



NUTRITION CONNECTION

EXPLORING GLUTEN-FREE LOW-CARB DIETS

FOR IMPROVED HEALTH

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THE USE OF A GLUTEN-FREE DIET AND LOW-CARBOHYDRATE (CARB) DIET is not new; both diets have been around for many years. The gluten-free diet is the only treatment for celiac disease, an autoimmune disease triggered by ingestion of the protein gluten. Individuals with a gluten sensitivity or intolerance may follow a gluten-free diet to manage bloating, constipation or diarrhea, fatigue, gas, or stomach pain, while a low-carb diet is generally used for weight reduction.

Recently, an emerging trend involves the combination of these two eating practices into a gluten-free low-carb diet. Individuals are choosing this diet combination seeking improved weight control and health outcomes. It is important for healthcare providers to keep up with current trends such as this and to offer guidance to clients centered on evidence-based research. This article explores the use of this dietary trend along with current evidence-based information on health outcomes.

GLUTEN-FREE AND LOW-CARB DIETS OVERVIEW

A gluten-free diet is the only treatment for celiac disease (CD). People with gluten sensitivity and celiac disease need to avoid gluten as it can cause severe digestive problems, damage the intestines, and lead to malabsorption of nutrients. The American College of Gastroenterology 2023 Diagnosis and Management of Celiac Disease guidelines recommends the gluten-free diet therapy for intestinal

healing and states that there should be individualized goals for each client (Rubio-Tapia et al.).

Unfortunately, celiac disease and gluten sensitivity are becoming increasingly prevalent, and use of a gluten-free diet has grown dramatically in the last decade, but often for the wrong reasons (Greenburg). We now see more people without gluten sensitivity or celiac disease adopting the gluten-free diet because they perceive it as being healthier and that it will promote weight loss. In fact, neither of those benefits have been scientifically proven. According to Benjamin Niland, MD and Brooks D. Cash, MD, most individuals who choose a gluten-free diet do not have a physiologic requirement for the diet and likely do not derive substantial benefit. Existing evidence for potential harms of a gluten-free diet include possible nutritional deficiencies, financial costs, and negative psychosocial implications.

According to the Celiac Disease Foundation, gluten is a general name for the proteins found in wheat (wheatberries, durum, emmer, semolina, spelt, farina, farro, graham, KAMUT® khorasan wheat, and einkorn), rye, barley, and triticale—a cross between wheat and rye. Gluten helps foods maintain their shape, acting as a glue that holds food together.

Low-carbohydrate (low-carb) diets have been used since about 1860 as a strategy for weight loss. Today, interest in this diet approach continues. While all low-carb diets reduce the overall intake of carbohydrates, there is no clear



consensus on what defines a low-carb diet. There are three macronutrients—carbohydrates (4 kcal/g), fat (9 kcal/g), and protein (4 kcal/g)—found in food. Therefore, studies have defined low carbohydrate as a percent of daily macronutrient intake or total daily carbohydrate load. Technically, a low-carb diet is anything below the recommended minimum amount of carbs you need to maintain good health as set by the Institute of Medicine (Oh et al.).

In its 2002 report, the Institute of Medicine (now the National Academy of Medicine) established an RDA for carbohydrates of 130 g/d for adults and children aged ≥ 1 year. This value is based on the amount of sugars and starches required to provide the brain with an adequate supply of glucose. The IOM set an acceptable macronutrient distribution range (AMDR) for carbohydrates of 45–65



GLUTEN

is a name for the proteins found in wheat, rye, barley, and triticale. Gluten acts as a glue that holds food together.

percent of total calories. According to a study published in *Metabolites* the level of carbohydrate restriction used in contemporary clinical practice less than 20 g/day, or 10 percent of overall calorie consumption, is considered an especially small carbohydrate consumption (although some suggest a maximum of 50 g). Fewer than 30 g/day, or less than 26 percent of overall energy intake from carbohydrates, is generally considered as the cutoff for “low” carbohydrate consumption (Pavlidou et al.).

Some general categories of foods that are naturally low in carbs or are carb-free include:

- Meat
- Fish and shellfish
- Poultry
- Eggs
- Nuts and seeds
- Cheese



- Nonstarchy vegetables (leafy greens, zucchini, cucumber, broccoli, bell peppers)
- Low-sugar fruits (raspberries, strawberries, blackberries, lemons)

More generous low-carb diets support limited use of grains, but very low-carb diets generally avoid all grains.

