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SPRING 2021

NUTRITION BULLETIN

IN THE LATEST EDITION OF THE ALMOND BOARD NUTRITION BULLETIN:

Welcome to the Spring issue of the Nutrition Bulletin. This month's issue is perfectly timed for the lead up to more sunshine as we have two new exciting pieces of breaking research that investigate how almonds may protect (UVB resistance) and restore our skin (wrinkle severity and skin pigment intensity – otherwise known as skin tone).

In this issue, we also feature a webinar on Skin Health, as well as an update on the Almond Board's podcast 'Kernels of Nutrition'. To get us in the mood for warmer weather, we're sharing a tasty savoury almond trail mix recipe – perfect as a snack at a BBQ or sprinkled on salads.

As ever, we give you a glimpse of the almond orchards in California during bloom as they broke into beautiful blossom and hummed with the sound of honey bees.

RESEARCH UPDATE – ALMONDS, WRINKLES, PIGMENTATION AND YOU

Rybak I, Carrington AE, Dhaliwal S, Hasan A, Wu H, Burney W, Maloh J, Sivamani RK. Prospective Randomized Controlled Trial on the Effects of Almonds on Facial Wrinkles and Pigmentation. *Nutrients.* 2021; 13(3):785. https://doi.org/10.3390/nu13030785.

STUDY AT A GLANCE:

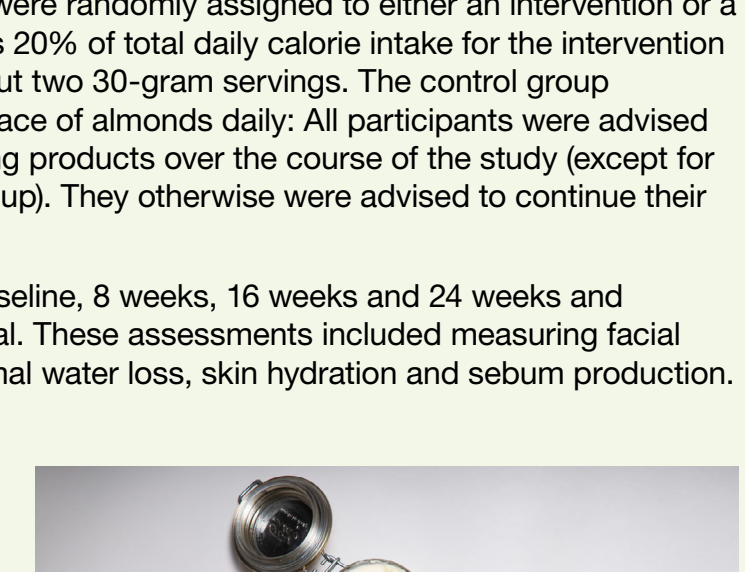
A new study by researchers at the University of California, Davis found that eating almonds daily in place of typical calorie-matched snacks improved measures of both wrinkle severity and skin pigmentation in postmenopausal women. The study, funded by the Almond Board of California, confirms and expands upon findings in a 2019 study.

STUDY DESIGN:

Fifty-six healthy, postmenopausal women with Fitzpatrick skin type I (always burns, never tans) or II (usually burns, tans minimally) were randomly assigned to either an intervention or a control group. Almonds were provided as 20% of total daily calorie intake for the intervention group (340 calories/day on average), about two 30-gram servings. The control group consumed a calorie-matched snack in place of almonds daily: All participants were advised not to consume any nuts or nut-containing products over the course of the study (except for the almond snack for the intervention group). They otherwise were advised to continue their usual daily energy intake.

Skin assessments were conducted at baseline, 8 weeks, 16 weeks and 24 weeks and participants were weighed at each interval. These assessments included measuring facial wrinkles, skin pigmentation, transepidermal water loss, skin hydration and sebum production. Forty-nine women completed the study.

