

# Role of the Diet for Nutritional Status in Child With Gluten Enteropathy

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## Abstract

The described case refers to a child with gluten enteropathy. Strict adherence to the diet by avoiding hidden gluten in ready-to-eat food products and preventing contamination of gluten-free foods with tiny amount of gluten leads to optimal growth and development of the child and prevention of disease complications.

**Keywords:** BMI; Celiac disease; Child

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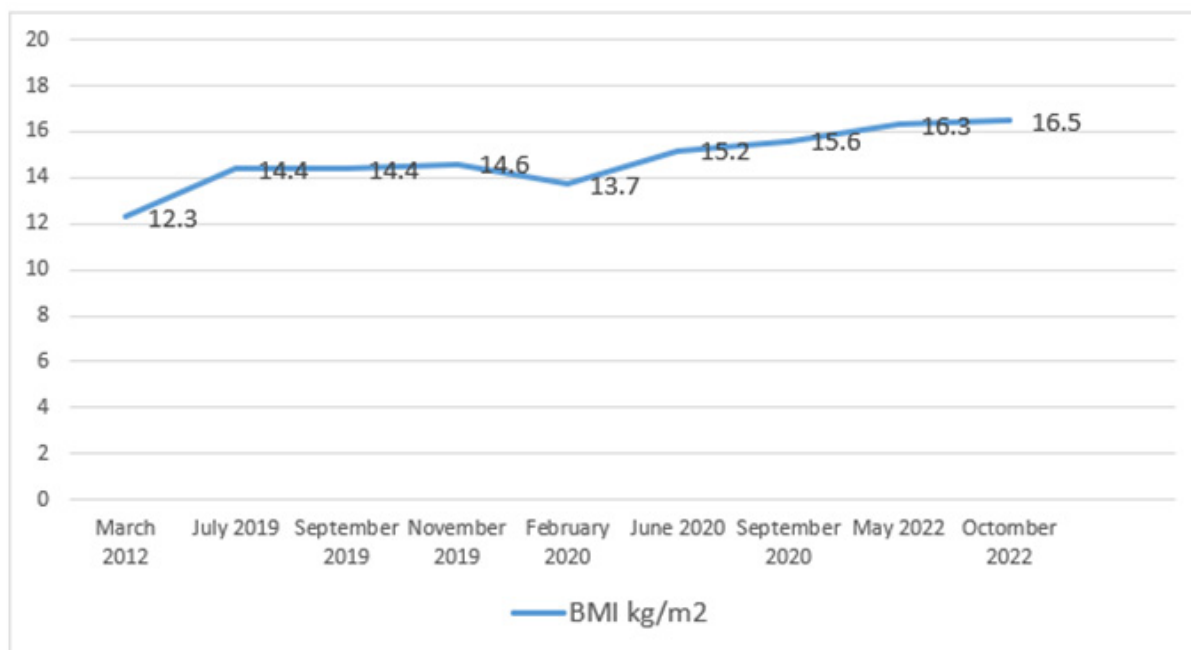
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## Introduction

Celiac disease is a chronic immune-mediated condition and requires adherence to a strict life-long gluten-free diet [1]. Celiac disease is characterized by the body's reaction to the protein gluten and related proteins from wheat, rye, barley and oats in genetically predisposed people [2]. The disease causes disorders of intestinal absorption resulting from chronic small-intestinal mucosal injury or villous atrophy in small intestine. Changes in the mucosa lead to impaired intestinal function with signs of malabsorption or impaired digestion and absorption of nutrients [3]. The characteristic clinical manifestations of the disease include diarrhoea, abdominal distension and flatulence with pale and foul-smelling stools, abdominal pain and recurrent vomiting. Nutritional deficiencies are often seen [4].

## Case History

A 10-year-old child born to mother with a pathological pregnancy and by operative delivery. Since June 2017, the child has been diagnosed with celiac disease. The follow-up of the child since then has shown as follows: strict adherence to a gluten-free diet, optimal physical development, chronic iron-deficiency anemia, vitamin D deficiency, as a complete blood count and ferritin are examined every three months and an iron preparation is included, if necessary. Since June 2020, celiac disease has been in remission. The objective condition shows preserved general health, normal physical and mental development, the complete blood count is normal. Therapy includes a gluten-free diet and vitamins. The last time when the child was examined by a pediatric gastroenterologist was in October 2022 with a main diagnosis: Celiac disease; preserved condition, with moderate obesity, preserved turgor, soft abdomen without organomegaly, being on an effective gluten-free diet. The assessment of nutritional status was done by determining the Body Mass Index (BMI) based on the child's weight of 32kg and height of 139cm [5]. The calculated values were compared with WHO (2007) standards and criteria. Document tracking of the child's nutritional status based on the data obtained from the child's ambulatory medical records is presented in Figure 1.



**Figure 1:** Evaluation of the child's nutritional status based on BMI for the period 2012-2022.

## Discussion

The only treatment for gluten enteropathy is the implementation of a strict life-long gluten-free diet, which excludes any grains that contain gluten [6]. In people with celiac disease, consuming even very small amounts of gluten can result in adverse reactions and symptoms in body, which requires adherence to a strict gluten-free diet and exclusion of all possible sources of gluten throughout life. Grains that are sources of gluten, such as wheat, barley, rye, and all products made from them or containing them, should be excluded from the diet of children with gluten enteropathy [7]. Not only gluten-containing grains should be excluded from the children's diets, but also the absence of the so-called hidden gluten in foods, beverages and spices should be guaranteed. During the manufacture of many foods, food items are added for a technological purpose, as wheat products-a thickener, etc., which is why gluten can be found in minimal quantities in them or accidentally enter as an impurity (e.g., gluten in corn starch, powdered sugar, meat or dairy products etc. [8]. The diet of children with gluten enteropathy should be based on the principles of healthy eating [9]. It must be complete, balanced and varied nutrition, meeting the needs of energy and nutrients according to the physiological norms for nutrition of the population in Bulgaria and the regulations of the Ministry of Health for the feeding scheme of children at the relevant age [10].

A specific approach when creating a menu for children with gluten enteropathy is the selection of included grains and cereals- they must not contain gluten. Grains and seeds that do not contain gluten and can be used in the celiac disease diet are rice, corn, millet, buckwheat, quinoa, amaranth, chia, etc. Potatoes, all vegetables and fruits, legumes, nuts, meat, fish, eggs, milk, dairy products, fats, sugar and honey are gluten-free and can be used together with

gluten-free grains and cereals to create a healthy and complete diet for children with celiac disease.

## Conclusion

The follow-up of the body mass index of the child shows that in all those years since the discovery of the gluten enteropathy disease in 2017 until now the child has normal growth and development, as the BMI is normal according to WHO standards and criteria. It is necessary to ensure the strict avoidance of hidden gluten in ready-to-eat food products and to protect gluten-free foods from contamination with small amounts of gluten in order to achieve optimal growth and development of the child and to prevent complications caused by gluten enteropathy.

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