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High-Fiber Convenience Foods

By **LAUREN HARRIS-PINCUS, MS, RDN**

It's no secret to health professionals that fiber is a critical component of a healthful diet, yet, according to national consumption surveys, 95% of Americans don't meet their fiber goals, despite research conducted by the International Food Information Council showing that two-thirds (67%) of consumers believe they get enough fiber each day.[1,2]

On average, US adults consume approximately 15 g fiber per day, well short of the recommended intake of 25 to 38 g per day based on the 2015–2020 Dietary Guidelines for Americans. Even dietitians can find it challenging to consume the required amount of fiber on a daily basis. While they're not sexy nutrition solutions, it's well understood that fiber-containing, plant-based foods play an important role in overall health and prevention and treatment of diseases such as prediabetes, diabetes, and heart disease—so much so that the Dietary Guidelines have considered fiber to be a nutrient of concern since 2005. New research also is shedding light on the benefits of fiber in mental health, supporting a diverse microbiome, and beyond. What are dietitians to do when, according to the Centers for Disease Control and Prevention, only 1 in 10 adults meets federal fruit and vegetable recommendations?

Most consumers know that fiber-filled foods are good for them but lack the time, skill, and creativity to design and prepare daily meals and snacks to reach fiber goals while paying attention to total calorie consumption, blood sugar levels, and heart health. Plus, the growing popularity of low-carb and keto-style diets in addition to gluten-free, wheat-free, and grain-free eating patterns tend to limit or eliminate fiber-rich grains, further contributing to the fiber intake deficit.

Other challenges to adequate fiber consumption among clients include perceptions that fiber-rich foods lack taste, are too expensive, and require extra time and skill to prepare. Some clients and consumers are hesitant to eat higher-fiber foods due to negative digestive symptoms such as gas and bloating, either actual or perceived.[1]

