

Evidence Linking School Breakfast to Academic Achievement

- 1) **Murphy JM, Pagano M, Bishop SJ. "Impact of a Universally Free, In-Classroom School Breakfast Program on Achievement; Results from the Abell Foundation's Baltimore Breakfast Challenge Program." Massachusetts General Hospital, Boston, MA, 2001.**

Data and scores were examined for 31 schools in Baltimore that participated in an in-classroom breakfast program for at least two years and a comparison group of 17 schools about to begin universal breakfast programs the next fall.

The relationship between breakfast program status and standardized test scores (Maryland State Pupil Assessment Project (MSPAP) scores), School Performance Index (SPI) scores, and attendance were assessed.

Data were analyzed using Oneway and Multiple Analysis of Variance tests.

Universal school breakfast schools had significantly higher attendance following implementation of the free breakfast program. There was no significant difference in *actual* MSPAP or SPI scores between universal free breakfast and comparison schools. However, schools with free breakfast had significantly greater positive *changes* in academic performance scores than comparison schools.

Schools that provided breakfast without charge for 3 years improved significantly more in attendance than both comparison schools and schools that participated in the program for two years.

- 2) **Kleinman RE, Hall S, Green H, Korzec-Ramirez D, Patton K, Pagano ME, Murphy JM. "Diet, Breakfast, and Academic Performance in Children." *Annals of Nutrition & Metabolism* 2002; 46 (suppl 1):24-30.**

The authors, researchers from Harvard Medical School, Massachusetts General Hospital, Boston Public Schools, Project Bread/The Walk for Hunger, and Brown University, test whether nutrient intake and academic and psychosocial functioning improve after the start of a universal-free school breakfast program (USBP). They gather nutrition, school breakfast participation, hunger status and academic grade information from 97 students in grades 4 to 6 in Boston public schools for 1 week before and 1 week 6 months after implementation of USBP. They found improved math scores, attendance, nutritional status, behavior and psychosocial functioning, and increased participation, especially for students deemed 'at nutritional risk' by a hunger status questionnaire.

- 3) **Murphy JM. "Breakfast and Learning: An Updated Review." *Journal of Current Nutrition and Food Science* 2007; 3(1): 3-36.**

The author presents an extensive review of the school breakfast program (SBP) and its benefits prior to 1999. The author also provides an overview of the SBP from 1999 to 2004, which analyzes the impact of school breakfast on nutrition, student academic, cognitive, behavioral, and health outcomes. Lastly, the author examines the School Breakfast Program Pilot Project (SBPP).

Of the articles reviewed, children participating in SBP were less likely to have lower serum levels of Vitamin C and E, folate, and iron. The availability of SBP did not increase the percentage of calories from fat and total calories. School breakfast consumption was significantly associated with improved student attention, standardized test scores, attendance,

tardiness, and mood. Also, teachers were less likely to report hunger if students participated in the SBP and more likely to report improved learning and behavior. Lastly, breakfast skipping was found to increase the risk of being overweight and negatively affected cognitive learning, memory, and attention.

The SBPP project purpose was to increase breakfast eating and improve educational outcomes. All children ate school breakfast for free, in contrast to the current SBP approach, regardless of family income. This study found that breakfast skippers were significantly less likely to consume adequate amounts of grains, fruits, and vegetables. The study also found that consuming school breakfast had a positive impact on students' standardized test scores, attendance rate, and tardiness. The overall review concludes that breakfast eating has a positive impact on students' academic and health outcomes.

4) Murphy JM, Drake JE, Weineke KM. "Academics & Breakfast Connection Pilot: Final Report on New York's Classroom Breakfast Project." Nutrition Consortium of New York State. Albany, New York. July 2005.

<http://hungersolutionsny.org/documents/FinalABCupdated.pdf>

This report evaluates 20 schools in upstate New York implementing the Academics & Breakfast Connection (ABC) Pilot in which they serve breakfast to all students at no charge, regardless of income, and students consume their meals in the classroom setting.

Each school designed its own plan for implementing classroom breakfast. Meals were delivered to classrooms in 11 schools, students got meals from a cafeteria line and then took them to classrooms in two schools, students picked up breakfasts at hallway stations in three schools, and four schools used a combination of methods with one school delivering breakfast to younger students and using a cafeteria line for older students. The schools also differed in menu planning with some serving both hot and cold meals and some serving only hot or cold meals. To evaluate the program, data was collected on breakfast program participation rates, absence rates, tardy rates, disciplinary referrals, and visits to the school nurse. Teachers and principals also completed surveys on the effect and impact they perceived from the program.

After schools implemented the pilot program school breakfast participation more than doubled, increasing from 23 percent to 58 percent. Tardiness and disciplinary office referrals decreased significantly. Absence rates and visits to the school nurse also declined, though not reaching statistical significance. Of the principals of the schools involved in the pilot program, 100 percent believed that the pilot made an important contribution to the education process, and 87 percent reported that they believed the pilot program contributed to improvements in academic performance. Nearly 80 percent of teachers at participating schools also thought that the pilot made an important contribution to the education process, 72 percent reported that the pilot did not interfere with teaching, and 85 percent reported fewer complaints of hunger from students. Seventy-nine percent of the teachers supported continuation of the pilot program and 75 percent of the principals reported plans to continue the pilot into the next school year. The authors of the study conclude that classroom breakfast works and that the pilot program resulted in decreased hunger and improvements in factors critical to student learning such as lower tardiness and disciplinary referral rates.