

## **The Importance of Improving the Nutritional Quality of Packed Lunches in U.S. Schools**

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### **ABSTRACT**

Schools represent an ideal venue to influence dietary habits of large numbers of children. While the National School Lunch Program (NSLP) is mandated to meet clear nutrition standards for calories, whole grains, fruits, vegetables, milk, sodium, fat, and saturated fat, there are no nutritional requirements for packed lunches. This Current Issue provides a brief background on the NSLP and research on packed lunches in U.S. schools and internationally in the context of the childhood overweight and obesity epidemic. More research is needed to understand child and parent motivations for bringing packed lunches instead of participating in the NSLP and decision making around which foods items are included. A multidimensional approach is needed to improve the nutritional quality of lunches consumed at schools. School health professionals in partnership with school administrators can play a critical role in strengthening school wellness policies and implementing nutrition education initiatives for children and parents.

**Keywords:** packed lunch, National School Lunch Program, Healthy Hunger-Free Kids Act

### **INTRODUCTION**

Dietary factors associated with childhood obesity include consuming sugar-sweetened beverages (SSBs) and maintaining a high energy and fat, low fiber diet. SSB consumption has increased across youth of all ages (Wang, Bleich, & Gortmaker, 2008), and nearly 40% of total energy consumed by children and adolescents is in the form of solid fats and added sugars (SoFAS) (Reedy & Krebs-Smith, 2010).

Fruit and vegetable intake for children are below recommended levels, decreasing with age (Faith, Dennison, Edmunds, & Stratton, 2006; Guenther, Dood, Reedy, & Krebs-Smith, 2006; Lorson, Melgar-Quinonex, & Taylor, 2009; Mannino, Lee, Mitchell, Smiciklas-Wright, & Birch, 2004). Additionally, only 30% of children ages two and older consume the recommended amount of dairy and a mere 15-20% of children and adolescents consume recommended levels of whole grains (Briefel & Johnson, 2004; Lee, 2011).

With over 50 million children attending public elementary and secondary schools in the United States daily, schools are an ideal venue to positively influence dietary habits of large numbers of children (Crawford, Gosliner, & Kayman, 2011; Johnson, Bednar, Kwon, & Gustof, 2010; Lee, 2011).

### **NSLP**

Roughly 95% of public schools, and some private schools, participate in the National School Lunch Program (NSLP) (U.S. Department of Agriculture [USDA], Food and Nutrition Service [FNS], 2012). NSLP nutrition standards are updated periodically based on emerging nutrition

science. The 2010 Healthy, Hunger-Free Kids Act (HHFKA) made significant changes to school meal patterns and nutrition requirements (Healthy, Hunger-Free Kids Act, 2010).

The revised standards require schools to increase fruits, vegetables, whole grains, and fat-free and low-fat fluid milk availability; reduce sodium, saturated fat and trans fat levels; and meet the nutrition needs of school children within their calorie requirements (Institute of Medicine, 2007; USDA-FNS, 2012). The changes to school meals were intended to improve school-aged children's diet quality and health while curbing childhood obesity levels (USDA- FNS, 2012).

### **Packed Lunches**

While the HHFKA is designed to improve the school food environment, relatively few efforts focus on the nutritional quality of packed lunches. Overall, existing research suggests packed lunches are of lower nutritional quality than those offered in the NSLP. Packed lunches are less likely to have fruits, vegetables, and dairy and are higher in fat, saturated fat, sodium and sugar than school lunches (Emmons, 1972; Johnson et al., 2010; Johnson & Jensen, 1984; Melnik, Rhoades, Wales, Cowell, & Wolfe, 1998; Pearce, Harper, Haroun, Wood, & Nelson, 2011; Perry, 1984; Rees, Richards, & Gregory, 2008; Rogers, Ness, Hebditch, Jones, & Emmett, 2007; Stevens & Nelson, 2011; Stevens, Nicholas, Wood, & Nelson, 2013; Wolfe & Campbell, 1993).

Three recent U.S. studies have shown packed lunches to have lower nutritional quality than NSLP lunches. A 2011 analysis of over 600 lunches of elementary school children in six Eastern Massachusetts public school districts showed that only 27% of packed lunches met at least three of five NSLP standards (Hubbard, Must, Eliasziw, Folta, & Goldberg, 2014). Also in 2011, an observational study conducted in 12 schools in Texas with intermediate and elementary students found that packed lunches contained more sodium, fewer fruits, vegetables, whole grains and milk (Caruso & Cullen, 2014). Most recently, a 2012 observational study analyzed the packed lunches of over 550 pre-kindergarten and kindergarten children in rural Virginia and found that 61% of packed lunches contained a dessert item, and 40% contained a sugar-sweetened beverage, while NSLP lunches contained no dessert or sugar-sweetened beverage items. The NSLP lunches also contained more sodium, fruits, vegetables, and dairy (Farris et al., 2014). The literature suggests packed lunches may contribute to poor dietary quality and higher risk of childhood obesity (Drewnowski & Bellisle, 2007; Emmons et al., 1972; Hubbard et al., 2014; Johnson, Mander, Jones, Emmett, & Jebb, 2008; Johnson & Jensen, 1984; Johnston, Moreno, El-Mubasher, & Woehner, 2012; Kant, 2003; Melnik et al., 1998; Perry, 1984; Rees et al., 2008; Rogers et al., 2007; Stevens et al., 2013; Vartanian, Schwartz, & Brownell, 2007; Wolfe & Campbell, 1993).

