

Dietary Therapy for Celiac Disease: Suggestions for the Practical Application of the Diet Offered by Gastronomy

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Abstract

Celiac disease is an inherited disease. In this case, the protein found in the wheat, barley, rye, and oats (α -gliadin - the alcohol-soluble component of gluten) damages the small intestinal mucosa of the body. As a result of the damage, absorption is impaired. The only way to treat it is through diet, so it is imperative to completely avoid the gluten-containing products. These must be replaced by gluten-free products. The primary purpose of the manuscript is to formulate dietary recommendations for patients with celiac disease. In addition, dishes are prepared and presented that can be an active part of the diet (fried chicken with potato garnish; fruit smoothie with coconut drink; chicken with mixed vegetable salad; fried eggs with fried vegetables and extruded gluten-free cornbread). These foods can be used effectively as part of a gluten-free diet. We hope to provide useful information for the scientific community. In addition, we can contribute to the protection of their health.

Keywords: Celiac disease; α -gliadin; Gastronomy; Gluten-free diet; Gluten-free products; Healthy eating; Health preservation

Introduction

Wheat is recognized as the world's most popular cereal and its products can be consumed in a wide variety by the people of all religions [1]. Celiac disease is an inherited disease in which the α -gliadin in wheat, barley, rye, and oats damages the small intestinal mucosa of the body. This can cause serious complications. It is mentioned that the α -gliadin is an alcohol-soluble component of gluten. In addition to hereditary factors, the environmental factors also play a role in the development of celiac disease [2]. Classical symptoms, such as diarrhoea, abdominal complaints, developmental disorders, loss of appetite and psychiatric signs may help in diagnosing the disease. The diagnosis of celiac disease is the responsibility of gastroenterological centres. The gluten free diet is a way of treating the symptoms of celiac disease [3]. The essence of the celiac diet is to exclude the wheat, barley, rye, and oats; and also the foods made from these ingredients from the diet [4]. To replace gluten containing foods, gluten-free specialty products are also available to consumers for their use [5]. The primary purpose of our manuscript is to provide suggestions for a gluten free diet. Furthermore, with the possibilities offered by gastronomy, we prepare and present dishes. These foods can be a useful part of a gluten free diet to treat celiac disease. We hope that

with our manuscript, we can contribute to the development of the health and well-being of the scientific community.

Foods that can be used in a gluten-free diet

Gluten free meals and bakery products: The flour from the cereals (wheat, barley, rye, and oats) that are prohibited in the diet can be replaced by a number of other raw flours or starches. People can use other products, such as rice, potatoes, corn, soybeans, yellow peas and their flours in the diet. In addition, a number of ready-to-eat baked goods, pasta, and cake powder are available to the consumers that are gluten-free. The labelling of gluten free products has been uniformed (crossed-out wheat) and the term "gluten free" has also been used [6].

Fruits and vegetables: The fruits and vegetables work well in the diet as they do not contain gluten. Their vitamin and mineral contents are outstanding and the fiber they contain is also useful for the intestinal function. Semi-finished foods containing fruits and vegetables are not always gluten free [7,8].

Milk and dairy products: Most of the basic milk and dairy products can be used well in the diet. For other dairy products, gluten free labelling is required for the consumers [9].

Meats, fish, eggs: Meats, fish [10] and eggs are gluten-free foods. Meat products may contain gluten. Therefore, gluten free markings should be considered when selecting a product. The fats and oils also do not contain gluten, but their consumption needs to be limited according to the requirements of a healthy diet.

Before consuming spices, condiments, drinks, and other supplements, one make sure that these are gluten free. The successful therapy for celiac disease can only be achieved with a gluten free diet. However, the development potential of gluten-free products is becoming increasingly important [11].

The possibilities offered by gastronomy in implementing a gluten-free diet

In the next part of our manuscript, we prepare and present meals for the practical implementation of a gluten free diet (Figure 1-4). The composition of various food substances and nutritional values of each recipe/cuisine prepared by us is summarized below in each figure. These foods can be a useful part of daily gluten free diet. Only gluten free product was used in the preparation of each dish and potatoes or corn were used to replace the gluten containing ingredients.



Ingredients: Chicken 80 g, oliveoil 5 g, potato 80 g, vegetables 100 g; Energy: 252.6 Kcal, Protein: 19.7 g, Fat: 10 g, Carbohydrate: 19 g

Figure 1: Fried chicken with potato garnish (Own cuisine)



Ingredients: Banana 100 g, gluten free plant based drink 2 dl; Energy: 163 Kcal; Protein: 1.7 g; Fat: 1.7 g; Carbohydrate: 27.4 g

Figure 2: Fruits moothie with coconut drink (Own cusine)



Ingredients: Chicken 80 g; vegetable salad 250 g; Energy: 147 Kcal; Protein: 22.2 g; Fat: 1.3 g; Carbohydrate: 10.4 g

Figure 3: Chicken with mixed vegetable salad (Own cuisine)



Ingredients: Olive oil 5 g, eggs 2 pieces, vegetables 200 g, gluten free extruded cornbread 2 pieces; Energy: 280 Kcal; Protein: 16.4 g; Fat: 15.3 g; Carbohydrate: 15.5 g

Figure 4: Fried eggs with fried vegetables and extruded gluten-free cornbread (Own cuisine)

Conclusion

Celiac disease is an inherited disease that can be treated with a gluten-free diet. The essence of the diet is that barley, wheat, oats, and rye and the products made from them should be excluded from the daily diet. These products can be replaced with other items like corn, rice, yellow peas, potatoes, and soy.

By following a complete diet, the symptoms and complications of celiac disease can also be prevented. In our manuscript, we first presented the characteristics of a gluten-free diet, and then we prepared and presented food that can be used in practice. These foods can be supplements to our daily gluten-free diet. By presenting the food, we prepared a gap-filling study. We also considered it important to highlight the labeling requirements for gluten-free products in the present study. These products

are guaranteed to be safe for diet followers. It is hoped that with our manuscript, we can contribute to the protection of the health of the scientific society and thus to its well-being.

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Contribution of authors

Both the authors contributed equally. They read the final version, and approved it for the publication.

Conflict of interest

The authors declare that they do not have conflict of interest.

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