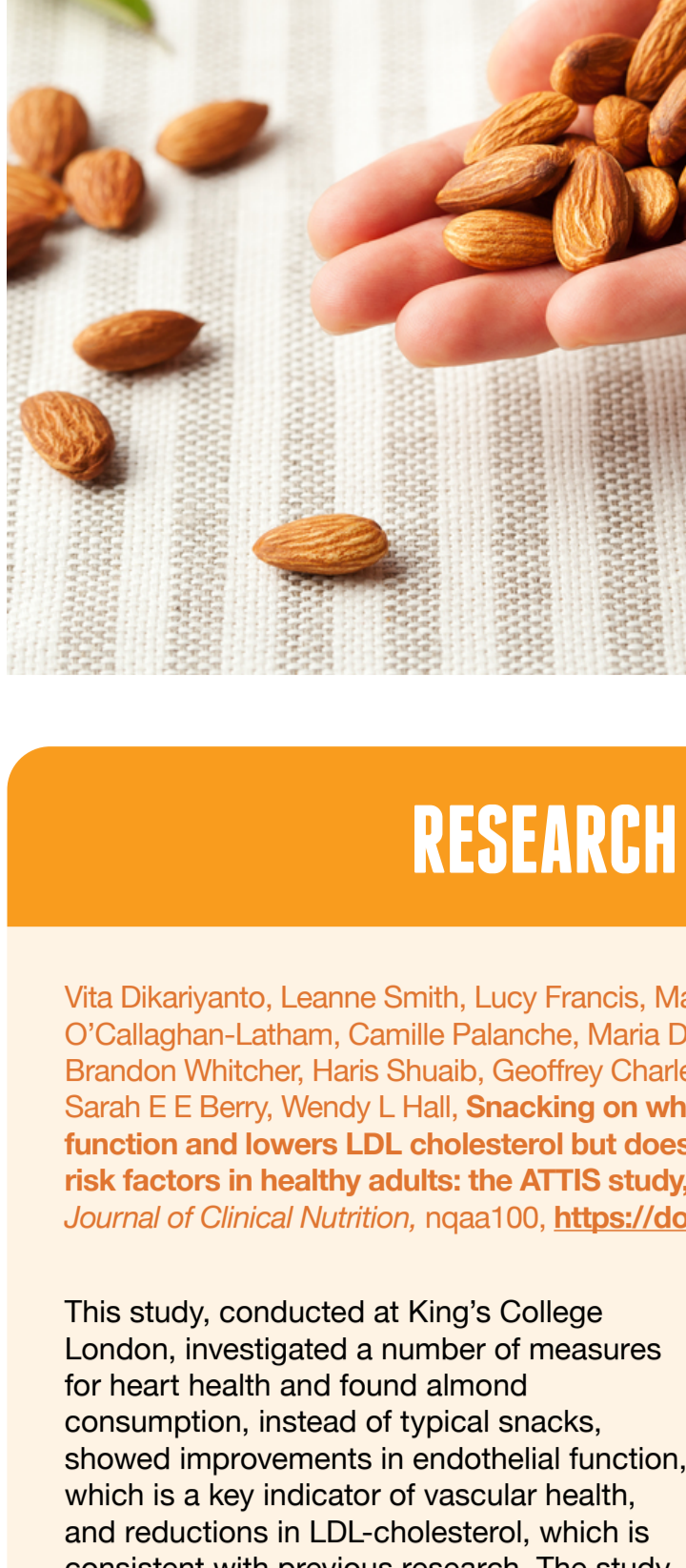


# SUMMER 2020



# NUTRITION BULLETIN

## IN THE LATEST EDITION OF THE ALMOND BOARD NUTRITION BULLETIN:

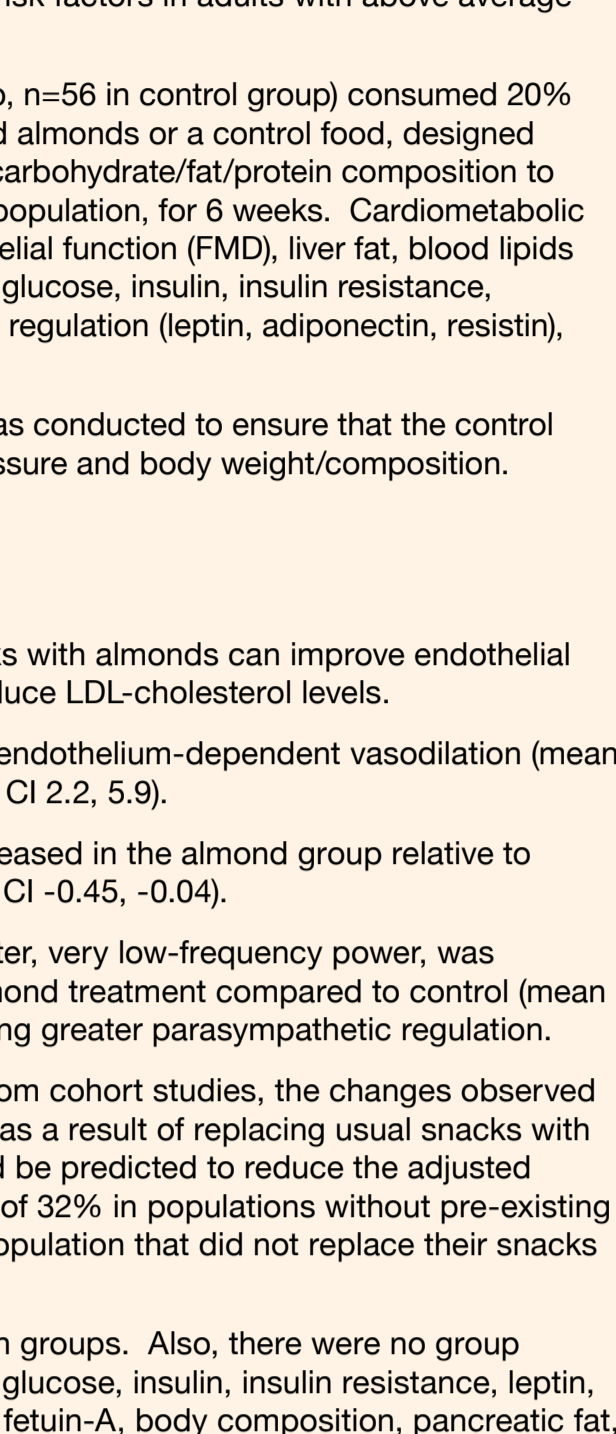
Hello! Welcome to the summertime edition of the Nutrition Bulletin. We are hoping you, your family, and your patients are staying well. This issue features some breaking European research about heart health and better diet quality, some wellness tips to share with patients and clients for supporting their health goals, and a new almond flour recipe. Best wishes from us and please be sure to get in touch to share your feedback about our articles.

## RESEARCH SPOTLIGHT

Vita Dikariyanto, Leanne Smith, Lucy Francis, May Robertson, Eslem Kusanian, Molly O'Callaghan-Latham, Camille Palanche, Maria D'Annibale, Dimitra Christodoulou, Nicolas Basti, Brandon Whitcheer, Haris Shuaib, Geoffrey Charles-Edwards, Philip J Chowienczyk, Peter R Ellis, Sarah E E Berry, Wendy L Hall, **Snacking on whole almonds for 6 weeks improves endothelial function and lowers LDL cholesterol but does not affect liver fat and other cardiometabolic risk factors in healthy adults: the ATTIS study, a randomized controlled trial, *The American Journal of Clinical Nutrition*, nqaa100, <https://doi.org/10.1093/ajcn/nqaa100>.**

This study, conducted at King's College London, investigated a number of measures for heart health and found almond consumption, instead of typical snacks, showed improvements in endothelial function, which is a key indicator of vascular health, and reductions in LDL-cholesterol, which is consistent with previous research. The study was funded by the Almond Board of California.

The study was a 6-week randomized, controlled, parallel-arm trial, where participants (with above average cardiovascular disease risk) consumed almonds or a calorie-matched control snack providing 20% of each participant's estimated daily energy needs. The research team then compared cardiometabolic health markers between the two groups. They found that the almond group, compared to the control group, had increased endothelium-dependent vasodilation by a 4% unit increase (measured through flow mediated dilation or FMD), which is a strong predictor of the initiation and progression of the disease atherosclerosis. LDL-cholesterol levels decreased in the almond group relative to the control group.



