

**Cardiovascular
Health and
Well-being**



a dietetic practice group of the
**Academy of Nutrition
and Dietetics**

Formerly a subgroup of Sports, Cardiovascular and Wellness Nutrition (SCAN)

Pathways

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Publication of Cardiovascular Health and Well-being
Dietetic Practice Group



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CPE Opportunities in This Issue

After reading this issue of *Pathways*, current CV-Well DPG members (and nonmembers who purchase this publication) can earn 1 hour of continuing education units (CEUs), level 2 approved by the Commission on Dietetic Registration (CDR). Users must complete the post-test and Critical Thinking Tool in the Academy's Learning Management System (LMS) by May 31, 2024. You can begin this activity by logging in [here](#). The certificate of completion is valid when the CPE self-assessment questionnaire is successfully completed, submitted, and recorded by CV-Well DPG/Academy of Nutrition and Dietetics.

Call for Authors

Pathways, the flagship quarterly publication of CV-Well DPG, welcomes the submission of manuscripts to be considered for research-based or practice-based articles. Research articles summarize and discuss recent scientific evidence related to cardiovascular health (prevention and treatment) and/or well-being. Practice articles translate evidence into application for dietitians working in various settings, providing tools and recommendations on topics related to cardiovascular health (prevention and treatment) and/or well-being. Authors may be DPG members or nonmembers. For more details and to complete the **Call for Authors Form**, visit [Pathway's webpage](#). Manuscripts must be prepared and submitted in accordance with [Pathway's Guidelines for Authors](#), accessed on the same webpage.

CV-Well Said

A Message from the Chair

Becoming Champions of Well-Being

by **Parul Kharod, MS, RD, CV-Well Chair**

A warm hello to all CV-Well members! I am honored to be starting this year as your Chair. As I take over the helm, I sincerely thank the previous Chairs and Executive Committee (EC) members for the hard work they have put in, and am thrilled to collaborate with the new and continuing members of the EC for the upcoming year.

Below is your new 2023-2024 Executive Committee. We hope to offer some incredible member benefits in the coming year!

Chair: Parul Kharod

Past Chair: Lauri Byerley

Secretary: Dana White

Treasurer: Suzanne Fultz

Inclusion, Diversity, Equity, and Access (IDEA) Chair: Jen Nguyen

Education Chair: Taylor Bloedon

Communications Chair: Liz Kiertscher

Membership Engagement Chair: Kristi Crowe-White

House of Delegate: Lynn Kam

At the 2023 Food & Nutrition Conference & Expo® (FNCE®), October 7-10, in Denver, CO, we will repeat last year's

successful Sunrise Breakfast event. There is also another fun member networking event planned in addition to the regular DPG Showcase. I hope to see you there! Also, please note that we will be having a fantastic Symposium in Tucson, AZ, April 11-14, 2024! Mark your calendars, and do plan to attend if you can.

We will, of course, continue to offer CEUs through webinars and *Pathways*. We also hope to collaborate with other DPGs and MIGs to offer variety of educational topics.

As members of our relatively new DPG, each of us have a unique responsibility to spread information and awareness about cardiovascular health. However, what is even more important, is to focus on the second half of our moniker, which is "well-being." Since the pandemic, things have been more stressful than before. We need to have a kinder world that embraces diversity and champions equity and tolerance. It is prudent that we become leaders of wellness and well-being in terms of physical and mental health.

We are always looking for volunteers to help with the many initiatives we want to launch for our members. If you would like to join our amazing team, email us at cwvwell@eatright.org. As an additional benefit of becoming actively involved, you can receive up to 3 continuing education units by serving as a CV-Well volunteer.

I am grateful for the opportunity to serve as Chair of this group, and hope that we can empower our members in every way. Please feel free to reach out if you have any questions or concerns.

CPE Research Article

The Impact of Mindfulness Interventions and Parental Influence on Child Health

by **Caroline Brantley, PhD, RD**

Learning Objectives

- Examine emotional eating and its connection to cardiometabolic health among children
- Define mindful eating interventions among various populations
- Describe the connection between parent mindfulness and child emotional eating

Emotional eating is a form of disinhibited eating or eating in response to positive or negative emotions such as anger, sadness, or happiness.¹ Previous research in adults and adolescents has demonstrated that emotional eating contributes to excessive dietary intake and weight gain, as well as increased risk of obesity and disordered eating.²⁻⁴ Furthermore, higher levels of emotional eating have been associated with an increased number of cardiovascular disease risk factors, such as excess abdominal adiposity, hypertension, and arterial stiffness.⁵⁻⁶