Not All Fiber's the Same

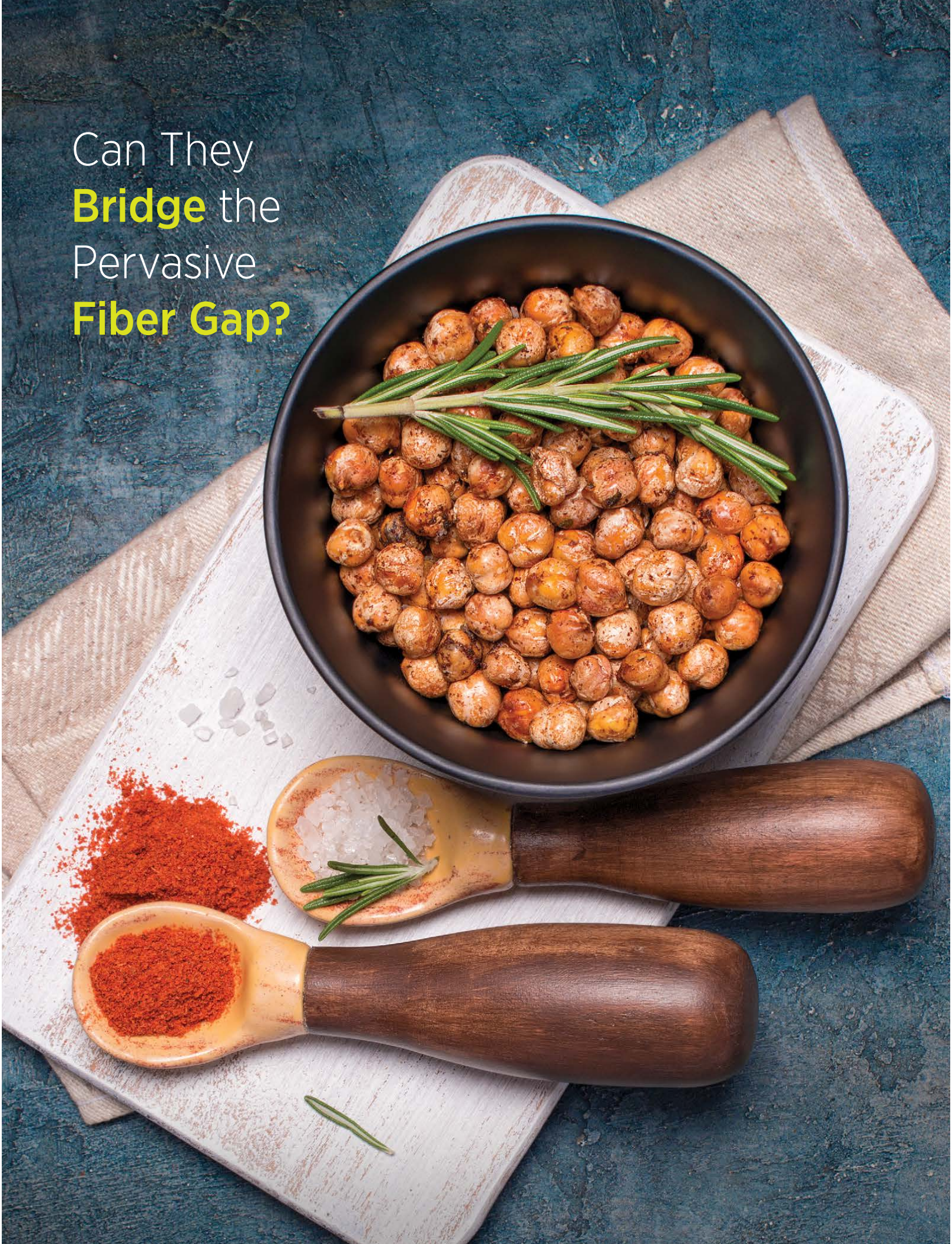
According to the FDA, "The Nutrition Facts Label final rule defines 'dietary fiber,' in relevant part, as 'nondigestible soluble and insoluble carbohydrates (with three or more monomeric units), and lignin that are intrinsic and intact in plants; isolated or synthetic nondigestible carbohydrates (with three or more monomeric units) determined by FDA to have physiological effects that are beneficial to human health.'

"At least one of the following, if demonstrated in humans, would make the carbohydrate eligible to be proposed to be included in the definition of 'dietary fiber':

- lowering blood glucose;
- lowering cholesterol levels;
- lowering blood pressure;
- increase in frequency of bowel movements (improved laxation);
- increased mineral absorption in the intestinal tract; and
- reduced energy intake (for example, due to the fiber promoting a feeling of fullness)."

In addition to intact and intrinsic fibers, the FDA has identified seven nondigestible carbohydrates, which are added to food as meeting the dietary fiber definition above, including beta-glucan soluble fiber, psyllium

Can They **Bridge** the Pervasive **Fiber Gap?**



husk, cellulose, guar gum, pectin, locust bean gum, and hydroxypropylmethylcellulose.

After the FDA's review of the science, it intends to propose several more nondigestible carbohydrates to be added to the definition of dietary fiber for inclusion on the food label. These include mixed plant cell wall fibers (a broad category that includes fibers such as sugar cane fiber and apple fiber, among many others), arabinoxylan, alginate, inulin and inulin-type fructans, high-amylose starch (resistant starch 2), galactooligosaccharide, polydextrose, resistant maltodextrin/dextrin, and cross-linked phosphorylated RS4.

As practitioners, dietitians need to be aware of the functions of different fibers to tailor their recommendations to specific clients. While some may require insoluble fiber to assist with laxation, others may benefit from more soluble, gel-forming fibers to address blood sugar and cholesterol issues. With more clients asking questions about gut health, prebiotics, and the microbiome, fiber is a hot topic and they're looking for simple ways to meet their needs.