### STUDY-AT-A-GLANCE:

#### Study Design

- This randomized, controlled parallel dietary intervention study investigated the effects of almond consumption on cardiometabolic risk factors in adults with above average risk of CVD.
- Adults 30-70 years old (n=51 in almond group, n=56 in control group) consumed 20% of their calorie requirements as whole roasted almonds or a control food, designed to provide the same number of calories and carbohydrate/fat/protein composition to match average snack intakes in an adult UK population, for 6 weeks. Cardiometabolic risk factors were measured, including endothelial function (FMD), liver fat, blood lipids including cholesterol levels and triglycerides, glucose, insulin, insulin resistance, hormones related to obesity and blood sugar regulation (leptin, adiponectin, resistin), and other known CVD risk factors.
- Prior to beginning the study, a 3-week trial was conducted to ensure that the control food had a neutral effect on lipids, blood pressure and body weight/composition.

### RESULTS:

- The results show that replacing typical snacks with almonds can improve endothelial function, cardiac autonomic function and reduce LDL-cholesterol levels.
- Almonds, compared with control, increased endothelium-dependent vasodilation (mean difference 4.1 % units of measurement, 95% CI 2.2, 5.9).
- Plasma LDL-cholesterol concentrations decreased in the almond group relative to control (mean difference -0.25 mmol/L, 95% CI -0.45, -0.04).
- The long-phase heart rate variability parameter, very low-frequency power, was increased during night-time following the almond treatment compared to control (mean difference 337 ms2, 95% CI 12, 661), indicating greater parasympathetic regulation.
- Based on previously reported pooled data from cohort studies, the changes observed over 6 weeks in this disease-free population as a result of replacing usual snacks with almonds, if sustained in the long-term, would be predicted to reduce the adjusted relative risk of having a cardiovascular event of 32% in populations without pre-existing cardiovascular disease relative to a similar population that did not replace their snacks with almonds.
- There were no differences in liver fat between groups. Also, there were no group differences in triglycerides, HDL-cholesterol, glucose, insulin, insulin resistance, leptin, adiponectin, resistin, liver function enzymes, fetuin-A, body composition, pancreatic fat, intramyocellular lipids, fecal short chain fatty acids, blood pressure or 24-hour heart rate variability. The non-HDL cholesterol decreased in almond group and the HDL-cholesterol was maintained.

### LIMITATIONS:

Limitations of the study were the fact that there were some differences between groups in cardiometabolic disease risk factors at baseline. The imbalance in recruitment by sex could mean that the results may not be as applicable to men since they made up only 30% of the randomized study population. Also, the participants were free-living, and although almond compliance was confirmed, it is possible there is potential for some inaccuracies in their reported food intake.

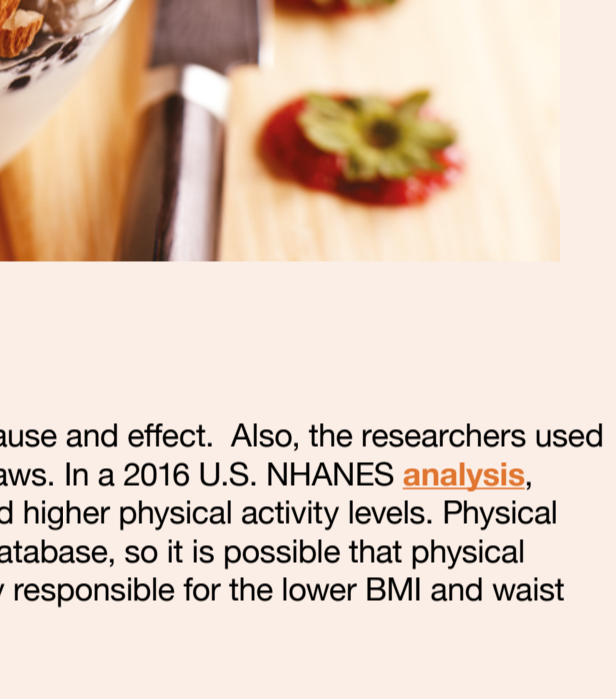
### KEY TAKEAWAYS:

- The degree of improvement in endothelial function and in LDL-cholesterol levels suggests that replacing typical snacks with almonds (as 20% of total calories, equivalent to about 2.5 servings or 70 grams) has the potential to reduce adjusted relative CVD risk by 32%.
- Replacing typical snacks with almonds can have positive impact on daily nutrient intake and potentially play a role in improving cardiovascular health.