In children, emotional eating places the child at a similar risk of weight gain and childhood obesity, which raises the risk of adult obesity.⁷ In addition, children with elevated

body mass index (BMI) have been shown to have higher rates of abnormal lipid values including elevated levels of low-density lipoprotein cholesterol (LDL-C) and hypertriglyceridemia or low levels of high-density lipoprotein (HDL-C).⁸ Lipid levels in childhood are correlated with adult values, suggesting that lowering risk factors such as emotional eating in childhood may reduce the risk of cardiovascular disease later in life.⁹⁻¹²

Mindfulness as a Tool to Target Emotional Eating

Mindfulness is a broad concept that refers to the intentional and nonjudgmental awareness of one's present-moment experiences, including thoughts, emotions, bodily sensations, and the environment around us.¹³ Mindfulness practice can be formal, which involves an intentional time commitment for meditation, or informal, which involves integrating mindfulness into everyday life and engaging in mindfulness in everyday activities. Mindful activities, such as meditation, are aimed at cultivating this type of awareness and can have a range of benefits for physical and mental health, including reducing stress, improving mood, and enhancing cognitive functioning.

Mindfulness-based interventions were originally incorporated into clinical practice for the treatment of physical and psychological stressors. For example, mindfulness-based stress reduction (MBSR) was developed in the 1970s to largely target individuals with stress associated with chronic pain.¹⁴ It employed elements of mindfulness meditation, body awareness, and yoga over an 8-week period with the goal of developing one's mindfulness toolkit for the future.¹⁴ Given the success of MBSR interventions, mindfulness-based interventions became more prominent in research settings for continued investigation in various populations and development of more specialized programs.

The adoption of a more informal practice of mindfulness has become the focus of a new approach to eating. Mindful eating is defined as "a nonjudgmental awareness of physical and emotional sensations while eating or in a food-related environment."¹⁵⁻¹⁶ In the 1990s, Mindfulness-Based Eating Awareness Training (MB-EAT), developed by Jean Kristeller, PhD, came to fruition with the goal of applying mindfulness principles to dietary habits for improved relationships with food.¹⁷ In particular, this 12-week program helps individuals to develop a more positive relationship with eating

behaviors by increasing awareness of hunger and satiety cues as well as emotional states and triggers, thereby promoting self-regulatory processes related to appetite, emotional balance, and behavior.¹⁷

MB-EAT, originally developed to treat binge eating disorders, has since expanded to target weight loss, disordered eating, and undesirable eating habits, and address risk factors (i.e., diabetes, cardiovascular disease) for a variety of populations. For example, in addition to reducing emotional eating, the severity and frequency of binge eating, mindless eating, and stress-related eating, mindful eating may have an impact on cardiometabolic health, as it targets the stress response and coping mechanisms. Knol et al. recently evaluated the feasibility and acceptability of a mindful eating intervention among premenopausal women with overweight/obesity over an 8- to 1-week period.¹⁸ Significant improvements in Emotion and Stress-Related Eating Scores were reported, as well as in body weight, BMI, waist circumference, systolic blood pressure, and circulating hydrophilic antioxidant levels.¹⁸

Mindful eating research has rapidly evolved, with expansion of interventions to adolescents, children, school-based, and family-based studies. For example, Home Sweet Home, a 3-week family-based mindful eating intervention for parents of children aged 3 to 5 years, included such topics as slowing the pace of eating, becoming aware of physical hunger and satiety cues, removing distractions while eating, addressing emotional eating, and setting up a home environment to reduce external cues to eat.¹⁹ Parents' pre- to post-intervention scores on the Emotional Eating subscale of the Mindful Eating Questionnaire (MEQ) significantly improved ($P=.002$) and role modeling of mindful eating behaviors significantly increased ($P=.006$).¹⁹ Furthermore, constructs have been incorporated into other family-based and parenting concepts such as mindful parenting and mindful feeding.²⁰⁻²¹

Research on Parent Mindfulness and Child Emotional Eating

Goodman and colleagues evaluated the association between mindful parental feeding and parent-reported child emotional eating in children (ages 2-7 y).²¹ The present-centered awareness subscale of the Mindful Food Parenting Questionnaire (MFPQ) was used to assess mindful feeding, and child emotional eating was assessed using the Emotional Overeating subscale of the Child Eating Behavior Questionnaire (CEBQ).^{22,23} Mindful feeding was found to be negatively related to emotional overeating of the child ($\beta=-0.19$, $P<.05$).²¹

