

## **USE OF FOOD REWARDS IN EDUCATION: TIME TO DE-IMPLEMENT THIS PRACTICE?**

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### **ABSTRACT**

Children and adolescents often have poor dietary habits, including consumption of excess energy-dense foods and beverages (e.g., cheese pizza, sugar-sweetened beverages) and insufficient consumption of nutrient-dense foods and beverages (e.g., whole grains, fruits, vegetables, fish, dairy). Such dietary habits may interfere with academic learning and create a pathway toward obesity and chronic diseases. Exacerbating students' dietary shortcomings are the well-intentioned use of food rewards, whereby some educators motivate or incentivize students with tasty treats to stay on task and succeed academically. With the advent of the Healthy Hunger-Free Kids Act and Final Rule, school wellness policy is intended to address poor dietary habits of students, but does not ameliorate various dysfunctional school-based food reward systems. School wellness policy holds the potential to improve learning and reduce obesity and chronic diseases, but it requires solid implementation of policies and buy-in from schools, plus a need for de-implementation of unnecessary uses of food as rewards.

**KEYWORDS:** School Wellness Policy, School Health, Childhood Obesity

## BACKGROUND

Many children and adolescents in the USA have poor dietary habits that could lead to obesity and other non-communicable chronic diseases. Despite the frequently updated Dietary Guidelines for Americans that serve as the basis for food programs and healthful eating (DeSalvo 2016), studies show that children and adolescents are not eating enough nutrient-dense foods—such as whole grains, fruits, vegetables, fish or dairy—that could help to prevent chronic diseases (Hiza et al., 2013). Children and adolescents are not eating even half of the recommended servings of total vegetables, beans, greens, or whole grains. In addition, this population is consuming excess sodium, refined grains, and empty calories, which are food components that provide little to no nutritional value (Banfield et al., 2016).

The lack of nutrient-dense foods combined to an excess of energy-dense, nutrient-poor foods, and limited physical activity can interfere with learning (O’Dea & Mugridge, 2012), reduce health and quality of life, and lead to overweight or obesity (Banfield et al., 2016). Long-term consumption of foods high in fat and sugar can lead to impaired hippocampus functioning, causing problems with cognition, impaired appetite control, and obesity (Yeomans, 2017). Excess adiposity established at a young age significantly increases the risk of remaining obese throughout adolescence and into adulthood (Singh et al., 2008), leading to asthma, sleep apnea, joint problems, fatty liver disease, gallstones, gastro-esophageal reflux, and cardiovascular or metabolic diseases (Daniels 2009). Children who have obesity are also significantly more likely to suffer from mental health problems including low self-esteem, depression, anxiety, poor body image, and low self-concept, which would present further learning difficulties (Wang & Veugelers, 2008). Some studies have shown that children with a higher body mass index and more fat mass tend to have worse cognitive function, and to score lower on academic achievement tests, as compared to their normal weight peers (e.g., Kamijo et al., 2012). In a rigorous systematic review, however, researchers found that there was not strong evidence to support the association between obesity and poor academic performance in school-aged children when taking into account socioeconomic status, race/ethnicity, physical fitness, and especially the stigma of excess weight (Santana et al., 2017).

### **The Healthy Hunger-Free Kids Act of 2010**

Schools play an important role in preventing childhood obesity and promoting health, partly by serving nutritious meals that meet Dietary Guidelines for Americans. With school breakfast, lunch, and after-school snack, students may consume as much as two-thirds of their daily energy intake at school. To address the public health problem of childhood obesity—alongside childhood food insecurity—the Healthy Hunger-Free Kids Act of 2010 (HHFKA) was enacted as Federal law to overhaul the quality and quantity of foods in American schools (Marcason, 2012). Section 204 of the HHFKA pertains to school wellness policies and requires that all school districts must establish and implement school wellness policies at the school level. A local wellness policy is “a written document of official policies that guide a school district’s efforts to establish a school environment that promotes students’ health, well-being, and ability to learn by supporting healthy eating and physical activity.” The effectiveness of wellness policies will ultimately be dependent upon the chosen objectives or goals, and how well schools implement their chosen strategies to achieve those goals (Local School Wellness Policy, 2016).

In 2016, the U.S. Department of Agriculture issued a Final Rule entitled, *Local School Wellness Policy Implementation under the Healthy, Hunger-Free Kids Act of 2010*. The wellness policy Final Rule further strengthened the district wellness policy requirements and took effect at the start of the 2017–18 school year. Within this Final Rule, a Smart Snacks in School rule states that all school meals and snacks sold in schools need to adhere to the Dietary Guidelines for Americans in three primary venues: vending, a la carte, and stores or snack bars. Smart Snacks in School thereby include limits on fat, sugar, sodium, and calorie content. Food sold to students as fundraisers, or to be consumed on site during the extended school day, is subject to the Smart Snacks in School rule, but foods not meeting Smart Snacks in School requirements may be allowed through waivers or exemptions that can vary based on state-level guidance. The Smart Snacks in School rule does not apply to classroom snacks provided by parents, food provided for classroom parties and events, or other foods given as rewards for good behavior or success, although some local educational agencies have begun to address this loophole (Green et al., 2018). Local educational agencies concerned with nutritional content could set more stringent standards, practices, or policy to promote healthful eating and its benefits among their students.

