

# The Role of Lactose-Free Diet in the Treatment of Lactose Intolerance Using Gastronomy

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## Abstract

Lactose is a water-soluble disaccharide (sugar component) of milk or dairy products and that is broken down by the enzyme  $\beta$ -galactosidase (lactase). In the case of lactose intolerance, there is a complete or partial deficiency of the lactase enzyme in the human body. Lactose intolerance is the most common food intolerance worldwide. A special lactose-free diet plays a prominent role in its treatment. Firstly, the manuscript makes suggestions for a lactose-free diet. Furthermore, we prepare dishes that can be well integrated into the diet with the practical application of gastronomic science (pancakes with a plant-based drink, jam; home-made pizza with lactose-free cheese; lactose-free sandwich variations; bolognese spaghetti with lactose-free cheese; pudding with lactose-free milk and fruit; chicken with vegetable garnish and lactose-free mozzarella). We also explore a significant and gap-filling study with the practical application of the manuscript for the global scientific community. We hope to contribute to the health of researchers, scientists, and thinkers globally.

## Keywords

Gastronomy Science, Healthy Nutrition, Lactose Enzyme, Lactose-Free Diet, Lactose-Intolerance, Milk and Dairy Products

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## 1. Introduction

Lactose is a sugar component in milk and dairy products that is a water-soluble disaccharide (glucose + galactose). It is absorbed in monosaccharide form in the small intestine. It is broken down by the enzyme lactase. Lactose intolerance is a complete or partial absence of lactase enzyme [1, 2]. There may be several reasons for the lack of the lactase enzyme. Its amount also varies according to age and ethnicity. It most commonly occurs in young adulthood; and it highly depends on the intestinal lactase levels and the amount of consumed-lactose. The secondary lactase deficiency develops as a result of acute or chronic diseases. These diseases include acute gastroenteritis, celiac disease, food allergies, inflammatory bowel disease, immune deficiencies, and abdominal surgery. The congenital lactase deficiency is a congenital metabolic disease, so there is no detectable lactase enzyme in the intestinal wall at birth [3]. The disorder is manifested by severe diarrhea [4]. Firstly, we make suggestions for nutritional therapy for lactose intolerance in our communication. Furthermore, these proposals are put into practice with the help of gastronomic science. We hope that we can contribute to the protection of the health of the scientific society with the manuscript.

## 2. Dietary recommendations used as part of the treatment of lactose intolerance

Diet plays a prominent role in the treatment of lactose intolerance. Therefore, the milk and dairy products are excluded from the diet and can be replaced by lactose-free milk and dairy products [5, 6]. In addition, enzyme replacement may be part of the therapy. The plant-based beverages and products are also alternatives to the milk substitutes (soy, oilseeds) [7, 8]. Furthermore, diet follows the basics of healthy eating. When consuming cereals, the primary con-

sideration is that the product does not contain milk and dairy products. It is mentioned that fats, oils, meats, fishes and eggs do not possess lactose. The consumption of meat products requires increased attention. The vegetables and fruits also do not contain lactose. It is recommended to consume them in various forms with each meal. When consuming sweet, care should be taken in the selection or preparation of lactose free products [9, 10].

### 3. The role of gastronomy in a lactose-free diet

The main purpose of our manuscript is to prepare and present dishes (Figures 1-6). These foods contribute to a stable adherence to a lactose-free diet, thereby, protecting the health of the consumer.



**Figure 1. Pancakes with plant-based drink, jam (Own cuisine).**



**Figure 2. Home-made pizza with lactose-free cheese (Own cuisine).**



**Figure 3. Lactose-free sandwich variations (Own cuisine).**



**Figure 4. Bolognese Spaghetti with lactose-free cheese (Own cuisine).**



**Figure 5. Pudding with lactose-free milk and fruit (Own cuisine).**



**Figure 6. Chicken with vegetable garnish and lactose-free mozzarella (Own cuisine).**

#### **4. Conclusion**

Lactose is a water-soluble disaccharide present in the milk and dairy products and is broken down by the enzyme lactase. Intolerance develops due to the complete or partial absence of the enzyme. Diet plays a prominent role in the treatment of lactose intolerance. The milk and dairy products should be avoided in the special diet, instead, it is recommended to consume plant-based drinks and products or lactose-free milk and dairy products. It is also very imperative to give preference to lactose-free cereals. The meat, eggs, fish, fats, oils, vegetables, and fruits do not contain lactose.

The selection and preparation of meat products and sweets requires careful attention. The primary purpose of our manuscript is to present dietary recommendations. After that, we prepared dishes with the practical application of the science of gastronomy. These foods are great for use as part of a nutritional therapy for lactose intolerance. It is hoped that our manuscript will certainly contribute to the well-being and health promotion of the global scientific community.

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## Author's Contribution

All the authors contributed equally.

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## Conflict of Interest

The authors declare that they have no conflict of interest.

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