

*Over the past five years, significant new evidence has documented the link between eating breakfast and learning. Recent studies show that skipping breakfast is relatively common among children in the U.S. ...and is associated with quantifiable negative consequences for academic, cognitive, health, and mental health functioning.*

J. Michael Murphy, EdD, Massachusetts General Hospital and Harvard Medical School, 2007<sup>19</sup>

### **Skipping breakfast and experiencing hunger impair children's ability to learn**

- Children who skip breakfast are less able to differentiate among visual images, show increased errors, and have slower memory recall.<sup>1</sup>
- Children experiencing hunger have lower math scores and are more likely to repeat a grade.<sup>2</sup>
- Behavioral, emotional and academic problems are more prevalent among children with hunger.<sup>3</sup>
- Children experiencing hunger are more likely to be hyperactive, absent and tardy, in addition to having behavioral and attention problems more often than other children.<sup>4</sup>
- Children who are undernourished have poorer cognitive functioning when they miss breakfast.<sup>5</sup>
- Teens experiencing hunger are more likely to have been suspended from school and have difficulty getting along with other children.<sup>6</sup>
- Children with hunger are more likely to have repeated a grade, received special education services, or received mental health counseling, than low-income children who do not experience hunger.<sup>7</sup>

### **Eating breakfast at school helps improve children's academic performance**

- Children who eat a complete breakfast, versus a partial one, make fewer mistakes and work faster in math and number checking tests.<sup>8</sup>
- Children who eat breakfast at school – closer to class and test-taking time – perform better on standardized tests than those who skip breakfast or eat breakfast at home.<sup>9</sup>
- Providing breakfast to students at school improves their concentration, alertness, comprehension, memory, and learning.<sup>10, 11, 12</sup>
- Children who eat breakfast show improved cognitive function, attention, and memory.<sup>13</sup>
- Participating in school breakfast is associated with improved math grades, attendance and punctuality.<sup>14, 15</sup>
- Children perform better on tests of vocabulary and matching figures after eating breakfast.<sup>16, 17</sup>
- Consuming breakfast improves children's performance on demanding mental tasks and reaction to frustration.<sup>18</sup>

### **School breakfast improves student behavior and learning environments**

- Students who participate in school breakfast show improved attendance, behavior, standardized achievement test scores as well as decreased tardiness.<sup>19</sup>
- Children who increase their school breakfast participation as a result of a school breakfast program offered free to all students show greater improvements in math scores, attendance, punctuality, depression, anxiety, and hyperactivity than children whose participation remains unchanged or decreases.<sup>20</sup>
- Providing students with breakfast in the classroom setting is associated with lower tardy rates and fewer disciplinary office referrals.<sup>21</sup>

## **Breakfast in the classroom programs\* and programs offering breakfast free to all children† in the cafeteria yield other positive results for health and learning.**

- Children who participate in programs that offer a breakfast free to all students have lower rates of absence and tardiness.<sup>22, 23</sup>
- Schools that offer breakfast free to all students have higher breakfast participation, especially when breakfast is served in the classroom, resulting in a higher percentage of students consuming a nutritionally substantive breakfast.<sup>24, 25, 26</sup>
- Students attending schools that offer a breakfast free to all students are more likely to consume a nutritionally substantive breakfast and to consume significantly more calcium, magnesium, phosphorus, fruit, and dairy products at breakfast, when compared to students from schools with a traditional school breakfast program.<sup>27</sup>

## **Beliefs about breakfast can influence participation in school breakfast**

- Girls often skip breakfast because they believe it might make them fat and are concerned about gaining weight.<sup>28, 29</sup>
- Adolescents who skip breakfast are significantly more likely to have fasted to lose weight.<sup>30</sup>
- Children report that they believe eating breakfast increases their energy and ability to pay attention in school.<sup>31</sup>

## **School breakfast can improve children's nutrition and protect against obesity‡**

- School breakfast participants are more likely to consume diets that are adequate or exceed standards for important vitamins and minerals (e.g., vitamin C, vitamin A, calcium, phosphorus).<sup>32, 33, 34</sup>
- Low-income children who eat school breakfast have better overall diet quality than those who eat breakfast elsewhere or skip breakfast.<sup>35</sup>
- A higher percentage of children who skip breakfast have reduced intakes of many nutrients such as vitamins A, E, C, B<sup>6</sup>, B<sup>12</sup>; folate; iron; calcium; phosphorus; magnesium; potassium; and dietary fiber.<sup>36</sup>
- School breakfast participation is associated with a lower body mass index (BMI, an indicator of excess body fat), lower probability of overweight, and lower probability of obesity.<sup>37, 38</sup>
- Children and adolescents who eat breakfast have more favorable weight-related outcomes (e.g., lower BMI, lower waist circumference, lesser likelihood of being chronically obese) in the short term and long term than those who skip breakfast.<sup>39, 40, 41, 42, 43, 44, 45</sup>

## **School breakfast decreases the risk of food insecurity**

- School breakfast offered to all students for free may eliminate disparities between food secure and food insecure children in terms of eating breakfast at all.<sup>46</sup>
- Students with improved nutrient intake as a result of a program of school breakfast offered free to all students report decreases in symptoms of hunger.<sup>47</sup>
- Access to school breakfast decreases the risk of marginal food insecurity and breakfast skipping, especially for low-income children.<sup>48, 49</sup>
- Children are more vulnerable to food insecurity during the summer – a time when they may not have access to the good nutrition provided by the school meal programs.<sup>50</sup>

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\* Breakfast in the classroom programs are an increasingly popular alternative to traditional before-the-bell, cafeteria-based breakfast programs. Breakfast is brought in from the kitchen in containers that keep dishes at the right temperature, or picked up from carts in the hallways as students enter class. Typically this breakfast is offered free to all students. Such programs boost school breakfast participation and remove the stigma associated with participation.

† Offering breakfast to all students for free is sometimes referred to as "universal breakfast" or "universal-free breakfast." The program helps remove the stigma for low-income children of participation in school breakfast and thereby increases participation among students generally, but particularly low-income students.

‡ For more information, read FRAC's *Breakfast for Health* brief available at [www.frac.org](http://www.frac.org).

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## Endnotes

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