### **Rewarding Student Success with Food**

Schools have faced tremendous pressure to raise student standardized test scores in part due to the passage of the No Child Left Behind Act (NCLB) of 2001, which was aimed at holding schools accountable for proficiency in learning (Hollingworth et al., 2010). Although NCLB has now been replaced by the Every Student Succeeds Act of 2015, which is intended to move the focus away from standardized testing and onto the “whole child,” academic testing pressure has persisted. It is not uncommon for educators to use food rewards in an attempt to motivate or incentivize students to achieve success outcomes or to control student behaviors (Hollingworth et al., 2010; Findholt et al., 2016). Examples of rewards used to motivate children are promising a pizza party for working hard on test preparation or giving candy to students who are working quietly. High-fat and/or sugary foods are frequently used, because they are inexpensive and effective due to hard-wired physiological drives and sensory pleasure (Roberts et al., 2018).

Principals are in charge of schools and are held accountable for test scores but often have little instructional interaction with students. Many principals have tried school-wide reform using incentives such as pizza parties for classes that perform well (Hollingworth et al., 2010). The New York State Department of Education Student Support Services encourages the potentially harmful use of food rewards, including gift certificates for McDonald’s & Wendy’s for maintaining school attendance, as well as ice cream and pizza parties for classes with the highest average attendance. The education department then ironically touts that a “healthy school climate or environment encourages optimum performance of all” (NYSED:SSS:Attendance Incentives, 2014). Likewise, the Pizza Hut BOOK IT program gives young students a free Personal Pan Pizza coupon and a Reading Award Certificate each month for reaching reading goals set by their teachers. BOOK IT began in 1984 and claims to reach 14 million students annually (Frequently Asked Questions, 2020). While helping children enhance literacy is a commendable goal, it should not be done at the expense of students’ health. Children are uniquely vulnerable to the influence of food marketing (Lapierre et al., 2017). Immaturities in their executive functioning skills limit the extent to which children can make use of the concepts to understand the intent of advertisements until much later in development (Moses & Baldwin, 2005). Older children may understand the intent but do not have the ability to weigh long-term health consequences of consuming advertised unhealthful products against the short-term reward of

consuming the product (Harris & Graff, 2011). With the passage of HHFKA and subsequent Final Rule, schools are no longer allowed to market foods and beverages that do not align with required limits on fat, sugar, sodium, and calorie content.

### **The Inherent Problems with Food Rewards**

Research has shown that the use of food as a reward is unnecessary and is associated with: changes in reward circuitry within the brain; chronic emotional overeating; poor self-regulation of food intake; and increased preference for high-fat, high-sugar foods (Adise et al., 2019; Braden et al., 2014; Eichler et al., 2019; Fedewa & Davis, 2015; Fisher & Birch, 2002; Larsen et al., 2015; Roberts et al., 2018; Remy et al., 2015); These physiological and behavioral changes can contribute to overweight, obesity, use of food as a sole coping mechanism, binge eating or other disordered eating. Presenting food as a reward can increase its inherent value and make it more desirable to a child (Fedewa & Davis, 2015). Behavior that is rewarded using food is also praised by the adult, leading to children having positive adult attention and a sense of achievement. This reinforcement learning process leads children to associate highly rewarding food with social pleasure that results from being successful or performing a desired behavior (Lu et al., 2015).

Research also indicates that tangible rewards are detrimental to intrinsic motivation; rewards may have the short-term effect of changing behavior but can hinder students' drive to learn for the sake of learning (Hollingworth et al., 2010; Fedewa & Davis, 2015). Foods that undermine children's health, such as high-sugar, high-sodium "treats" that are typically used as extrinsically motivating food rewards, contribute to the nutritional problems that children face, and may lead to decreased intrinsic motivation to learn. Food may be an immediate effective reinforcer that students find very motivating, however, there are many long-term negative consequences that outweigh these potential benefits. In contrast, other researchers have suggested that intrinsic motivation can first be supported and made accessible by extrinsic rewards to motivate children who find the task at hand challenging (Parsonson, 2012), but those extrinsic rewards need not involve food. Instead, special classroom privileges, extra recess time, praise, stickers, or tokens could be used to acknowledge effort, shape desired behavior, and communicate classroom expectations.