There continues to be more studies published on the health effects of low-carb diets. A study published in January 2020 in *JAMA Internal Medicine* found that unhealthy low-carb diets are associated with higher total mortality, while healthy low-carb diets are linked to a lower overall risk of death. Researchers defined “healthy” as “lower amounts of low-quality carbohydrates and higher amounts of plant protein and unsaturated fat” (Shan et al.). The potential health effects of a moderate carbohydrate diet were systematically reviewed (Pavlidou et al.) focusing on the relationship between the Mediterranean diet and a loss of skeletal muscle mass, called sarcopenia, in adults >65 years old.



**BOTH GLUTEN-FREE
AND LOW-CARB DIETS**
come with risks when they
are not carefully planned.

This aspect is important since, up to now, most studies evaluating the role of diets in sarcopenia have focused on specific nutrients. The studies available revealed that the Mediterranean diet where carbohydrates tend to come from unrefined, fiber-rich sources like whole wheat and beans, may positively affect muscle mass and function. However, the data were not clear with respect to muscle strength, and no positive effect of the Mediterranean diet on sarcopenia was found.

Being on a gluten-free diet while also on a low-carb diet is attainable, since gluten is found only in grains, and it is possible to eat a gluten-free, low-carb diet that is nutritious and aids weight loss. However, both types of diets come with risks when they are not carefully planned. For example, a prospective cohort study looking at long-term gluten consumption in adults without celiac disease and risk of coronary heart disease (Lebwohl et al.) found that long-term avoidance of gluten could affect cardiovascular risk due to deficiencies in nutrients found in whole grains that provide heart-health benefits.

Because of these findings, the Harvard T.H. Chan School of Public Health says there is no reason for anyone without a gluten sensitivity or celiac disease to follow a gluten-free diet.

Another potential pitfall of a gluten-free diet is that people often mistake all gluten-free products as health foods, says Harvard. These foods’ designation as gluten-free, and thus healthy, often causes people to eat more of them. Many of these items are highly processed and lacking in nutrients.



REFERENCES

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CONCLUSION

Individuals following gluten-free low-carb diets encounter the same pitfalls of potential nutrient deficiencies due to cutting out entire food groups and falling prey to the idea that certain foods are automatically healthy. It is important to recommend that anyone sensitive or allergic to gluten that wants to also follow a low-carb diet

work with their physician, registered dietitian nutritionist, and other healthcare team members to develop a plan that meets their nutrition needs.

Further studies are needed to identify the patients and population subgroups that could benefit from a gluten-free low-carb diet. Long-term effects of such diets also need to be

investigated. A strict gluten-free low-carb lifestyle presents challenges, including potential nutritional deficiencies, high costs, and social and psychological barriers. It is important that healthcare providers promote evidence-based approaches that present both the benefits and potential harms of a gluten-free low-carb diet. **E**



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This **Level I NUTRITION** article assumes that the reader has introductory knowledge of the topic. The desired outcome is to ensure a basic understanding and explanation of the concepts of the subject matter and recalling of related facts.

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1. A _____ diet is the only treatment for celiac disease.
A. Celiac-free
B. Gluten-free
C. Calorie-free
2. _____ disease is an autoimmune disease triggered by the ingestion of the protein gluten.
A. Celiac
B. Protein deficit
C. Cardiac
3. The American College of Gastroenterology 2023 guidelines states that gluten-free diet therapy should be _____ for each client.
A. Randomized
B. Individualized
C. Identical
4. The protein gluten helps foods maintain their _____.
A. Smell
B. Color
C. Shape
5. The Institute of Medicine (now the National Academy of Medicine) established an RDA for carbohydrates, however there is _____ consensus on what actually defines a low-carb diet.
A. Clear
B. No
C. Ambiguous
6. The Harvard T.H. Chan School of Public Health states there is no reason for anyone without a gluten sensitivity or celiac disease to follow a _____ diet.
A. Gluten-free
B. Carbohydrate-free
C. Gliadin-free
7. People often mistake all gluten-free and low-carb foods as _____.
A. Natural
B. Healthy
C. Tasty
8. Healthcare providers must promote _____ diet recommendations that present both the benefits and harms of following a gluten-free low-carb diet.
A. Multiple
B. Popular
C. Evidence-based



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