Counseling Challenges

While RDs strive to help clients reach their recommended daily fiber goals, it's important to recognize that not everyone can achieve this level from whole foods alone. Individuals are faced with challenges related to taste, accessibility, affordability, preparation, time commitment, and more. Plus, many people lack knowledge of which foods contain the most fiber and how much is needed, as evidenced by the earlier referenced survey concluding that far more people believe they meet fiber goals than the actual 5%.

A simple start is to follow MyPlate guidelines to make one-half of the plate fruits and vegetables and one-quarter of the plate a whole grain. However, in a nation of busy people who rely on fast food and cafeteria eating, these fiber-rich foods aren't typically focal points of standard menus. Moreover, according to a recent study published in the journal *Nutrients*, approximately 19% of Americans skip breakfast and miss out on the average 20% of daily fiber consumed during that meal.[3] This is likely because higher-fiber foods such as oatmeal, whole grain cereal, and fruit, which usually are consumed in the morning, aren't compensated for later in the day.

Snacking Is Big Business

In addition to skipping breakfast, consumers are devoting more time to snacking throughout the day instead of eating full meals due to busy lifestyles. And while many are snacking on unhealthful foods and treats, others are looking to satisfy hunger and cravings with food that's healthful and tasty. According to a snacking industry report by Mintel, 95% of US adults snack daily, with over 70% snacking more than once per day.[4] Another report by Mordor Intelligence predicted snack food growth and trends through 2024, stating, "Snack food has emerged as an alternative to full-fledged meals with the paradigm shift in consumer behavior patterns. Globally, the number of independent working women, double-income families, and nuclear families are increasing. This demographic change increases the demand for convenience food by many folds. Snack food is being considered as the closest alternative to regular food, which can be consumed any time (such as during breakfast, lunch, or dinner purposes.)"[5]

In response to consumer demand for more healthful snack foods, many food manufacturers are increasing the fiber content of their products either by including dried forms of whole foods such as beans or by adding functional fibers to commonly consumed snacks. For a food to be considered "high fiber" by the FDA, it must contain at least 5 g, or 20% DV.

10 High-Fiber Foods for Clients On the Go

Below are 10 high-fiber convenience foods RDs consume, enjoy, and recommend for their clients as part of a healthful diet. Each snack contains at least 5 g fiber per serving and is made without artificial ingredients or preservatives. The foods are portable, nonperishable, and contain different forms of fiber for variety.

Snacks From Whole Food Fiber Sources

1 **Enlightened Bada Bean Bada Boom Crunchy Broad Beans.** "I always have Enlightened Crunchy Broad Beans on hand. They have both savory and sweet flavors for whatever you're craving, although the Sweet Cinnamon is a personal favorite. You can even find them in little 100-calorie packs, which is great for travel, and each serving provides 15 g of carbohydrates, 6 g of fiber, just 1 g of sugar, and 7 g of protein," says Kelly Plowe, MS, RD, a nutrition communications expert based in Los Angeles.

2 **Go Raw Spicy Fiesta Sprouted Flax Snax.** Lauren Manaker, MS, RDN, LD, CLEC, a dietitian who specializes in women's health from Charleston, South Carolina, says, "These snacks are great for people who need a spicy crunch and want a snack that will sustain them. They are portable and pack a healthful fat and fiber punch!" The 5 g of fiber per serving comes from sprouted flax, sunflower, and sesame seeds.