Numerous health organizations (e.g., Mayo Clinic, World Health Organization, American Academy of Pediatrics) explicitly state that foods should not be used to reward, motivate, or entertain children, yet this practice is widespread throughout the USA and beyond (Fedewa & Davis, 2015; Hollingworth, Dude, & Shepherd, 2010; Findholt, Izumi, Shannon, & Nguyen, 2016). It is important for educators, school staff, and school administrators to be aware of the negative effects of food rewards so that this practice can be eliminated or "de-implemented" within schools. Schools can start by establishing an implementation plan within school wellness policy that includes "prohibitory and compliance-related words such as shall, must, require, comply, and enforce" (Local School Wellness Policy, 2016). Unfortunately, the HHFKA and Final Rule do not prohibit the use of food rewards in schools regardless of whether the foods adhere to Smart Snacks in School guidelines, and it is up to local wellness policymakers to address this gap.

## **The Role of Educators and School Staff**

Alongside a central educational mission, the health and wellbeing of students should be of utmost concern for schools and, therefore, school districts should develop strong wellness policies that prohibit the use of food rewards. Wellness policy objectives could be made specific, measurable, achievable, relevant, and time bound (SMART) to facilitate behavior change (Lewallen et al., 2015). School personnel should be involved in the drafting of wellness policies, as people are more likely to adhere to rules that they have helped develop (Findholt et al., 2016). Also, building a wellness team or committee that includes teachers, nurses, psychologists, counselors, foodservice staff, parents, students, and administrators is associated with greater wellness policy implementation and success.

While teachers and other school personnel could create policy and practices to swap out food for nonfood rewards such as stickers, temporary tattoos, or pencils, other tactics could be considered as well. There is evidence that classroom management techniques that include behavior-specific praise and physical activity breaks positively impact student health and academic achievement (Fedewa & Davis, 2015). Classroom interventions for problematic behaviors can reduce the desire to use food rewards because behavioral management techniques can change how educators relate to children and maximize learning opportunities. Building meaningful, positive relationships with all students through tactics such as greeting students with their name and a positive comment or small talk before class and identifying and focusing on desired behaviors with positive reinforcement has been shown to reduce challenging behaviors (Parsonson, 2012).

Many schools have come up with innovative ways to incentivize students to succeed. An example is the use of token economies where students are praised for their good work and earn tickets that can be exchanged for a mystery prize of inexpensive items such as pencils, fancy erasers, or stickers (Parsonson, 2012). Ideally, such items or activities would not incur cost to teachers or administrators, and would not be provided as branded products as part of food marketing efforts by corporations. If budgets are a problem, parent-teacher organizations or booster clubs could assist in making sure incentives are available. Giving students a list of options to choose from such as free homework passes, tangible items like pens and bookmarks, lunch with the principal, dancing in the hallway, and school-wide recognition during morning announcements, can be a great start in finding what motivates children. Having them brainstorm their own ideas may be more inspiring (Balfanz & Byrnes, 2012) with one study finding students preferred praise over tangible items (Fantuzzo et al., 1991). One school took a communal approach to incentivizing children in learning to read. It involved having adults from the community come in and share their favorite books, having a “book parade” where students illustrated their favorite books in costumes or posters, and even having the principal dress up as Mrs. Santa Claus and sit on the roof if students collectively read 4,000 books (Baker & Moss, 2001).

## **CONCLUSIONS**

The evidence regarding use of food rewards, associated potential changes in reward circuitry in the brain, and the possible distorted relationships with food that lead to negative health outcomes such as obesity and chronic diseases is concerning. The use of food rewards in school thereby contributes to poor dietary habits, hindering health and learning. Currently, the local wellness policy guidelines set forth by the HHFKA and final rule are likely having a positive effect on the

school food environment, but they leave it up to local educational agencies (such as school districts) to set their own rules regarding foods used for rewards. We believe that there should be a widespread and sustained “de-implementation” of food rewards within educational practice; school personnel should find alternative ways besides food rewards to motivate and incentivize academic success. This change could be part of training provided to teachers in school-wide positive behavioral interventions and supports (Bradshaw et al., 2012). Researchers in the fields of implementation science and quality improvement are well suited to lead the investigation of scientific questions in that domain. Until strong evidence emerges on how to de-implement food rewards, teachers may benefit from additional classroom management training that includes behavior-specific praise, physical activity breaks, and the effective use of non-food rewards. If school districts adopt or create wellness policies that prohibit the use of food rewards in the classroom and support school wellness teams and educators in following through with their implementation of that policy, students are likely to benefit in many important ways. Those benefits include improved healthy relationships with food, intrinsic motivation to learn, and improved health outcomes, including reduced likelihood of chronic disease.

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