

# Celiac Disease-Management through diet and lifestyle changes

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## ABSTRACT

Human digestive disease that causes damage to the human small intestine, as a result of which the absorption of nutrients from food is disturbed, which further leads to malnutrition and weight loss. People who are suffering from this disease are not able to tolerate a food protein called gluten. Gluten is a protein that is normally found in food components like wheat, barley, oats, and rye.

**Keywords:** Small intestine, Autoimmune disease, Genetically predisposed, Gluten free diet

### Introduction

A common autoimmune disease called celiac disease is mainly induced by the consumption of gluten protein, which is mainly present in our foods like wheat, oats, rye, and barley; thus, it is a main component of the human food chain [1]. This disease is mainly induced by individuals who have a genetic predisposition after the ingestion of a gluten-containing diet [2]. This intestinal disease (CD) is an autoimmune condition with many contributing factors that are mainly described by the T-cell-mediated damage in human small intestinal damage after gluten ingestion [3] Celiac disease is mainly considered a result of the interplay between human genetics and environmental factors [4].

### Clinical signs and symptoms:

When a patient has the following symptoms, he should be diagnosed with celiac disease.

- Chronic diarrhea occurs mainly when the patient is using foods made of wheat, barley, and oats.
- Lethargy and weakness
- Malnutrition
- Extreme weight loss
- Wasting
- Refractory anemia mainly iron deficiency anemia
- Abdominal pain and distention
- Stomach cramps after eating food made up of wheat, barley, and oats
- Teeth and enamel erosion
- Menstrual irregularities in girls
- Weak bones lead to osteopenia.
- Abnormal liver functions

### Medical methods to identify Celiac Disease

In many cases, celiac disease patients confuse this disease with other intestinal diseases such as intestinal infection and crohn's disease. But the correct diagnosis depends on the symptoms presented by the patient.

In Pakistan, a blood test and biopsy of the small intestine during endoscopy are done to diagnose this disease, and this biopsy test is considered highly sensitive for its diagnosis.

### Consequences of Celiac Disease

Celiac disease itself is responsible for causing many other autoimmune diseases, as given below.

- Type 1 diabetes mellitus
- Joint disease
- An itchy skin rash called dermatitis herpetiformis

### Prevalence

When it came to how much population is affected by celiac disease in Asia, the results showed that 0.6% of the population in India, 0.3% of the population in Iran, 0.7% of the population in Israel, and 0.5% of the population in Turkey were affected [5]. Although the exact burden of celiac disease in Pakistan is not exactly identified, international figures show that 1 in 33 people is affected by CD.

### MEDICAL NUTRITION REMEDY

A **gluten-free** diet is the only long-term and permanent solution to celiac disease, and its effectiveness has been approved by a large number of studies. After the initiation of a gluten-free diet, healing of the small intestine starts, but it takes almost 2 years. After the initiation of a gluten-free diet, there is an increase in bone density, but if you think that a complete reversal of osteoporosis occurs, then it is not possible.

Food groups and their daily intake values	Foods Allowed
Bread/chapati	Only those made from corn, soybean, rice, potato, and arrowroot flour.
Cereal	Foods in this group, including rice and rice flakes, sago, and corn flakes, are allowed to be eaten by CD patients.
Vegetables	This group includes all types of vegetables, including those that are fresh, those that are commercially frozen, and those that come under the canned category according to the patient's choice.
Fruits	Almost all kinds of fresh fruits, sweetened fruits thickened with tapioca or cornstarch, a CD patient can use.
Milk or Dairy	Patient can consume almost all types of milk including low fat milk, whole milk, skim milk and buttermilk.
Meat group including fish, poultry and eggs	Patient is allowed to eat any plain meat. Grilled roast meat; fried but coating should be gluten free.
Cheese (use for both meat and milk group)	All types of cheese such as cheddar, cottage and Swiss are allowed to eat to the patients.
Desserts	The patient is allowed to eat gelatin, cookies, and custard. Patients can also eat cakes, cookies, and pastries that use gluten-free flour or starch. Kheer is also considered safe for consumption.
Soups	Patients can consume homemade soups and broth made with corn flour.
Beverages	The patient is allowed to consume coffee, tea, carbonated beverages, decaffeinated coffee, chocolate drinks made from pure cocoa powder, flavoring extracts, and artificial flavorings.
Miscellaneous	Patients can consume salt, pepper, pure spices and herbs, yeast, cocoa powder, flavoring extracts, and artificial flavorings without any health effects.

Table 1: Foods that a celiac patient can eat without restrictions

### GLUTEN- FREE LIFE STYLE STRATEGIES:

Following are the lifestyle changes that a celiac patient should adopt to ease their life.

- 1: Cooking utensils used in the kitchen, such as cutting boards, forks, and knives, should be separated for a gluten-free diet and for those used for preparing a gluten-containing diet.
- 2: When you buy any medicine from the pharmacy, you should ask the pharmacist if the medicine contains any wheat or wheat byproducts. The same thing should be used for dietary supplements.
- 3: For any ready-made food items to be used, carefully read out their ingredients. Key ingredients to avoid are wheat, rye, barely, malt, and brewer's yeast.

4: When you are eating out, you should ask for the ingredients used in the preparation of that dish.

5: Most grocery stores nowadays have a number of food items that are labeled as gluten-free products, including;

- Gluten-free bread
- Gluten-free pasta
- Gluten-free sauces and condiments
- Gluten-free baked goods and desserts
- Gluten-free pretzels and crackers

For better results and management, patients should get complete knowledge about celiac disease, know the pros and cons of celiac disease, and get consultation from a dietitian

Food groups and their daily intake values	Foods To Avoid
Bread/chapati	All types of bread, samosa, biscuits, and nan are made from wheat, oats, or barely flour.
Cereal	All other food items that are manufactured using wheat, malt, and malt flavors, including noodles, spaghetti, vermicelli, and macaroni; wheat germ-containing breakfast cereals.
Vegetables	It includes vegetables which are available in the market as seasoned mixed vegetables, vegetables that are containing cream or cheese or cheese sauce. Precautions also should be considered for canned baked beans.
Fruits	It includes all commercial prefillings thickened with other than corn starch.
Milk or Dairy;(2 or more cups)	The patient should avoid malted milk and some commercial chocolate drinks.
Meat group including fish, poultry and eggs	Any type of cream or gravy thickened with wheat flour is not allowed to be eaten by the patient.
Cheese (use for both meat and milk group)	Any type of cheese that is manufactured from wheat gum or oat gum as its components.
Desserts	Patients should avoid commercial cakes, candies, especially chocolate cookies, pastries, commercially prepared sherbet cream cones, typical sweets like sheera, anything made from Suji like punjiri, and dishes that use double meetha, known as shahi tukry.
Beverages	The patient is not allowed to drink cereal beverages like malt or barely flavored drinks or commercially available chocolate milk. Products containing cocoa mixes, other beverage mixes, and dietary supplements containing any wheat component should be avoided.
Miscellaneous	The patient should carefully read when he is using commercially prepared pickles, meat sauces, and syrups that are used to give flavors to products like pan cakes or ice cream items because they can worsen patient health.

Table 2: Restricted foods for Celiac Patients

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