POPULAR **HIGH-FIBER SNACKS**

Product*	Serving Size	Calories	Fiber (g)	Sugar (g)	Protein (g)	Sodium (mg)
Uplift Food Gut Happy Cookies	4 cookies (40 g)	170	6	4	8	105
Barbara's Puffins Cereal, Original	¾ cup (30 g)	90	5	5	3	170
F-Factor Fiber/ Protein Bar	1 bar (62 g)	170	20	2	20	180
Enlightened Bada Bean Bada Boom Crunchy Broad Beans	1 oz (28 g)	100	6	1	7	0–150
Saffron Road Crunchy Chickpeas, Bombay Spice	¼ cup (30 g)	130	5	1	6	150
Go Raw Spicy Fiesta Sprouted Flax Snax	20 pieces (28 g)	150	5	1	6	300
Seapoint Farms Dry Roasted Edamame	⅓ cup (30 g)	130	8	1	13	150
Bare Baked Crunchy Carrot Chips	1 bag (1.4 oz)	140	7	10	2	420
Trader Joe's Beet Chips	1 bag (1.3 oz)	140	7	17	4	120
Bush's Best Crisp-Roasted Chickpeas	¼ cup (1 oz)	90	9	1	6	100
ProGranola	½ cup (37 g)	91–110	12–15	0–1	12	125–200
FiberGourmet Thinables	1 oz (28 g)	60–70	11–12	0–4	3–4	90–290

SOURCE: COMPANY WEBSITES

*** PRODUCT LIST REPRESENTS A SAMPLING OF SOME OF THE POPULAR HIGH-FIBER SNACKS AVAILABLE.**

3 **Seapoint Farms Dry Roasted Edamame.** Cassidy Reeser, RDN, LD, owner of Cozy Peach Kitchen in Athens, Georgia, chooses Dry Roasted Edamame from Seapoint Farms as one of her go-to snacks. A ⅓-cup serving contains 130 kcal and 8 g fiber. "With an ingredient list including only soybeans and seasonings, dry-roasted edamame is a simple yet satisfying snack that is high in protein and fiber. [They] are crunchy and come in flavors like Spicy Wasabi and Sea Salt, so clients looking for a nutrient-dense alternative to potato chips may be interested in trying out this snack."

4 **Trader Joe's Beet Chips and Bare Baked Crunchy Carrot Chips.** Jill Weisenberger, MS, RDN, CDE, CHWC, FAND, author of *Prediabetes: A Complete Guide*, freelance writer, and a nutrition and diabetes consultant to the food industry based in Newport News, Virginia, says, "These are a fun way to get vegetables, and they don't spoil or require any washing and prepping. I toss them into my suitcase or laptop bag just in case I need them on a busy day." Each bag contains 140 kcal and 7 g fiber.

5 **Bush's Best Crisp-Roasted Chickpeas.** Pulses are some of nature's highest-fiber foods. For those who don't like the taste or texture of beans, roasted varieties are a great snacking option. A ¼-cup, 1-oz serving of Bush's Best Crisp-Roasted Chickpeas contains 90 kcal and 9 g fiber. "These are tasty, crunchy, satisfying, nutritious, and, best of all, they help people eat more pulses," Weisenberger says.

6 **Barbara's Puffins Cereal.** Lisa R. Young, PhD, RDN, author of *Finally Full, Finally Slim*, loves recommending Barbara's Puffins (Original) Cereal. "It is a super crunchy satisfying cereal and makes for a great snack. It's a blend of whole oats and corn, and it's got 5 g fiber, 5 g sugar, 170 mg sodium, and 90 calories for a ¾-cup serving. It is super tasty and yummy." Their size and texture makes them easy to eat from a zipper bag on the go.

Whole Food and Functional Fiber Snacks

7 **F-Factor Protein/Fiber Bars.** There's a seemingly endless variety of protein bars on the market with diverse nutritional values and ingredients. F-Factor Protein/Fiber Bars, developed by Tanya Zuckerbrot, MS, RD, an internationally known dietitian and creator of the F-Factor Diet, is a favorite among RDs. They're plant based, gluten-free, soy-free, and kosher, and contain fiber sourced primarily from prebiotic soluble corn fiber. Kelly Plowe, MS, RDN, a food and health communications specialist based in Los Angeles, says, "I keep F-Factor bars stocked in my pantry. They're perfect for when you're on the go. They come in Peanut Butter and Chocolate Brownie and have 20 g of fiber and 20 g of protein. I especially love these because unlike other fiber bars, they don't upset my stomach or make me feel bloated. They're vegan, too, and taste delicious."