## RESEARCH UPDATE

Dikariyanto, V., Berry, S.E., Francis, L. et al. **Whole almond consumption is associated with better diet quality and cardiovascular disease risk factors in the UK adult population: National Diet and Nutrition Survey (NDNS) 2008-2017. *Eur J Nutr* (2020).** <https://doi.org/10.1007/s00394-020-02270-9>.

Another study from the same research team at King's College London found that almond consumers in the UK have lower waist circumference, lower BMI and better diet quality, compared with people who do not consume almonds. The researchers used the most recent population data from the UK's National Diet and Nutrition Survey (NDNS) rolling program, 2008-2017) to determine the higher diet quality scores of almond eaters. The study was funded by the Almond Board of California.



### STUDY-AT-A-GLANCE:

#### Study Design

- This study examined the association of almond snack consumption with risk factors of cardiovascular disease (CVD) and diet quality in a UK adult population from the UK's National Diet and Nutrition Survey (NDNS) rolling programme 2008-2017. (NDNS is a continuous, cross-sectional survey designed to collect detailed, quantitative information on the food consumption, nutrient intake and nutritional status of the general population aged 1.5 years and over living in private households in the UK.)
- Cross-sectional analysis was conducted using NDNS 2008-2017 data from 6,802 adults (≥19 y) who completed a 4-day estimated food diary. Almond snack consumption was defined as average intake of any amount of 1) kernel only, 2) kernel only plus the proportion of almond kernels in mixed nuts.
- Diet quality was assessed using the modified Mediterranean Diet Score (MDS) and the modified Healthy Diet Score (HDS).

### RESULTS:

- Almond consumers had significantly lower BMI by .8 kg/m<sup>2</sup> (p=.010) and waist circumference was significantly lower by 2.1 cm (p=.007) measurements compared to those who reported to not consume almonds.
- Although average almond intake was low among UK adults who reported consuming almonds (7.6% of the population reported eating whole almonds and median intake was 5g/day), almond consumers reported higher diet quality scores (both modified MDS and HDS scores, P<.001) compared to those who reported not consuming almonds.
- Almond consumers had higher reported intakes of protein, total fat, monounsaturated, omega-3 and omega-6 fats, fibre, folate, vitamin C, vitamin E, potassium, magnesium, phosphorus and iron.
- Almond consumers had lower intakes of trans-fatty acids, total carbohydrate, sugar and sodium.
- Regression analyses showed no differences between almond consumers and non-consumers with regard to other CVD risk factors (including blood lipids and blood pressure).



### LIMITATIONS:

This study is an association and does not show cause and effect. Also, the researchers used self-reported food records, which have inherent flaws. In a 2016 U.S. NHANES analysis, people who reported eating almonds also reported higher physical activity levels. Physical activity levels were not available from the NDNS database, so it is possible that physical activity level among almond eaters could be partly responsible for the lower BMI and waist circumferences observed in this group.

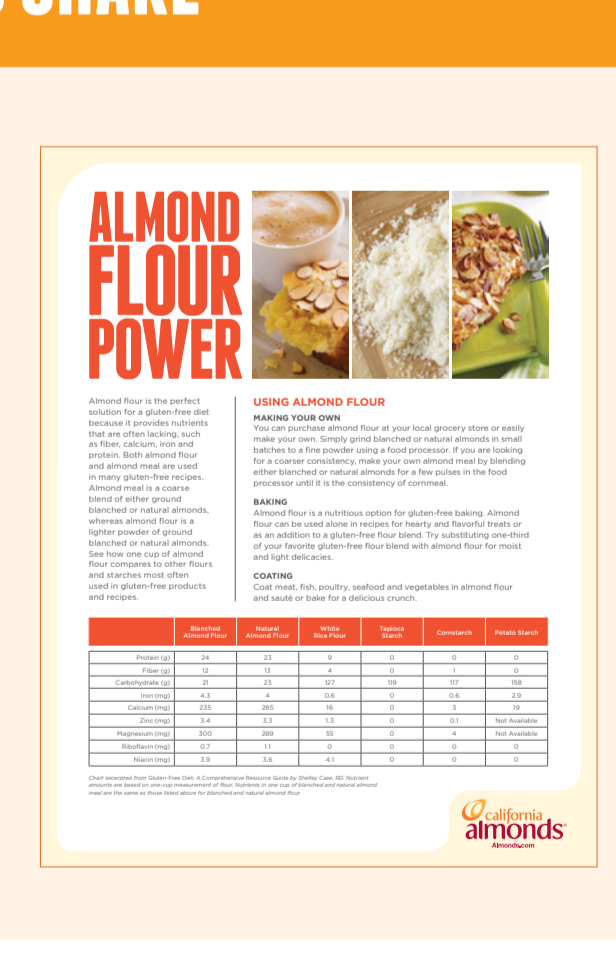
### KEY TAKEAWAYS:

