

Food Neophobia

Subjects: Physiology | Others

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Food neophobia is the tendency to reject or be reluctant to try new and unfamiliar foods. Due to the period of its occurrence, which falls in the years of early childhood, it can significantly affect the child's food choices, shape taste preferences, and significantly influence the quality of the child's diet.

Keywords: feeding neophobia ; feeding difficulties

1. Epidemiology of Food Neophobia

Difficulties in defining and differentiating food neophobia pose problems in obtaining epidemiological data. According to Faith et al., it affects 40% of children aged 4–7 years diagnosed with CFNS ^[1]. In a study by Antoniou et al., the problem affected 14% of children aged 5–9 years (CFQ) ^[2]. In contrast, Johnson et al. diagnosed neophobia in 44% of 4-year-olds (CFNS) ^[3]. The most sensitive period for neophobic behavior toward food is observed in children before the age of 2 years. However, the emergence of neophobia earlier is not excluded—even in the first year of life the so-called early neophobia. Between the ages of 2 and 6, when an increase in the child's independence and autonomy concerning food choices is observed, one speaks of so-called developmental neophobia, which is a natural stage of development (**Figure 1**).

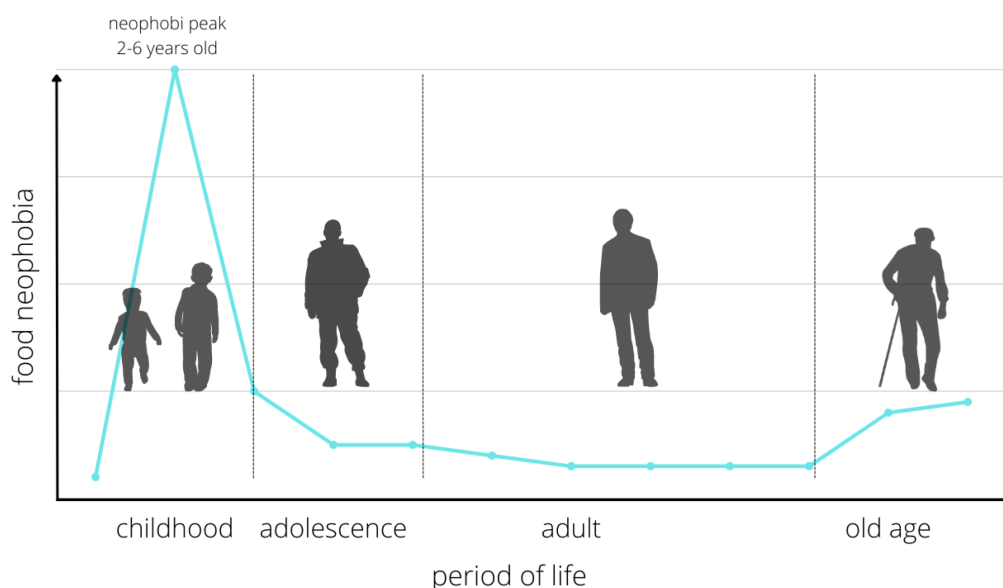


Figure 1. Changes in the level of nutritional neophobia in different periods of life. Source: Own elaboration based on Koziol-Kozakowska and Piórecka (2013, p. 2).

In a Polish population-based study, one in every tenth child was diagnosed with high levels of food neophobia, with the highest percentage observed in the age group of 5–6 years. Most studies confirm that the occurrence of food neophobia is independent of gender ^{[4][5]}. To compare the relative contribution of genetic and environmental influences on the occurrence of neophobia, studies of pairs of pediatric twins were conducted. The results revealed a significant contribution of genetic factors to the development of food neophobia, with heritability estimated at 78% in children aged 4–7 years and 72% in children aged 8–11 years. The only study on adult twins showed a comparably high heritability ^[6].

2. Food Neophobia

The terminology of feeding, eating, and nutritional problems is relatively extensive. Food selectivity, food neophobia, picky eating, food aversion, and food avoidance/restriction are all terms that have one common denominator for parents—"my

child does not eat". However, there is much more to this term than the mere fact of not eating enough (in the parents' opinion), which is very often heard by dietitians in their offices [7][8].

The terms that describe problems related to food intake are not the same. Some of these terms include eating and nutrition disorders, some include difficulties with food intake of various etiologies, and some refer to behaviors that are a natural developmental stage in the child's life. Incorrectly interpreted—both by parents and specialists—they introduce chaotic behavior, which, inadequate to the condition, may cause serious health consequences or reinforce undesirable behaviors [9].

Eating behavior is determined by many factors, including biological, anthropological, economic, psychological, socio-cultural, and home-related factors, and their influences compete, reinforce, and interact with each other and are shaped by the individual situation of the family [10].

One of the child's eating behaviors that cause parents great concern is food neophobia. Food neophobia is characterized by the child's rejection of foods that are new or unfamiliar, both visually and in terms of taste [11][12]. Neophobic behaviors can appear, to a small extent, as early as the first year of life, but most often intensify between 18 and 24 months of age, which is related to the child's increased mobility. This is a stage that should eventually resolve spontaneously. It is worth noting that the period of food neophobia overlaps, as it were, with the time when the child's rate of growth and development begins to slow down. It is also the period when the child begins to express its autonomy, often during a meal. The severity of food neophobia changes throughout the individual's life and is modulated by various factors. It manifests itself most in children and probably prevents them from experimenting and thus experiencing different foods [13][14].