Similarly, Giampaoli et al. used the MFPQ to assess the relationship of mindful parenting and emotional eating among children (ages 8-11 y).²⁰ Authors reported a significant positive association between encouragement of mindful eating and

parent-reported measures of Emotional Awareness of the child ($r=0.27$, $P<.001$), which refers to the parent's awareness of how food influences the child's behaviors and emotions.²⁰

Breuning et al. evaluated the relationship between mindful eating using the overall score of the MEQ and a question on binge eating behaviors among parents and their children (ages 12-17 y).²⁴ A positive relationship between mother and adolescent mindful eating ($\beta=0.51$; 95% CI, 0.04-0.97; $P=.032$) and binge eating (odds ratio, 8.05; 95% CI, 1.49-43.3; $P=.015$) was observed.²⁴ A secondary data analysis of this data evaluated the same association using all subscales on the MEQ (Disinhibition, Awareness, External Cues, Emotional Response, Distraction).²⁵ Only the parent-reported Distraction subscale had a significant positive association with the adolescent-reported Emotional Response subscale ($\beta=0.47$; 95% CI, 0.14-0.79; $P<.01$).²⁵

Gouveia et al. assessed the relationship between mindful parenting and emotional eating among adolescents (ages 12-18 y) using the Interpersonal Mindfulness in Parenting Scale and the Emotional Eating subscale from the Dutch Eating Behavior Questionnaire.²⁶ While no direct association between mindful parenting and adolescent emotional eating was found, indirect associations were reported between mindful parenting and adolescent emotional eating through adolescent self-compassion ($\beta=-0.021$, $P=.002$, 90% CI [-0.037 to -0.009], $P=.03$) and through adolescent self-compassion and body shame sequentially ($\beta=-0.015$, $P=.001$, 90% CI [-0.023 to -0.009]).²⁶ As such, the act of mindful parenting may increase the adolescent's self-compassion skills, which may help reduce emotional eating. Furthermore, the development of such self-compassion may decrease adolescent body shame and thus prevent emotional eating behaviors that may be used to counteract negative emotions.

While this field is evolving, the observational research to date suggests that as parental mindfulness increases through mindful eating, feeding, or parenting, emotional eating in a child decreases. As such, integrating mindfulness into constructs such as mindful eating, feeding, and parenting practices may confer benefits related to emotional eating in a child. Given the downstream consequences of emotional eating in childhood, continued investigation of this mindful eating approach is warranted.

Implications for the Practitioner

This review highlights the practice of mindfulness, and the potential relationship between mindfulness constructs and improved child health behaviors. Incorporating mindful eating components into primary care settings and nutrition programs may be beneficial for patients' and families' overall health and well-being. To begin incorporating such practices, health care practitioners, notably registered dietitian nutritionists, can use

the MEQ to assess patients' mindful eating behaviors at regular intervals or during specific programs if desired. However, the practitioner should have training and practice in mindful eating and meditation prior to implementing an intervention. Such training can be obtained through the Mindful Eating Training Institute as well as the Center for Mindful Eating.^{27,28}

While the science remains to be fully elucidated on the outcomes/benefits of mindful eating in children, adults may find mindful eating practice beneficial and can role model positive behaviors to their child. There is a need for intervention studies measuring the effects of parental mindful eating interventions on child eating behaviors. Furthermore, to advance our understanding of the influence of mindful eating interventions on cardiometabolic health, measures such as the cardiovascular risk factors of serum lipid values, body composition, blood pressure, and redox or inflammatory status should be included pre- and post-intervention. Nevertheless, mindfulness represents a unique yet established tool to improve mental and physical health through the management of perceived stressors in the daily lives of individuals.

Caroline Brantley, PhD, RD earned her PhD from The University of Alabama and is an early career STEM researcher who prioritizes translational nutrition research methods, with the goal of reducing obesity and comorbid conditions among children and their families. Caroline has had extensive academic and clinical training as a pediatric dietitian specializing in cardiology at Boston Children's Hospital. The author has reported no potential conflicts of interest.