- The study suggests that almond consumers have healthier overall diets and have lower BMIs and waist circumference measurements compared to people who do not report consuming almonds. Consuming almonds may help with an improved dietary pattern to help support cardiovascular health.
- Although the study participants consumed an average of 5g per day, a recommended portion of almonds is 28 grams, which provides 160 calories and heart-smart nutrients including fibre (4 g), magnesium (76 mg), potassium (205 mg), and vitamin E (7.2 mg).

## HP CORNER

### STAYING WELL DURING LOCKDOWN BY DIETITIAN JULIETTE KELLOW

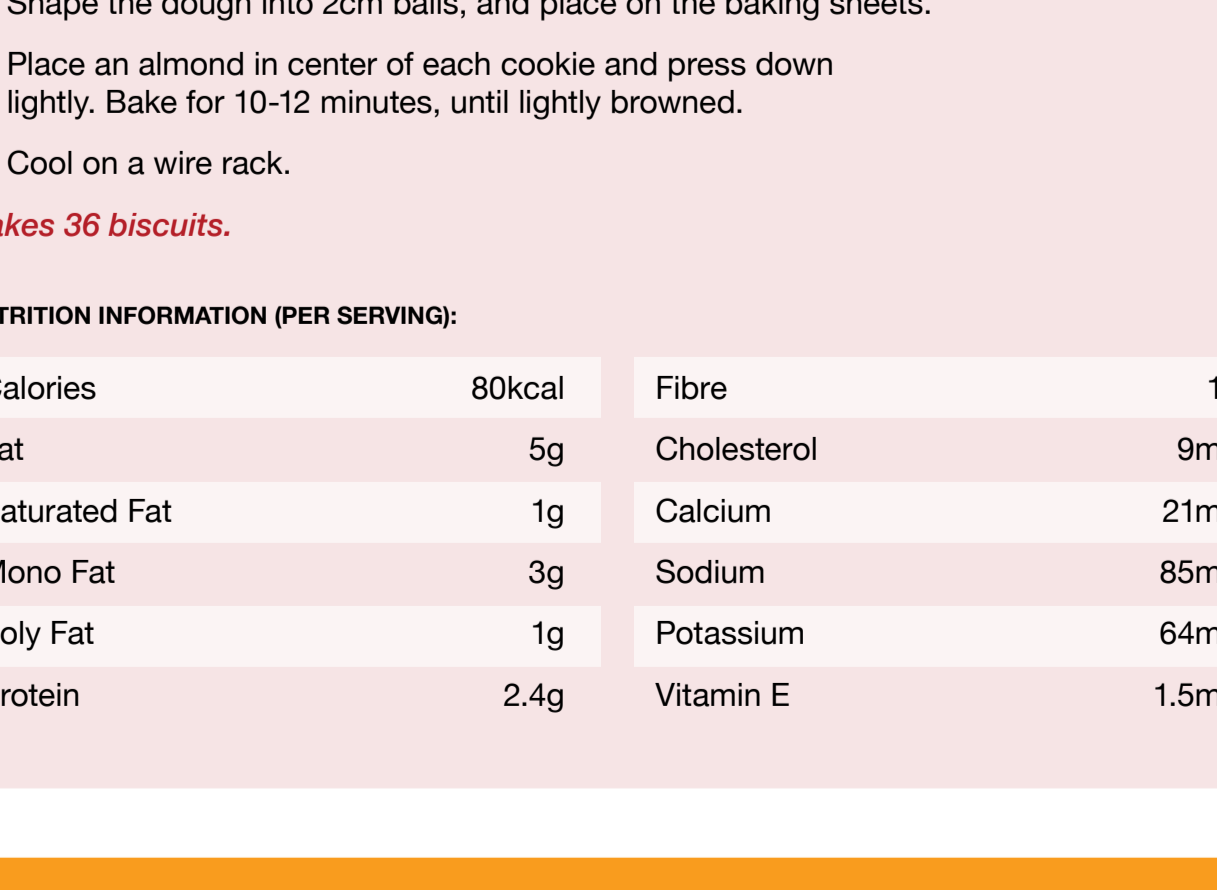
Juliette Kellow, Consultant Dietitian to the Almond Board, shares her tips to help your clients stay healthy – both mentally and emotionally – during lockdown. Juliette says, "As health professionals, we know first-hand how making a few small changes to one's diet can have a big impact on how our clients feel in both the short and long term. It's equally important to advise clients not to be too hard on themselves at this time and embrace a range of healthy activities that provide enjoyment."