8 **ProGranola.** Granola is one of those foods that has a health halo around it but often is high in calories, fat, and sugar. ProGranola by Julian Bakery is a game-changer for the category with its egg white–based, whey-based, or plant protein–based options. A favorite is the egg white–based Peanut Butter Cluster that packs 14 g fiber and 12 g protein in a ½-cup serving with only 110 kcal and 1 g sugar. The fiber comes from a mix of prebiotic, organic soluble tapioca fiber, as well as organic peanut flour, peanut butter, and an array of seeds. It pairs well with milk or yogurt and can be put in a zipper bag for clients on the go.

9 **FiberGourmet Thinables.** Anyone craving a sweet or salty crunch likely will consider FiberGourmet Thinables a new staple snack. A 1-oz serving contains 12 g fiber, 3 to 4 g protein, and 60 to 70 kcal due to resistant starch. They're available in light cheese (which is a good substitute for Cheez-Its), Italian 4 Cheese, Jalapeno Cheddar, Everything, and Cinnamon. Some flavors come in single-serve bags suitable for on the go.

10 **Uplift Food Gut Happy Cookies.** Kara Landau, APD/AN, official media representative and nutrition advisor for the Global Prebiotic Association, Worldwide, created Uplift Food, a prebiotic fiber–rich product line. She says, "Uplift Food's Gut Happy Cookies are dietitian designed and packed with three different types of fibers, including both soluble prebiotic fiber and resistant starch, which are both known to feed the good probiotics in your gut, together with insoluble fiber to support these fibers making their way to the distal part of the colon where they are most active. With over 50% of the entire cookie being made from ingredients that offer prebiotic soluble fiber and resistant starch (organic lupini bean flour and organic tapioca fiber resistant starch), and with the cookies having been third-party tested for different dietary fibers and shown to have up to 12 g of fiber per 40-g serving (even more than claimed on the pack), you can feel confident that your clients are receiving a nourishing source of a range of fibers that will support digestion and gut health."

More Options = Greater Possibilities

It's clear from the data that Americans are substantially underconsuming fiber, and it will require significant dietary changes to improve overall intake. Encouraging more fruits, veggies, whole grains, nuts, beans, and seeds is a start, but not everyone is willing or able to meet fiber goals with a whole foods approach. While RDs tend to discourage clients from relying on processed, packaged snacks, they can point them to many nutritious options to help them increase their total fiber intake.

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For references, view this article on our website at www.TodaysDietitian.com.

can be self-administered. Response to treatment is highly individualized, and research is needed to further determine appropriate dosages, duration of treatment, and related side effects.[18]

Traction Alopecia

Traction alopecia is a form of gradual hair loss associated with hairstyles such as braids, cornrows, dreadlocks, tight ponytails, chignons, and weaves, or the wearing of religious head coverings or extensions.[19,20] With frequent/prolonged wearing, these styles can cause tension at the base of the hair follicle, leading to hair loss, particularly around the front and sides of the head.[19] African American women in particular are at risk of developing traction alopecia, though Hispanic and Japanese women and ballerinas who sport similar hairstyles also are at risk.[19-21] African hair has less tensile strength and moisture and is more prone to surface damage and breaking due to its diameter and shape.[19] Early-stage traction alopecia generally is reversible via patient education on safer hairstyling practices, but permanent hair loss can occur if lifestyle changes aren't made.[19-21]