Child taste preferences, cost, food allergies, limited menu options, lunch service capacity, time allotted for eating (i.e., not wanting to wait in long lines to receive a meal), parents desire to provide lunch for their children, or the perception that packed lunches are of a better nutritional quality than school meals may influence the decision to bring a packed lunch from home (Griffin & Barker; 2008; Johnson et al., 2010; Nelson, 2011). A perceived social stigma for free or reduced-price lunch program participation may impact some students decision whether to pack lunch or participate in the NSLP or School Breakfast Program (Bhatia, Jones, & Reicker, 2011; Freeman, Macias, Narayna, Ng, & Yang, 2012). Efforts to reduce this stigma should be considered. For example, free school meals were provided to all six and seven year-olds in England beginning in September 2014 (Naughton, 2014). In the U.S., as publicized by Let's Move!, the Community Eligibility Provision of the HHFKA allows for 22,000 schools serving

primarily low-income students to provide universal school lunch (USDA Office of Communications, 2014). Universal school lunch may also increase NSLP participation by reducing the burden on individual households and schools applying for free and reduced-priced lunch programs. Additional research is needed to determine the relationship between perceived social stigma and participation rates (Bailey-Davis et al., 2013; USDA Food and Nutrition Service, 2012).

## **RECOMMENDATIONS FOR RESEARCH AND PRACTICE**

Numerous studies have called for increased attention to and interventions to improve the nutritional quality of packed lunches (Evans, Greenwood, Thomas, Cleghorn, Kitchmen, & Cade, 2010; Johnston et al., 2012; Ohri-Vacahspati, 2014; Pearce, et al., 2011; Prynne et al., 2011; Rees et al., 2008; Rogers et al., 2007; Stevens & Nelson, 2011; Sweitzer et al., 2011). Parents reported lack of knowledge as a barrier for identifying healthy food options and a desire for handouts, recipes, interactions with other parents, workshops and support for packing healthy lunches (Burgess-Champoux, Marquart, Vickers, & Reicks, 2006; Sweitzer et al., 2011).

Very few interventions have attempted to increase the nutritional quality of packed lunches. Evans et al. (2010) found moderate increases in fruit and vegetable consumption, decreases in savory snacks in packed lunches, but little improvement in nutrient profile by providing 8 to 9 year-old children in the U.K. with lunch boxes, bags and educational materials (Evans et al., 2010). Sweitzer et al. (2010) implemented an education-based intervention for parent and pre-school-aged child dyads which also included teacher training. The intervention group increased vegetables and whole grain servings but not fruit offered in preschool children's packed lunches (Sweitzer, et al., 2010). Bell et al. (2014) had considerable success introducing a program to support healthy eating in 240 Australian center-based child care services (Bell et al., 2014). The research team provided staff training, support, monitoring and feedback with incentives to implement the program. Intervention sites were more likely to engage parents in nutrition programming, set policies on packed foods, and comply with healthy eating guidelines than non-intervention sites (Sweitzer et al., 2011).

School wellness policies provide an opportunity for engaging in collaboration between the home and school environment to support the adoption of healthful behaviors (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008). Collaborating with parents in decision-making allows for buy-in and lessens the negative effects of implementing food policy changes (Perlman et al., 2012). Additionally, schools are encouraged to involve parents and students as key stakeholders in ensuring a healthy school environment (USDA-FNS, 2012), and parents have previously shown interest in partnering with schools to improve lunches (Sweitzer et al., 2011).

The regulation of food items in packed lunches is not currently embraced in the U.S., but there are precedents in other countries for such regulations. Overseas, parents tend to support potential policies to improve the quality of meals (Pettigrew, Pescud, & Donovan, 2012; Van Asnem, Schrijvers, Rodenburg, Schuit, & van de Mheen, 2013). Examples include nutrition policy on home-packed foods at Australian center-based child care services, mandatory vegetarian days to promote sustainability in Helsinki schools, and junk food-free days in Canadian schools (Bell et al., 2014; Lombardini & Lankoski, 2013; Browning, Laxer, & Janssen, 2013).

School health professionals can help design evidence-based, parent-focused programs, emphasizing the contribution and importance of meals in meeting daily dietary guidelines and promoting optimal learning. Providing parents with simple, cost-effective strategies to improve the dietary quality of packed lunches while balancing children's taste preferences is warranted. Future work to influence the nutritional quality of both packed and NSLP lunches, should include 1) further research on determining who drives decision making for packed lunches and what factors motivate food choices (such as cost, convenience, peer influence, food preferences, etc.), 2) research on the impact of the HHFKA standards on food choices and parent perception and acceptance of regulations, 3) campaigns and/or interventions to encourage participation in the NSLP, 4) nutrition interventions to encourage the inclusion of healthier food items in packed lunches, and 5) incorporating goals related to the quality of packed lunches into school wellness policies along with parent acceptance of such goals or policies.

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