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CPE Practice Article

Plant-Based Omega-3 Fatty Acids for Cardiovascular Disease

by Shannon Herbert, MS, RD, CDN, PhD Candidate

Learning Objectives

- Review the evidence regarding the role of plant-based omega-3 fatty acids in cardiovascular health
- Provide practical, evidence-based recommendations for incorporating plant-based omega-3 fatty acids to support the health of patients and clients

The *Dietary Guidelines for Americans, 2020-2025* state there is strong evidence for replacing saturated fatty acids with polyunsaturated fatty acids (PUFAs) to reduce the risk of cardiovascular disease mortality.¹ Omega-3 fatty acids, a particular type of polyunsaturated fatty acid, have gained popularity due to growing evidence that supports their benefits on cardiovascular health and cognition.² Certain omega-3 fatty acids are considered essential nutrients and one needs to include them in their diet. Common food sources of omega-3 fatty acids include certain types of fish, such as mackerel, salmon, tuna, anchovy, and herring; ground flaxseed; walnuts; and edamame.^{3,4}

The three main types of omega-3 fatty acids are eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and alpha-linolenic acid (ALA). EPA and DHA are considered marine omega-3 fatty acids because they are found predominantly in fish, whereas ALA is a plant-based omega-3 fatty acid. EPA and DHA have been more extensively studied for their beneficial effects on cardiovascular health and cognition. The *Dietary*

Guidelines report there is moderate evidence that intake of omega-3 fatty acids, particularly EPA and DHA, is associated with lower cardiovascular disease risk.⁵ Omega-3 fatty acids are integral parts of cell membranes. They also are precursors of eicosanoids, lipid mediators that play an essential role in the regulation of inflammation. The eicosanoids that are derived from omega-3 fatty acids have anti-inflammatory properties. It is likely due, in part, to these effects that omega-3 fatty acids have been shown to have protective benefits against inflammatory processes in chronic diseases, such as cardiovascular disease and neurodegenerative illnesses.⁶

Despite these findings, a growing proportion of the population is avoiding fish and consuming more plant-forward diets.⁷⁻⁹ Some people choose not to consume fish for reasons such as mercury, contamination, and sustainability concerns, as well as taste preferences.² With a growing interest in plant-based diets, as well as concerns about fish, dietetics professionals need to have an understanding of the plant-derived ALA and its potential therapeutic role in cardiovascular disease to help them make appropriate recommendations to patients and clients.

What Is Alpha-Linolenic Acid?

As mentioned, ALA is an essential fatty acid that must be obtained from the diet. What makes ALA particularly unique is that it is the only dietary source of omega-3 PUFA for vegan diets, and one of the only dietary sources for vegetarians.² ALA is a short-chain omega-3 fatty acid, in contrast to the long-chain fatty acids EPA and DHA. ALA is a dietary precursor to EPA and DHA. While the body converts some ALA into EPA and DHA, its conversion is not efficient, with only about 0.2% and 0.13% of ALA converted to EPA and DHA, respectively.¹⁰ This conversion rate can be affected by several factors including sex and age; conversion appears to be greater in women than men and higher in younger women than postmenopausal women.¹⁰

In comparison to long-chain omega-3 fatty acids, food sources of ALA tend to cost less and are more widely available,¹⁰ because they are derived from plants. Thus, ALA may be an easier way for patients and clients to consume omega-3 fatty acids. However, the lower conversion rate indicates a higher intake of ALA would be needed to achieve adequate EPA and DHA levels. Thus, prior to making dietary intake recommendations, a more thorough understanding of the ALA's role in cardiovascular disease is important. A recently published review has updated the evidence from epidemiologic studies, randomized controlled trials (RCTs), and meta-analyses on the associations between dietary ALA and cardiovascular disease, as well as metabolic syndrome, type 2

diabetes, and cognition,² with promising results for patients and clients.

Therapeutic Potential of ALA

While our understanding of ALA lags behind our understanding of long-chain omega-3 fatty acids, evidence is increasing regarding the role of ALA on cardiovascular disease.² Meta-analyses of observational studies have reported that dietary intake of ALA was associated with a 10% lower risk of total coronary heart disease (RR: 0.90; 95% CI: 0.81, 0.99) and a 20% reduced risk of fatal coronary heart disease (RR: 0.80; 95% CI: 0.65, 0.98).^{2,11} In addition, there is increasing evidence demonstrating the beneficial impact of ALA on cardiovascular disease risk factors such as dyslipidemia, hypertension, and inflammation.