RESULTS:



- Photographic image analysis showed that the almond group had statistically significant reductions in wrinkle severity, by 15% at week 16 and 16% at week 24, compared to the control group (P<0.05).
- Average facial pigment intensity was decreased by 20% at week 16 in the almond supplementation group and remained so at 20% at week 24. There was no improvement in facial pigment intensity in the control group.
- There were no changes in transepidermal water loss at any time point among the almond and control groups.
- At the end of the study, there were increases in skin hydration on the cheek and forehead among both groups, compared to baseline.
- Both groups showed a statistically significant increase in sebum production on the cheeks, but only those in the control group showed a significant increase in the forehead sebum excretion rate, with an increase of 45% and 155% at weeks 16 and 24, respectively (p<0.05).
- Body weight remained constant for participants in both the almond group and control group from baseline to 24 weeks.

LIMITATIONS:

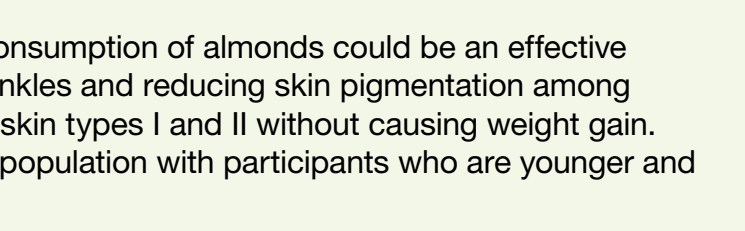
Since this study was limited to 24 weeks, results do not provide insight into longer duration and effects of eating almonds. Additionally, the study participants were postmenopausal women with sun sensitive skin types Fitzpatrick I and II, so results cannot be generalised to younger, male or higher Fitzpatrick skin type populations. And, although the snacks in both groups were calorie-matched, they were not macronutrient-matched.

KEY TAKEAWAY:

Results of this study suggest that daily consumption of almonds could be an effective dietary contributor to improving facial wrinkles and reducing skin pigmentation among postmenopausal women with Fitzpatrick skin types I and II without causing weight gain. Further studies should expand the study population with participants who are younger and have higher Fitzpatrick skin types.

RESEARCH UPDATE – UVB PROTECTION

Li JN, Henning SM, Thames G, Bari O, Tran PT, Tseng C-H, Heber D, Kim J, Li Z. Almond Consumption Increased UVB Resistance in Healthy Asian Women. *Journal of Cosmetic Dermatology.* 2021;00: 1-6. https://doi.org/10.1111/jocd.13946.



STUDY AT A GLANCE:

Researchers at the University of California, Los Angeles (UCLA) investigated whether daily almond intake could increase the skin's resistance to UVB light (the main source of skin damage from sun exposure) and improve skin texture. The study was funded by the Almond Board of California.

STUDY DESIGN:

This study investigated whether almond consumption increases resistance to UVB light and reduce skin ageing in young, healthy women who self-identified as Asian. The participants (n=29, ages 18-45 years) were women with Fitzpatrick skin types II, III or IV, and consumed either 42 grams (246 calories) of almonds or a calorie-matched snack daily of 51 grams (200 calories) of pretzels for 12 weeks.

At the start of the study, participants' weight, height, skin type and skin characteristics including melanin (pigment), hydration, sebum (oil), erythema (redness) and facial Allergan Skin Roughness Scale (a numerical scale to evaluate roughness of skin before and after aesthetic treatments) were evaluated. They were measured again at 4, 8 and 12 weeks.

The primary outcome measured in this study was the quantification of the minimal erythema dose (MED) of UVB light capable of inducing erythema (redness) to inner arm skin. Secondary outcomes measured were melanin, hydration, sebum, erythema and Allergan roughness in facial skin. The researchers established the lowest dose of UVB that induced MED in a previous study. The results of MED to the inner arm is a validated measure of overall skin health; the inner arm is used because it typically does not get sun exposure so changes in photo-damage can be measured.

Within the almond group, there were more participants with Fitzpatrick skin type IV, but the difference was not statistically significant. Dose and timing of UVB exposure were adjusted to skin type.