### GET GARDENING

If you have a garden, now's the perfect time to pay it some attention. Digging, brushing up leaves and pruning give our muscles a workout and burn calories. An hour of weeding, for example, burns around 315 calories – a similar amount to an hour-long game of badminton! There's also a link between gardening and our mental wellbeing – studies show that green spaces can help to improve our mood and self-esteem, and reduce stress, anxiety and depression. Better still, if you choose to grow your own fruit, veg or herbs, you'll be able to enjoy a home-grown boost of vitamins and minerals in the future. Even if you don't have a garden, you can plant pots for window sills. There's no need to go to a garden centre, either. Your kitchen is likely to already have heaps of 'plantable' items such as tomato, pepper and butternut squash seeds, lemon and apple pits, potato 'eyes' or vegetables such as leeks and onions that just need to grow roots by popping them in a glass of water before planting. (There are heaps of ideas online or visit the Royal Horticultural Society for gardening advice [www.rhs.org.uk](http://www.rhs.org.uk)).

**Source:** [https://www.kingsfund.org.uk/sites/default/files/field/field\\_publication\\_file/Gardens\\_and\\_health.pdf](https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/Gardens_and_health.pdf)



### SNACK BETTER

Lockdown has meant many of us have much less access to on-the-go snacks. We're no longer able to stop for a coffee and cake when shopping, have an ice cream on an afternoon out or grab a bag of crisps on our way home from work. Shopping less frequently has also meant many of us have fewer treats in the kitchen cupboards. This makes lockdown a great time to assess our usual snacking habits – and put some healthier ones in place if necessary. Great choices include fruit, vegetable sticks with homemade dips such as tzatziki or salsa, low-fat yogurt, wholegrain toast or crackers with low-fat soft cheese or a handful of unsalted nuts. Almonds, for example, are nutrition powerhouses and contain a wide range of nutrients, including protein, fibre, monounsaturated fats, calcium, iron, zinc, magnesium, a selection of B vitamins and vitamin E. Good intakes have also been linked with better heart health and slimmer waistlines as well as helping us to feel fuller for longer. A good habit to put in place during lockdown is to plan your snacks for the day and pop them into a bowl; then once they're gone, that's it for snacking for the day.

### EXERCISE YOUR MIND

Just like our body, our brain benefits from regular exercise and suffers from a loss of strength if we don't give it a regular workout. Keeping your brain active can help to improve memory, concentration and focus, which becomes even more important as we get older. So, with more time available than usual, now's a great time to enjoy fun activities that put our brain to work and take us away from constantly checking the latest news headlines. Try reading fiction, crosswords, jigsaw puzzles, Sudoku, quizzes, card games, chess, Scrabble or learn a new language.

### SING YOUR HEART OUT

Music is a fabulous mood lifter in itself but singing offers many specific benefits. It's great for improving our breathing and posture, helping to alleviate muscle tension and possibly even providing pain relief due to the natural 'high' it can give people. Learning a song is also a new skill that challenges the brain. Studies have shown that people feel more positive after they've been singing than after just listening to music. With most of us needing something to boost our mood, the time is right to release your inner X-factor. There are heaps of online choirs to try out, allowing you to sing your heart out – either alone or as part of an online choir.