Meta-analyses of RCTs have reported that dietary ALA reduces total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), triglycerides (TGs), and blood pressure.^{2,12–16} An ALA intake of 1.9–4.5 g/day in variable forms, including enriched margarine, flaxseed, and walnuts, decreased TC (–0.09 mmol/L; CI: –0.23, 0.05 mmol/L), LDL-C (–0.05 mmol/L; CI: –0.15, 0.04 mmol/L), and TGs (–0.03 mmol/L; CI: –0.11, 0.05 mmol/L).¹² In addition, an ALA intake of 1.0–38 g/day given through ground whole flaxseed, flaxseed oil, or lignans decreased TC (–0.10 mmol/L; CI: –0.20, 0.00 mmol/L) and LDL-C (–0.08 mmol/L; CI: –0.16, 0.00 mmol/L).¹³ Similarly, administration of 1.9–10 g/day of flaxseed oil, linseed oil, rapeseed oil, mixed oils, *Camelina sativa* oil, botanical oil, or enriched margarine compared with placebo decreased TC (–0.023 mmol/L; CI: –0.164, 0.117 mmol/L) and LDL-C (–0.098 mmol/L; CI: –0.180, –0.016 mmol/L).¹⁴ Administration of 0.4–16 g/day of ALA mainly through flaxseeds, walnuts, rapeseed, and derived oils lowered TC (–0.140 mmol/L; CI: –0.224, –0.056 mmol/L), LDL-C (–0.131 mmol/L; CI: –0.191, –0.071 mmol/L), and TGs (–0.101 mmol/L; CI: –0.158, –0.044 mmol/L).¹⁵ Lastly, intake of 1.4–9.8 g/day of ALA through walnuts decreased TC (–0.181 mmol/L; CI: –0.243, –0.119 mmol/L), LDL-C (–0.142 mmol/L; CI: –0.199, –0.085 mmol/L), and TGs (–0.053 mmol/L; CI: –0.101, –0.005 mmol/L).¹⁶

Furthermore, epidemiologic studies and randomized trials highlight a potential anti-inflammatory effect of ALA. Epidemiologic evidence has demonstrated an inverse association between ALA intake and plasma inflammatory biomarkers, including C-reactive protein,^{2,17–20} interleukin-6, E-selectin^{2,17} and interleukin-1beta.^{2,20} While RCTs have shown inconsistent benefits of ALA intake and inflammation,^{2,21} one systematic review of RCTs found flaxseed consumption led to a significant reduction in high-sensitivity C-reactive protein and tumor necrosis factor-alpha.^{2,22}

The effect of ALA consumption on other cardiovascular disease risk factors and outcomes have shown inconsistent results. There are mixed results on the impact of ALA intake on stroke, heart failure, arrhythmia, type 2 diabetes, metabolic syndrome,

and obesity.² The variation in the research is likely due to the varying study designs and methods of administering ALA, for example, flaxseed versus walnut consumption. More research is needed to understand ALA's potential therapeutic effect on these outcomes.

A growing body of research is also examining ALA and cognition. Observationally, ALA intake has been associated with slower global cognitive and memory decline^{2,23} and larger cortical thickness.^{2,24} While two longitudinal studies demonstrated ALA was associated with a lower risk of dementia,^{2,25,26} two other studies found a lower risk of dementia to be associated with EPA, one of the long-chain omega-3 fatty acids, but not ALA.^{2,27,28} Conversely, in the Alpha Omega Trial, 1.9 g/day of ALA supplementation was associated with better results than 400 mg/day of EPA + DHA supplementation, significantly reducing cognitive decline in patients younger than age 75 and in those who consume less than 20 g of fish daily.^{2,29} Clearly, more research is needed to fully understand ALA's association with cognition.

A Potential Synergy

There is some evidence to support a synergistic interaction between marine and plant-based omega-3s. In the Primary Prevention of Cardiovascular Disease with a Mediterranean Diet (PREDIMED) study, dietary ALA of $\geq 0.7\%$ of daily energy intake was associated with a 28% reduced risk of all-cause mortality. This risk was further reduced in participants who reported also consuming EPA + DHA ≥ 500 mg/day, suggesting a synergistic relationship between marine and plant omega-3 PUFAs in relation to all-cause mortality.^{2,30} In addition, the Alpha Omega Trial found participants with diabetes had a significant reduction of ventricular arrhythmia-related events in the group consuming EPA+DHA plus ALA compared with placebo, highlighting a potentially additive effect of plant-derived and marine-derived omega-3 fatty acids.^{2,31}

It is thought that EPA may influence ALA metabolism by inhibiting the key enzyme that regulates the conversion of ALA to the long-chain omega-3 PUFAs (EPA and DHA). This is seen in some research that demonstrates a stronger effect of ALA when there is lower long chain or marine omega-3 fatty acid intake. For example, the Health Professionals Follow-Up Study identified an inverse association between ALA intake and ischemic heart disease in men in the United States with low intake of long-chain PUFA (<100 mg/d). An increase of ALA by 1 g/day was associated with a 58% lower nonfatal myocardial infarction risk and 47% lower total ischemic heart disease risk among men with low EPA + DHA intake. There was no association among men with a higher long-chain PUFA intake.^{2,32} These findings may be important to note for individuals who follow a plant-based diet or those who do not consume high levels of EPA and DHA, as their ALA intake may have a more pronounced effect on cardiovascular disease risk than individuals who are consuming adequate EPA and DHA.