RESULTS:

- For the almond group, there was a significant increase in MED and in exposure time required to induce erythema at the final visit (12 weeks) compared to the start of the intervention (baseline) (p=.006). Further, the increase in MED in the almond group was statistically different compared to the pretzel group.
- For the women who consumed almonds, there was an increase in MED from 415±64 to 487±59 (18.7±19.2 % ,p+0.006) from baseline to week 12 compared to women in the pretzel group from 415±67 to 421±67 (1.8±11.1%). The exposure time to reach minimal erythema (redness) was also increased significantly in the almond group from 160±23 to 187±25 (17.5±22.2%) compared to the pretzel group from 165±27 to 166±25 (1.7±14%) (p=0.026).
- At baseline, the groups had no significant differences of MED, which indicated the change in MED was due to the almond intervention. Increased MED and exposure means that a higher dose of UVB light was required to induce erythema (redness) after 12 weeks compared to the pretzel group.
- There were no significant differences between the two groups in their ratings of erythema or Allergan Skin Roughness by dermatologists' assessment.
- There were no significant differences in melanin index, sebum hydration or erythema by cutometer reading.

LIMITATIONS:

Limitations of the study include a smaller study population than planned due to the exclusion of those participants found to be UVB resistant at the dose and exposure time selected. This study did not investigate the effect of sunlight exposure in general nor UVA exposure; findings are limited to protection against UVB radiation. This study also investigated a younger population. Further research is needed to investigate the effects of almond consumption for older subjects with moderate-to-severe photoaged skin and for other skin types/ethnicities.

KEY TAKEAWAY:

A daily snack of almonds (42 grams) improved UVB resistance in young Asian women who consumed almonds for 12 weeks. The results suggest that including almonds in the diet may help support the skin's internal defences against UVB light.

HP CORNER
HOW DO ALMONDS HELP SKIN?

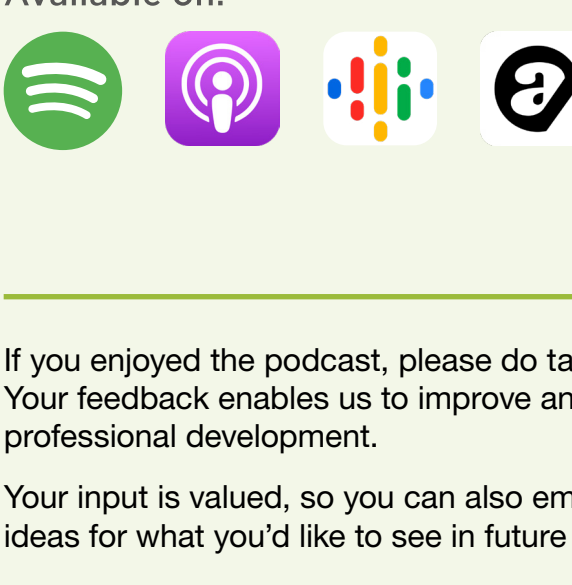
Almonds are a whole food with multiple nutrient components including alpha-tocopherol (vitamin E) and good unsaturated fats that may benefit skin. Almonds are high in alpha-tocopherol, which has antioxidant functions, and may be partially responsible for the effects that we see in both wrinkles and skin tone in postmenopausal women. The mechanism for the improvement in UV resistance in younger women with the almond intervention is currently unknown.

The researchers speculate that mono- and polyunsaturated fatty acids, vitamin E, quercetin (a flavonoid), and other phenolic and polyphenolic compounds found in almonds, may improve the antioxidant and anti-inflammatory capacity of human skin, which could be responsible for the increased photoprotection against UVB light.

To learn about the foundational research supporting food and skin health, watch our informative webinar with special presenter Dr. Raja Sivamani, dermatologist and lead researcher of the newly-published study in *Nutrients*.

And, to drive home to your clients the connection between skin health and almonds, check out our Almond Living Magazine section with nutrition facts and almond-inspired beauty tips.