According to the Chatoor classification, food neophobia is included in the group of feeding disorders—selective eating. Selective eating, in turn, is included in the broader group that is sensory food aversions [15].

Feeding disorders occur when a child refuses or avoids eating and is unable to eat due to behavioral disorders, neurological disorders, anatomical abnormalities of the gastrointestinal tract, as well as comorbidities of the cardiovascular system, respiratory system, genetic, metabolic, or allergic diseases [16]. Feeding disorders consequently lead to health deterioration as a result of chronic insufficiency of nutrients and energy necessary for development. Feeding disorders may require pharmacological treatment and often parallel therapy, carried out by a multidisciplinary team that should include a pediatrician/gastroenterologist, a clinical dietitian, a psychodietitian, a neurologist, and a psychologist.

Food neophobia, which is a natural stage of development, requires neither treatment nor therapy if it runs its natural course. However, it requires education from a specialist and understanding on the part of the parent. Then, without reinforcing the undesirable parental behaviors, this stage spontaneously passes [7][13][12].

3. Causes of Food Neophobia

The source of food neophobia can be traced back to evolution when a neophobic attitude protected mammals from consuming potentially poisonous food [17]. As an omnivorous species, to survive, humans had to distinguish between safe and poisonous food. Although this ability has lost its value today, it can still be observed in children around 2 years of age (sometimes earlier), when unfamiliar foods or foods served differently than before cause anxiety in the child, and a relative preference for familiar foods is apparent [18][19].

Although neophobia is genetically determined, it is above all environmental factors that underlie individual differences in taste preferences [18][19]. The genetic factors influencing food choice involve taste receptors, which can influence the differential perception of sweet, umami, or bitter tastes, depending on differences in individual genes. Hence, some children are more tolerant of bitter-tasting green vegetables such as broccoli or cabbage, while others will not be bothered by them, and some will reject these foods at the mere sight of them [19].

Food neophobia can be inherited or shaped by the environment in which the child is raised. The social environment, family, and peers, may allow children to show their personality through eating behavior and thus follow their tendency toward food neophilia or neophobia [20]. Parents, predominantly mothers, who play a crucial role in shaping children's eating behavior [21], may pass on the tendency toward food neophobia to their children [22]. Therefore, understanding food neophobia in adults is important to prevent its health effects in this group but also because of its possible impact on people, especially their children [23].

Food preferences are highly variable, with the result that aversion to eating new foods and those less accepted may be reduced in the child. This is influenced by several different factors, which include the diet during pregnancy and lactation [24], or the mode of exposure and its repetition [19]. These are important factors that may indirectly influence feeding difficulties and the course of food neophobia, which, depending on individual characteristics, may proceed unnoticed [19] [24].

Sensory characteristics have been singled out as one of the most influential determinants of eating behavior, and among these, textures are the main reason for food rejection or acceptance in children [25][26][27]. Certain textural characteristics have been shown to induce food rejection through disgust even before tasting in children [18]. The sounds accompanying the disintegration of food in the oral cavity, due to their texture and structure, can influence its acceptance or lack thereof [28]. Regarding foods, hard, lumpy, and grainy textures are generally less acceptable to children of all ages [27]. Sensory sensitivity, also known as sensory over-reactivity, can be defined according to an individual's response to sensory information, including, but not limited to, taste, touch, sight, and smell. This phenomenon can be considered part of the pickiness that causes children to accept less variety in foods presented by their parents and loved ones [28].

Food preferences and aversions are shaped by the chemosensory system that underlies taste perception [29]. The mechanism through which the researchers learn and modulate food preferences and aversions is represented by repeated exposure, but only if it involves actual tasting [30]. Food neophobia appears to be an extremely complex attitude, the strength of which changes throughout life and is modulated by many different factors [31]. The quality of a person's diet is strongly influenced by their attitudes toward food (and new foods in particular) and has a considerable impact on their health and well-being [32].

One of the most important factors in the whole process of feeding is the feeding style used. As shown in a study by Meijing et al. [33], the following factors mainly influence the course of neophobia: urging the child to eat with a definite refusal from its side, unpleasant emotions during the meal (e.g., nervousness of the parent, stress, crying of the child), and high level of neophobia in the mother. Similar conclusions were reached by de Oliveira Torres et al. In a systematic review of the literature, stating that the level of neophobia in children is influenced by the eating habits of the parents, the inborn preference of children for sweet and salty tastes, the inadequate consistency to the child's psychomotor skills, parental pressure during meals, the failure to read signals concerning hunger and satiety or monotony in child nutrition, etc. [34].

Food neophobia, on the one hand, is a natural stage in development, while on the other, its occurrence can influence the perpetuation of inappropriate behaviors. Therefore, if the neophobic behavior does not disappear but even becomes more intense, appropriate intervention should be undertaken. Factors influencing food neophobia are very diverse; therefore, as in the case of eating disorders, the patient should be dealt with by a team of specialists including a pediatrician/gastroenterologist, clinical dietitian, neurologist, psychologist, sensory integration therapist, feeding therapist, etc. [27][28][33][34].

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