**Source:** <http://www.ox.ac.uk/research/choir-singing-improves-health-happiness---and-perfect-icebreaker>

## ALMOND FLOUR RESOURCE: READY TO SHARE

As many restaurants are shuttered during the lockdown, your clients may be trying their hand at cooking at home more frequently and baking has certainly grown in popularity. We have created a handout about almond flour that you can recommend as an alternative to wheat flour. Almond flour is more than an ingredient substitute for people with gluten sensitivity, but provides extra nutrients, especially protein, compared to other flours. People with coeliac disease should always read the ingredients label of any almond flour for possible gluten.

[Download PDF](#)

**ALMOND FLOUR POWER**

ALMOND FLOUR is a natural, gluten-free flour made from almonds. It is a great alternative to wheat flour for people with gluten sensitivity or coeliac disease. Almond flour is also a good source of protein, fibre, and healthy fats.

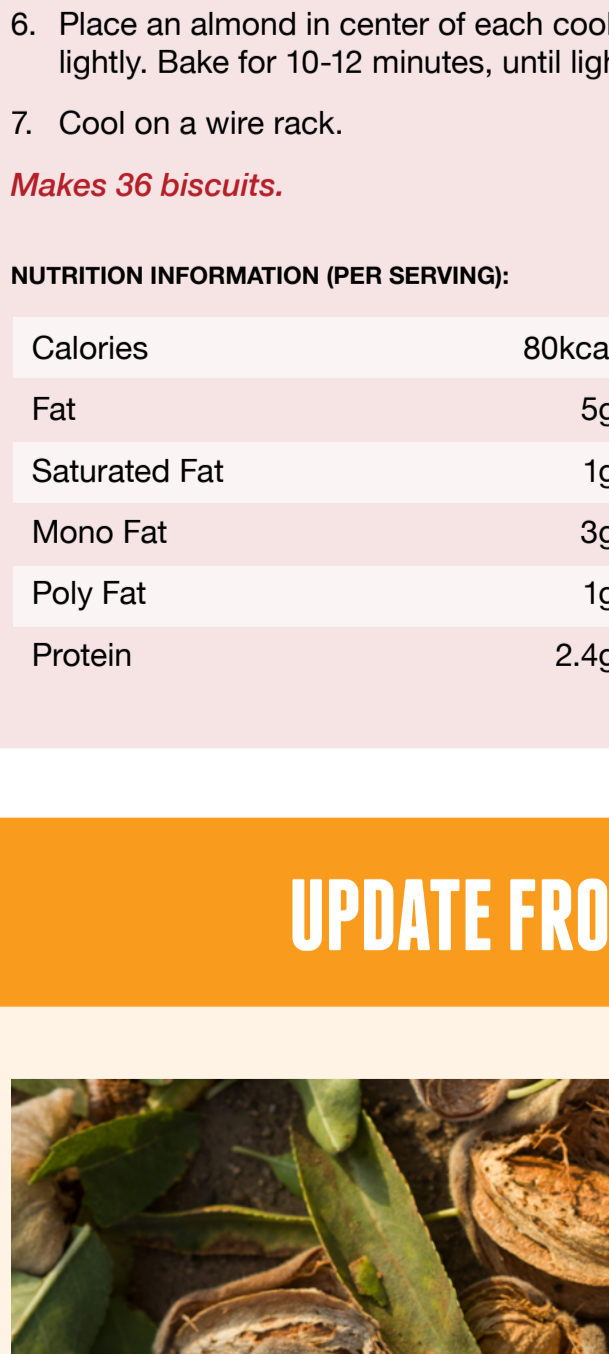
**USING ALMOND FLOUR**

Almond flour can be used in a variety of recipes, including breads, pastas, and desserts. It is important to note that almond flour is not a 1:1 substitute for wheat flour. Recipes that use almond flour often require adjustments to liquid and leavening agents.

**ALMOND FLOUR NUTRITION INFORMATION (PER SERVING)**

Nutrient	Amount
Calories	80kcal
Fat	5g
Saturated Fat	1g
Mono Fat	3g
Poly Fat	1g
Protein	2.4g
Fibre	1g
Cholesterol	9mg
Calcium	21mg
Sodium	85mg
Potassium	64mg
Vitamin E	1.5mg

## RECIPE INSPIRATION



### ALMOND BUTTER COOKIES

Try your hand at this twist on traditional butter cookies by using almond flour and almond butter for a sophisticated taste perfect for an afternoon tea break.