More research is needed to fully understand the relationship between EPA, DHA, and ALA.

Translating Evidence into Practice

Current recommended intakes of ALA are based on the Adequate Intake (AI) of 1.1 g/day and 1.6 g/day for adult U.S. women and men, respectively. More research is needed to develop the guidance beyond the AI to generate a Recommendation Daily Allowance (RDA) for ALA. There is considerable variability in the research on ALA including the duration of the supplementation period, dose, and form

of ALA (i.e., whole foods, capsules, seed oils). Due to the variability in the research, patients and clients should be encouraged to follow the current dietary guidance for ALA. ALA should provide 0.6-1% of total daily energy or 1.1 g/day for women and 1.6 g/day for men.

Food sources of ALA include walnuts, flaxseeds, edamame, chia seeds, and cooking oils (e.g., canola [rapeseed] oil, soybean oil, flaxseed oil, and perilla seed oil). Perilla seed oil is made from the perilla plant. This plant, also called shiso, has a nutty, earthy flavor and is commonly used in Korean cuisine. **Table 1** depicts the ALA content of select foods, as well as the amount needed to meet the recommendations.

Table 1. Food Sources of ALA and Percentage of Daily ALA Recommendations Provided

Food Source of ALA	Amount of ALA	Percentage of Daily ALA Recommendations for Men (1.6 g/d)	Percentage of Daily ALA Recommendations for Women (1.1 g/d)
Walnuts (1 oz/14 halves)	2.57 g	161%	234%
Flaxseed, ground (1 oz)*	6.55 g	409%	596%
Canola oil (1 Tbsp)	1.00 g	63%	91%
Soybean oil (1 Tbsp.)	0.90 g	56%	82%
Flaxseed oil (1 Tbsp.)	7.48 g	468%	680%
Olive oil, extra virgin (1 Tbsp)	0.10 g	6%	9%
Edamame (1 cup)	0.56 g	35%	51%
Walnut oil (1 Tbsp)	1.41 g	88%	128%
Chia seeds (1 oz)*	5.05 g	316%	459%
Pumpkin seeds (1 oz)	0.03 g	2%	3%
Perilla seed oil (1 Tbsp)	8.16 g	510%	742%
Avocado (1)	0.223 g	14%	20%
Avocado oil (1 Tbsp)	0.134 g	8%	12%

Source: USDA Food Data Central³³

*For flaxseed and chia seeds, it is important that they are “broken” (i.e., milled, ground, powdered) due to the high lignin content in their seed coats; the high lignin content prevents the body from absorbing the ALA.

Incorporating ALA into the Diet

Dietetics professionals can encourage patients and clients to include food sources high in ALA as part of a heart-healthy dietary pattern. Strategies and suggestions for incorporating ALA into the diet include snacking on nuts, seeds, and legumes high in ALA, such as walnuts or edamame. Just one serving of walnuts (1 oz or 14 halves) exceeds the adequate intake of ALA. Similarly, just 1-2 tablespoons of ground flaxseeds exceed the adequate intake of ALA. Patients and clients can sprinkle ground flaxseeds and/or chia seeds on oatmeal, yogurt, salads, and smoothies. Flaxseeds and chia seeds can be used as an egg alternative in egg-free or vegan baking. In addition, vegetable oils high in ALA, such as canola, soybean, and flaxseed oil can be used in cooking. Soybean oil has a high smoke point and is suitable for higher heat cooking, compared with canola oil, a moderate heat oil, and flaxseed oil, a low heat oil.

When providing these dietary recommendations, it is important to monitor total calorie intake, as these foods are high in total fat. Food sources high in ALA can be incorporated or substituted in place of other lower ALA foods (e.g., replacing nuts with low ALA content with walnuts).

Conclusions

In summary, ALA is a plant-based omega-3 polyunsaturated fatty acid with several potential therapeutic health benefits. The latest evidence demonstrates that ALA consumption may improve cardiovascular health by reducing the risk of total and fatal coronary heart disease, reducing cardiovascular disease risk factors such as high cholesterol, high triglycerides, and high blood pressure. Furthermore, ALA consumption may have cognitive benefits. Encouraging patients to incorporate food sources high in ALA can help them meet the *Dietary Guidelines of Americans* by incorporating more polyunsaturated fatty acid sources into the diet. Overall, food sources high in ALA may be beneficial for patients and clients to improve cardiovascular health.