UK: ALMOND ACADEMY PODCAST 'KERNELS OF NUTRITION' SEASON ONE OUT NOW



Available on:

In the last Nutrition Bulletin, we launched our 'Kernels of Nutrition' podcast as part of our Almond Academy. If you haven't yet had the chance to tune in, you can listen to the first 5 episodes by searching *'Kernels of Nutrition'* on any podcast app or clicking here.

SEASON ONE INCLUDES:

Episode 1: Rhiannon Lambert: Building a Successful Business - Marketing & Branding

Episode 2: Claire Baseley: Navigating Regulations & Health Claims with Ease

Episode 3: Juliette Kellow: Becoming a Freelance Consultant

Episode 4: Maeve Hanon: Using Social Media Ethically & Effectively

Episode 5: Helen Bond: Working with the Media as an Expert

If you enjoyed the podcast, please do take the time to rate and review on Apple Podcasts. Your feedback enables us to improve and continue to provide useful content to support professional development.

Your input is valued, so you can also email us with any feedback on the first season and ideas for what you'd like to see in future seasons at almondacademy@porternovelli.co.uk

RECIPE INSPIRATION

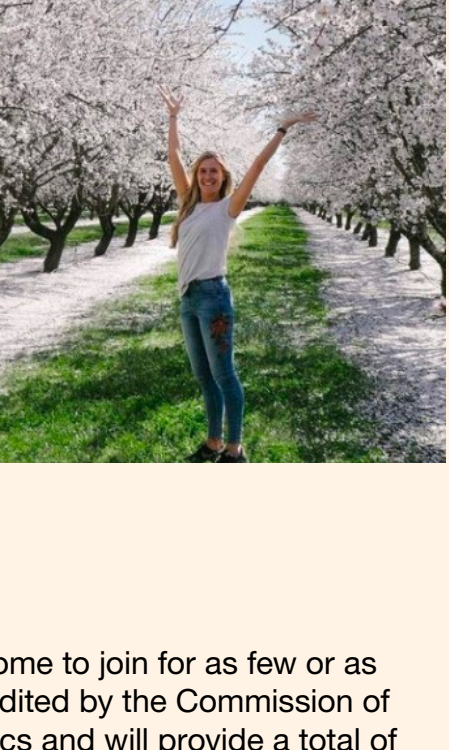
ALMOND SEED TRIAL MIX OR 'PARTY IN A BAG'

Try this delicious almond and seed trail mix for a tasty snack or as a crunchy addition to salads and soups! The combination of umami flavours with a kick of heat makes this recipe irresistible.

Click here to learn how to make and share the recipe.

SAVE THE DATE: VIRTUAL ORCHARD TOUR
MAY 18-19, 2021

VIRTUAL ORCHARD TOUR



Join the Almond Board of California for the first-ever Virtual Almond Orchard Tour, which will transport you to the heart of California's Central Valley and offer a look into how more than 80% of the worlds' almond supply is grown.

The virtual event will include walk-a-longs with almond farmers as well as discussions and presentations by experts on sustainability and nutrition.

Topics include:

- The California almond lifecycle
- Modern approaches to being water-wise in the Central Valley
- Key research areas in almond nutrition
- Pollinator-friendly practices on almond farms
- How nutrition and sustainability impact consumer food choice
- Overview on responsible growing practices

The event runs over the course of 2 days, and you are welcome to join for as few or as many sessions as you like. Presentations will be CPD-accredited by the Commission of Dietetic Registration of the Academy of Nutrition and Dietetics and will provide a total of 7.5 hours worth of credits.

To register for the event please click here.

GROWING GOOD: BEE HEALTH

After hibernating over the winter, Spring is a time of rejuvenation for honey bees. Honey bees in California get a taste of their first natural food source of the year in almond orchards as they play their vital role pollinating almond blossom. Every almond we eat exists because a honey bee pollinated it, so it's in everyone's interests – farmers and beekeepers alike – to make sure California's almond orchards are a safe and welcoming place for bees.

Read more about how almond growers have addressed environmental concerns including the steps being made to reduce water consumption and protect honey bee health.

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