#### Ingredients

- Cooking spray
- 100g all-purpose flour
- 64g almond flour
- 3/4 teaspoon salt
- 1 teaspoon baking soda
- 180g unsalted butter, softened
- 57g smooth, unsalted almond butter
- 73g packed light brown sugar
- 67g granulated sugar
- 1/2 teaspoon vanilla extract
- 1 egg
- 36 raw whole almonds

#### Preparation

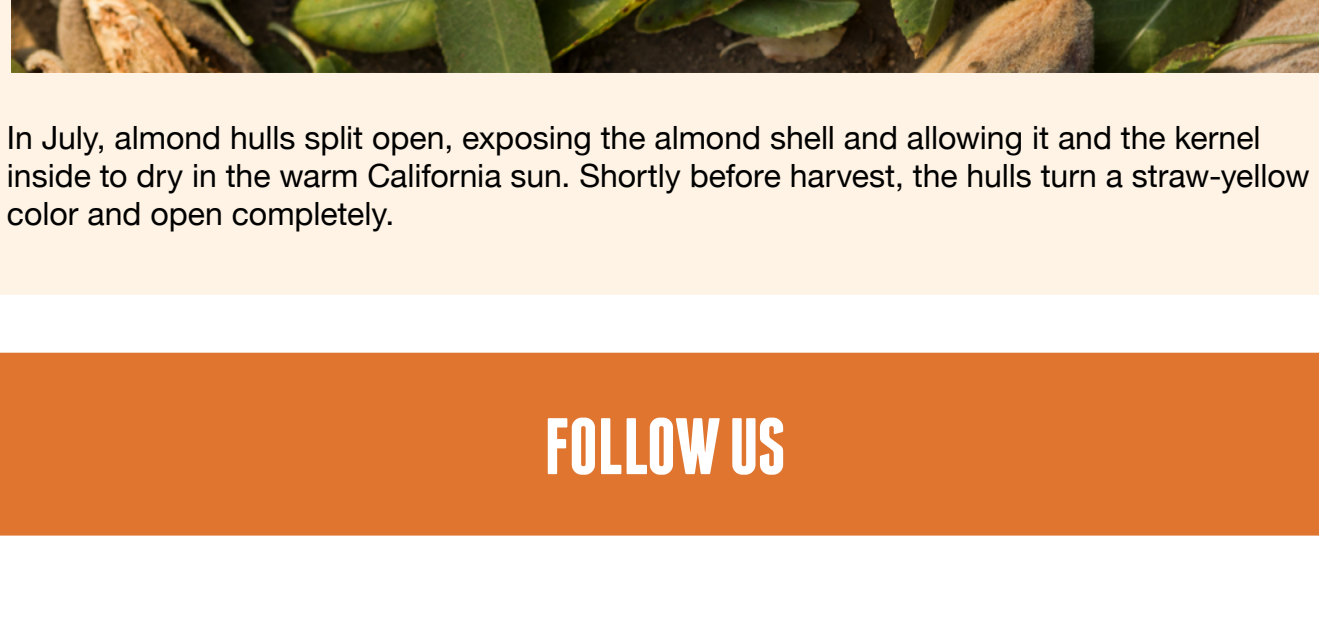
1. Preheat the oven to 375 degrees F/190 degrees C.
2. Spray two baking sheets with cooking spray.
3. In a large bowl, whisk together the flours, salt, and baking soda.
4. In another large bowl, beat together the butter, almond butter and sugars until fluffy. Add the vanilla and egg and beat until well combined. Gradually stir in the flour mixture, bending well.
5. Shape the dough into 2cm balls, and place on the baking sheets.
6. Place an almond in center of each cookie and press down lightly. Bake for 10-12 minutes, until lightly browned.
7. Cool on a wire rack.

**Makes 36 biscuits.**

#### NUTRITION INFORMATION (PER SERVING):

Calories	80kcal	Fibre	1g
Fat	5g	Cholesterol	9mg
Saturated Fat	1g	Calcium	21mg
Mono Fat	3g	Sodium	85mg
Poly Fat	1g	Potassium	64mg
Protein	2.4g	Vitamin E	1.5mg

## UPDATE FROM THE ORCHARD



In July, almond hulls split open, exposing the almond shell and allowing it and the kernel inside to dry in the warm California sun. Shortly before harvest, the hulls turn a straw-yellow color and open completely.

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