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CV-Well Equipped

New Products, Tools, and Trends

Food Waste Not, Want Not for Heart Well-Being

by **Lauri O. Byerley, PhD, RDN, FAND** and
Jennifer Burris, PhD, RDN, CSSD, CDCES, CNSC

Here's some food for thought: In the U.S., about 133 billion pounds of food are wasted at the retail and consumer levels.¹ This staggering number translates into a loss of nearly \$162 billion! But food waste does much more than squander money—it also wastes our land, water, labor, and energy. This article explores techie gadgets we can use to reduce food waste and share with our clients.

Edible Waste Spans a Wide Spectrum

Food waste takes place along the entire food production continuum and is categorized as *food losses* (occurs before the food reaches the consumer) or *food waste* (food that is ready for consumption but purposely discarded at retail or consumption points). About 48% of food is discarded at the farm or post-harvest; 15% during processing, storage, and distribution; and 37% at retail and consumption stages.² Once food reaches the consumer, 61% of food is discarded as household waste.²

So where does all this food end up? Unfortunately, edible waste finds a permanent home in our landfills, contributing to methane production and climate change. Just thinking of these greenhouse gases and their potential influence on global warming is overwhelming!³ But luckily, food waste is a problem we can strive to improve, and consumers are not ignoring the problem. In recent years, consumers have become increasingly concerned and have taken steps to reduce food waste. A recent poll revealed that 81% of consumers use leftovers for several meals, 85% freeze leftover food, and 74% prioritize the use of food based on shelf life.²

Tech-Based Helpers Designed to "Waste Not"

One part of the solution to food waste is utilizing technology. Here are a few technology-driven tricks to help cut food waste:

- First, have you tried any apps designed to keep track of what's in your freezer and pantry and help design meals around the available options? Examples of apps that keep track of your freezer and pantry are CozZo, Easy Fridge, Food Manager, FreshFridge, and Fridge Pal. As an example on designing meals, the grocery store giant Kroger released the app Chef about two years ago. Using artificial intelligence (AI), the app generates recipes from the leftovers in your refrigerator to prevent these items from becoming tossed in the trash. Another app in the Apple App Store, Too Good To Go, takes a different approach and sells consumers surprise bags of unsold/leftover food from local restaurants and cafes, generally at the end of the day ([Too Good To Go](#)). The app first appeared in Chicago and has recently expanded across the U.S. and Europe, saving more than 100,000 meals per day! Is it available in your area? Other apps with similar goals include Flashfood and Olio.
- Heard the term "flexipes"? These are recipes that allow you to add your own ingredients. Food titans such as Hellmann's and other food recipe websites have created webpages with flexipes to help consumers create meals with some commonly wasted ingredients, such as bananas, milk, cheese, and leftovers. Some examples include [Hellmann's Flexipes](#), [Hellmann's Think You've Got Nothing to Eat?](#), and [Food Network's Our Most Flexible and Customizable Recipes](#). Some of these websites allow you to select an ingredient and can connect you with appropriate recipes. You might also consider Googling "recipes to reduce food waste" or "flexipes recipes" for additional suggestions as this topic is trending. Finally, try AI ([openAI.com](#) or [Bing](#) in Microsoft Edge) to search and create recipes.
- Online grocery shopping that offers pick up or delivery is another way to cut food waste. E-commerce market purchases increased from 5% before the pandemic to 24% in 2021.^{2,4} Have you used any of these options for your food purchases? It's an excellent way to reduce impulse shopping that can occur when shopping at the store. Also, online shopping helps make store inventories more accurate and thus they have an accurate count of items purchased and what they will sell. Subsequently, grocery stores do not have to overstock to keep shelves full²; they only need to have on hand what they will sell.
- Extending shelf life is another way to reduce food waste. One innovative solution in this arena is [Apeel's](#) thin protective peel made of edible compounds from wasted agricultural products such as unused grape skins after

wine production. You may soon find it on some produce, such as avocados, English cucumbers, limes, mandarins, oranges, and apples. If Apeel is successful, this technology could substantially change food waste! In addition, SAVRpak recently launched the world's first moisture control technology, which can extend the shelf-life of berries, leafy greens, and cucumbers. Bonus! Savrpak is made from FDA-approved food-grade materials. Look for it in packages of greens or other vegetables soon.

Hopefully, some of these techie ideas and tips will inspire you and your clients to make food waste prevention an everyday practice, helping to improve sustainability. Together we can waste not, want not.

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CV-Well Done

Members in the Spotlight

Interviewed by Jean Storlie, MS, RD, CV-Well Leadership Cultivation Director

This issue highlights **Sharon Smalling, MPH, RD**, recently retired clinical dietitian specialist who today is guiding young practitioners through CV-Well's mentoring program.