Central Centrifugal Cicatricial Alopecia

Central centrifugal cicatricial alopecia (CCCA) has gone by many names, including follicular degeneration syndrome and chemically induced scarring alopecia. CCCA presents as an outward spiral beginning at the top of the scalp, much like AGA. Unlike AGA, scarring occurs due to limited follicular openings. It's a "chronic, progressive, and inflammatory form of hair loss" prominent in African American women, affecting 2.7% to 5.7%, and prevalence is thought to increase with age. The root cause is unknown, but hair texture, composition, and styling practices are all thought to contribute to hair loss. The primary treatment is to cease unhealthful or damaging hair practices (eg, braids, weaves, high heat styling, chemical relaxers) with a goal of stopping the spread of CCCA on the scalp and limiting permanent scarring, which inhibits regrowth. Additional therapies include topical or injectable corticosteroids, antibiotics, and antimalarials, which may relieve symptoms and slow progression. For women without scalp inflammation or heavy scarring and who are declared "stable disease controlled" after a successful year of medical therapy, hair transplantation is possible.[19]

Pharmacological Treatments

Common medications used to treat hair loss include minoxidil, a topical formula, and several medications that limit androgen activity and production such as finasteride and spironolactone.[3,8,22] As FPHL is chronic and progressive, clients and patients must continue to use them throughout the lifespan to preserve hair, and it can take one to two years of use for clients to see initial results.[3] An article in the *International Journal of Women's Health* claims that many medical treatments are impermanent solutions with often disappointing results.[8] Given the stringent adherence required, reports of overall efficacy are mixed.[3,8,22]

Low-level laser/light therapy (LLLT) is a home treatment option to stimulate hair growth.[23] This methodology is most effective for individuals with AGA and has been FDA approved for women since 2011. LLLT increases the number of hair follicles in the anagen phase, perhaps by modifying cell metabolism. LLLT devices commonly include a laser comb or a helmet design with wavelengths of 635 to 650 nanometers, with light either pulsed or emitted continuously. They must be used daily or weekly for a specified period of time.[24] Research released by Jimenez in the *American Journal of Clinical Dermatology* showed that six months of laser treatment yielded a statistically significant increase in hair density. These results were seen in both men and women experiencing hair loss with a more pronounced effect in the males, and there were no serious adverse effects. Further research specific to women is needed before a widespread recommendation can be made for LLLT usage to treat FPHL; as with any chronic hair loss treatment, continuous and consistent usage is needed to see results.[23]

Hair Loss and Related Conditions

Hair loss, particularly alopecia, is linked to several disease states and endocrine disorders. This section examines hair loss' relationship with metabolic syndrome, hypothyroidism, type 2 diabetes, and polycystic ovarian syndrome (PCOS).

Metabolic Syndrome

An interesting link has emerged between the development of metabolic syndrome, CVD, and FPHL or AGA.[9,25] An association between males with AGA and CVD has been established, but few studies have looked at the relationship between females with AGA and CVD. A case-control study compared 37 female patients with early-onset AGA with 37 healthy control subjects in Spain, with a goal of isolating cardiac risk factors within the Adult Treatment Panel III criteria for metabolic syndrome. Nearly one-half (48.6%) of the female AGA patients vs 8.1% of the control group were clinically diagnosed with metabolic syndrome. The AGA group also had significantly higher levels of other cardiac risk factors, including C-reactive protein, fibrogen, aldosterone, and insulin levels, than the control group. Further research is needed to establish standardized screening methodology in women with AGA and to replicate findings in a broader population.[25]

Endocrine Disorders

Thyroid Disease

Diffuse alopecia areata presents as an overall thinning of scalp hair and is a common symptom in hypothyroidism. The exact mechanism that links the two isn't known, but an article in the *International Journal of Trichology* hypothesizes it could be due to a reaction between thyroid hormones and androgens. In a cross-sectional study conducted in Kerala, India, women had a higher rate of thyroid dysfunction and were more likely to have alopecia. Routine screening by testing thyroid-stimulating hormone levels may help to identify alopecia sufferers with thyroid disease for early intervention and potential improved outcomes.[26]

Type 2 Diabetes

One of the most prevalent endocrine disorders globally is type 2 diabetes. Some individuals find that once they're diagnosed with type 2 diabetes, they already have hyperglycemic complications from increasing A1c levels. An existing relationship between alopecia areata