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Research Review

Food neophobia and 'picky/fussy' eating in children: A review

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Abstract

Two factors have been shown to contribute to rejection or acceptance of fruits and vegetables: food neophobia and 'picky/fussy' eating. Food neophobia is generally regarded as the reluctance to eat, or the avoidance of, new foods. In contrast, 'picky/fussy' eaters are usually defined as children who consume an inadequate variety of foods through rejection of a substantial amount of foods that are familiar (as well as unfamiliar) to them. Through understanding the variables which influence the development or expression of these factors (including age, personality, gender, social influences and willingness to try foods) we can further understand the similarities and differences between the two. Due to the inter-relationship between 'picky/fussy' eating and food neophobia, some factors, such as pressure to eat, personality factors, parental practices or feeding styles and social influences, will have similar effects on both magnitude and duration of expression of these behaviours. On the other hand, these constructs may be differentially affected by factors such as age, tactile defensiveness, environment and culture. The effects of these variables are discussed within this review. Behavioural interventions, focusing on early life exposure, could be developed to attenuate food neophobia and 'picky/fussy' eating in children, so promoting the ready acceptance and independent choice of fruits and vegetables.

Keywords: Children's eating; Food neophobia; 'Picky/fussy' eating; Social facilitation

Contents

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Introduction

Despite comparative wealth and general affordability of foodstuffs in the Western world, concern has arisen over the composition and lack of diversity seen in some children's diets. Some authors have suggested that the lack of dietary variety in children's diets is directly associated with intake of certain foodstuffs. Specifically in these children, intake of fresh produce such as fruits and vegetables is replaced by unhealthy processed foods characterised by their high hedonic value that results from their sugar, fat and salt content (Dennison, Rockwell, & Baker, 1998; Fisher & Birch, 1995). This limited but energy dense (and presumably) hyper-caloric diet is widely considered to be a key contributing factor to the rise in the rates of childhood obesity (Falciglia, Couch, Gribble, Pabst, & Frank, 2000; Rigal et al., 2006) as well as the increase in the prevalence of non-communicable diseases (e.g. type II diabetes) in children (Kaufman, 2002). Thus, Western health care systems are faced with the strange paradox of excessive childhood weight gain accompanied by essential nutrient deficiency in a substantial part of their patient population (Carruth et al., 1998).

Although the recommended daily intake of fruit and vegetables varies between countries, the general suggestion is that children, as well as adults, should consume at least five portions a day (Lassen, Thorsen, Trolle, Elsig, & Ovesen, 2003; Steinmetz & Potter, 1996). However, the consistent picture is that many children do not consume the recommended number of portions of fruit and vegetables and therefore are not getting sufficient micronutrients and fibre essential for normal healthy development. Worryingly, there appears to be no sign of an improvement in consumption of fruits and vegetables by children, despite ubiquitous 5-a-day messages and small increases among some adult populations (Cockroft, Durkin, Masding, & Cade, 2005; Sproston & Mindell, 2006). Not only is the diet of these children deficient, but they may also be learning inappropriate feeding behaviours and food choices from significant others (Cullen, Rittenberry, Olvera, & Baranowski, 2000). Given that these early eating habits may be predictive of those in adulthood (Kelder, Perry, Klepp, & Lytle, 1994), they will ill-protect the child now, and, in the future, from the obesigenic environment into which they have been born.

In an effort to deal with this issue, both Government and media have focused on increasing the fruit and vegetable consumption of children. This focus has generally raised awareness of the benefits of healthy consumption of fruit and vegetables within Western populations. However, attempts to instil more appropriate feeding behaviour in children can prove difficult. Infants' innate food preferences and their development of taste perception provide an inbuilt barrier to the acceptance of certain types of foods. Thus, it may often be counterproductive to push a child to consume when they are rejecting novel foods offered to them (Galloway, Lee, & Birch, 2003). A stressful feeding encounter is not likely to stimulate a positive response from the child to novel and/or aversive tasting foods (Fisher & Birch, 1999; Francis, Hofer, & Birch, 2001; Johnson & Birch, 1994). Indeed, positive parental child-feeding style is integral to overcoming a child's natural rejection of novel foods.

To persuade any child to adopt healthier food choices requires interventions that consider the complex interplay between innate and rapidly acquired taste preferences (Desor & Beauchamp, 1986; Rozin, 1979; Visser et al., 2000), cognitive ability or attention span (El-Chaar, Mardy, Wehlou, & Rubin, 1996), cultural norms (Kannan, Carruth, & Skinner, 1999), parenting style/pressure (Galloway, Fiorito, Lee, & Birch, 2005), parental dietary preferences and eating behaviours (Fisher, Mitchell, Smiciklas-Wright, & Birch, 2002; Gibson, Wardle, & Watts, 1998). However, arguably the strongest psychological barriers to increasing a child's dietary variety are food neophobia (Birch & Fischer, 1998; Falciglia et al., 2000) and 'picky/fussy' eating (Galloway et al., 2003). This review will focus on these concepts and in what way they affect a child's diet.

Food neophobia has been identified as an inherent adaptive personality trait (Milton, 1993). It is defined as the rejection of foods that are novel or unknown to the child, while 'picky/fussy' eating is the rejection of a large proportion of familiar (as well as novel) foods resulting in a habitual diet characterised by the consumption of a particularly low variety of foods. Essentially, food neophobia is an integral constituent part or a subset of the 'picky/fussy' eating. Evidence within the literature suggests that they are behaviourally distinct, with different factors predicting the severity and expression of these two constructs (Galloway et al., 2003; Potts & Wardle, 1998; Raudenbush, van der Klaauw, & Frank, 1995); however, some papers suggest they are highly related (Pelchat & Pliner, 1986; Pliner & Hobden, 1992). Operational definitions for these two behaviours will be offered in each of the following sections. Although they both have been suggested to be independent personality traits, food neophobia and 'picky/fussy' eating have also been shown to be state dependent, i.e. depending on age and environment (Pelchat & Pliner, 1995). This age-specific influence on an alleged stable personality trait (Monneuse et al., 2004) may suggest it is not a trait at all; rather it might be an age-dependent state (Rigal et al., 2006), which with the proper instruction could be discarded as the child develops.

The need to influence children's food choices demands an understanding of the developmental factors that impede their acceptance and consumption of fresh fruit and vegetables. Integral to developmental influences are factors such as food neophobia and 'picky/fussy' eating. The nature of the interaction between these two behaviours needs to be understood, along with the identification of their constituents. Finally, consideration about what factors sustain 'picky/fussy' eating through the different