Upon retiring in 2022, Sharon Smalling marked 42 years in practice, with the lion's share focusing on cardiac and pulmonary rehabilitation at Memorial Herman-Texas Medical Center in Houston. She credits her first job (relief RD at Harris Methodist Hospital, Ft Worth) as providing the nutrition science background

for numerous disease states that enabled her to do her job until the day she retired. An active leader, Sharon served as president of the Houston area dietetics association, co-chair of the SCAN CV-Well subunit, and much more.

When did you decide to pursue a career in nutrition and dietetics?

My father began having bleeding ulcers, thus he followed a 'bland' diet for as long as I can remember. I loved to cook, and making tasty food he could enjoy inspired me to become a dietitian.

What accomplishment are you most proud of in your career?

A project I did with another dietitian, Shirley Chambers, evolved into *Meal Solutions for Busy People*, a book published

by the hospital in 2000 that sold for \$10. Years later we saw Amazon was selling some of these as used books, with one listed as "\$49, autographed copy." We laughed and wondered whose autograph it was!

What has equipped you in your career?

Following my heart usually leads me to making the right decisions. After four years at my first job as an inpatient dietitian, I was promoted to Systems Dietitian, but my new position was shortly eliminated. I was given two options: a severance package or my previous position (for which the most recent hire would be laid off instead of me). I realized I couldn't put myself ahead of the recent hire, so I took the severance package and landed a job at Hermann Hospital in Houston, only to be laid off again! I then secured a position in public health, but two years later the person who laid me off at Hermann Hospital asked me to return because my job had been reinstated. I listened to my heart and returned to Hermann, where I worked for 30 years!

Was there anything that particularly inspired you?

At a University of Texas graduation lunch, I heard Donny Evans, then chairman of the UT Board of Regents, deliver his commencement speech. He first asked all graduates to rise, then to sit down "if you made a 4.0," then "if you had all A's and B's," etc. The only ones standing had made a D along the way. My opinion of him plunged, until he said: "To those left standing I offer my congratulations, as you have now met the criteria to become chairman of the Board of Regents at UT!" The only D that I received had always been a disappointment to me—until I heard Donny's words. I released the painful feelings, determined to never let that D define me.

What advice do you have for newcomers?

Get involved in CV-Well as soon as possible! Tapping into the expertise of others made all the difference to me. Now they're my friends and blessings in my life.

What's next for you?

Besides leading a mentoring circle for the CV Well Mentoring program, I volunteer at Belong Kitchen, cooking and working with individuals with various disabilities.

CV-Well Seasoned

Recipes from Your Colleagues

Tangy Peach + Mango Avocado Toast

Recipe by Claire Tibboles, MFN, RD

This sweet and savory avocado toast is a unique way to do breakfast this summer. It includes a variety of fresh fruits, vegetables, and herbs. It's highly versatile, and the topping can be prepared days in advance. This recipe is also loaded with fiber and healthy fats, which both improve the body's LDL/HDL ratio. To highlight one ingredient, hemp seeds can be thrown into almost any recipe to provide additional protein and healthy fats.

Serving size: 1 slice

Serves 2

Total time: 10-15 minutes



Ingredients

- ½ cup fresh mango, diced
- ¼ cup fresh peach, diced
- ¼ cup red onion, diced
- ¼ cup Roma tomato, diced
- 1 Tbsp fresh jalapeno, minced
- 1 tsp fresh cilantro, chopped
- Juice of 1 lime quarter
- 1/16 tsp salt
- 2/3 medium avocado
- 2 thick slices whole wheat bread
- 1 Tbsp hemp seed hearts

Directions

1. Wash all fresh produce. Medium dice the mango, peach, red onion, and Roma tomato. Seed and mince the jalapeno. Chop the cilantro. Combine these ingredients in a medium-sized bowl.
2. Quarter the lime. Add the juice of the lime quarter and the salt to the bowl. This will be your "topping."
3. Cut and toast the bread. If desired, save half of the topping and toast only one slice.
4. Halve the avocado and slice it inside the skin; then spoon out 2/3 of these slices and lay onto one slice of toast. Another option is to mash the avocado and spread it on the toast.
5. Sprinkle the hemp seeds directly on the avocado or mix them into your topping. Divide the topping onto two slices of avocado toast. Enjoy!

Nutrition Facts

Per serving (1 slice): 235 calories, 10g total fat, 8g protein, 30g carbohydrate, 223mg sodium, 7g fiber