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How Does a Child's Weight Influence Her Math Abilities?

Obese kids face a multitude of social and health problems, and now a new study from the University of Missouri finds that being overweight may even affect kids' performance in math.

Being overweight or obese in childhood can put kids at risk for several health problems later in life, such as heart disease, sleep apnea and diabetes. Add to that list trouble in school, says a new study in the journal *Child Development*.

The research team looked at a nationally representative sample of more than 6,250 children who were participating in the Early Childhood Longitudinal Study-Kindergarten Cohort. The children were tracked from kindergarten through the fifth grade.

Kids who were persistently obese, beginning in kindergarten, scored lower on math tests taken starting in first grade through the end of the study period, compared with kids who were never obese. For kids who became obese later, the effects varied: boys who become obese later, like in third or fifth grade, experienced no dips in math scores. Girls who became obese later showed temporary lapses in math performance.

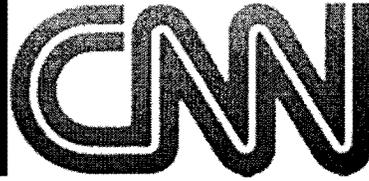
The findings held, even after researchers accounted for other factors that may affect kids' weight and academic performance, like race, family income and mother's education and employment status.

The relationship between weight and academic achievement is complicated, though. For one thing, it's not clear whether obesity itself or some other factor underlying or related to obesity may affect how kids do in school. Previous research has found that youngsters who are obese — or think of themselves as overweight or obese — may be plagued with more sadness, loneliness and low self-esteem than their healthy-weight peers. These problems can lead to poorer social and emotional skills, which can in turn interfere with children's performance in school.

“For school-age children, one's social standing is quite meaningful for one's school experience and engagement in the learning process. It's important for kids to feel liked and capable in social situations with their peers, says lead study author Dr. Sara Gable, an associate professor in the department of nutrition and exercise physiology at the University of Missouri, Columbia.

Overweight and obese kids may be stigmatized and shunned by their classmates, which makes it hard for them to have normal peer interactions that help them develop good social skills. But it could also work the other way around: kids who have poor social skills might be passed over as playmates, which makes them more likely to be isolated and depressed, upping their risk of obesity.

When it comes down to it, the study's findings — along with a growing body of research on weight and child development — suggest that being heavy in childhood may have far-reaching and long-lasting consequences, beyond struggles in math class or even risk factors for disease. Gable urges parents and school administrators to focus not only grades, but also on kids' physical fitness and, importantly, the social and emotional development of children with weight problems.



THE
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POST

Overweight Kids May Do Worse in Math: Study

Researchers looked at test scores from kindergarten to 5th grade

Youngsters who are persistently overweight may not perform as well academically -- specifically in math -- as their normal-weight peers, new research suggests.

Although the study didn't find a direct cause-and-effect relationship between being overweight or obese and school performance, the researchers did find that children who started kindergarten carrying extra weight and were still heavy when they finished fifth grade performed worse on math tests.

"These children are not necessarily less smart, but they're performing less well," said the study's lead author, Sara Gable, an associate professor and state extension specialist in nutrition and exercise physiology at the University of Missouri, in Columbia.

Gable said she suspects interpersonal troubles and internalizing behaviors may be why weight can affect math performance.

"We know, in general, that children who have poor peer relationships don't do as well at school," she said. "And we also know that children with internalizing behaviors don't do as well. Internalizing behaviors are anxiety, worry, not feeling as if they have a lot of friends and feeling sad.

Children with weight problems tend to feel internalizing behaviors and not have good interpersonal skills," she added.

Gable said that these effects, year over year, are likely cumulative.

Nancy Copperman, director of public health initiatives at North Shore-LIJ Health System in Great Neck, N.Y., said the study demonstrates the importance of preventing childhood obesity.

"Obesity isn't just a cosmetic problem," she said. "It has impacts that go from chronic disease to mental achievement, and ultimately to income and a happy, successful, well-adjusted life."

Results of the study appear in the July/August issue of the journal *Child Development*.

For the study, Gable and her colleagues used data from the Early Childhood Longitudinal study. The current study included 6,250 youngsters from kindergarten through fifth grade. Weight and height were measured at five points throughout the study, and the measurements were used to calculate the children's body-mass index, a figure that assesses whether someone is normal weight, overweight or underweight.

The children were placed into one of three groups based on their weight: never overweight (80 percent of the children), persistently overweight (12 percent) or later-onset overweight (8 percent). The later-onset group was not overweight in kindergarten or first grade, but was overweight in third or fifth grade (or both).

At the time measurements were taken, parents and teachers filled out extensive questionnaires about the children. Teachers were asked to assess interpersonal relationships and internalizing behaviors. In addition, the children were given standardized math tests at each point.

The study group was slightly less than half male; most (83 percent) of the children lived in two-parent households; two-thirds of the children were white, 16 percent were Hispanic, 9 percent were black and 5 percent were Asian. Just less than half of the mothers worked full-time, and the average household income was about \$50,000.

Children who were persistently overweight from kindergarten through fifth grade performed worse on math tests beginning in first grade. Weight status didn't play a significant role in math-test performance when the children were in kindergarten.

"That means there's some aspect in the school setting that's affecting performance," Gable said.

One factor may be a subtle bias the researchers found when teachers were asked to rate children's interpersonal skills and internalizing behaviors. Teachers were more likely to rate persistently overweight children as having internalizing behaviors than their never-overweight or later-onset peers.

With interpersonal skills, the teachers were more likely to rate persistently overweight girls as having trouble with their peers compared to their normal-weight or later-onset peers. No such difference was found for boys.

Gable said there are likely other factors at play. For example, obese children may miss more school days, which would affect their performance. Obese children also are more likely to have sleep apnea, which, if untreated, can affect daytime performance.

The bottom line, Gable said, is that "parents need to protect children from obesity as long as they possibly can. Establish a healthy lifestyle that prevents this from happening. Once someone is obese, it's really hard to change."

If your child already is overweight, Gable said, it is important to get them on a course to better habits. But, she added, it is also important to "help children learn that this is not who they are." Their weight doesn't define them.

It is also crucial that any changes to diet and exercise routine affect the whole family.

"The whole family's routines have to change. Not just one person's plate or one person's activity level," Gable said.

For her part, Copperman said, "It's never too late to start helping your child live a healthy lifestyle."

"It's kind of like driving a car on the expressway," she said. "You can't suddenly put the car in reverse. If your child is already overweight, you need to step on the brakes to stop the weight gain."

COLUMBIA MISSOURIAN

GEORGE KENNEDY: MU needs to 'step up' in the competition for athletics dollars

By George Kennedy

June 14, 2012 | 4:55 p.m. CDT

COLUMBIA — Wednesday's "SEC Summit" was held in the new Tiger Performance Complex, home of the gymnastics team and the Golden Girls. It was such a blatant bit of boosterism that the Missourian didn't assign a reporter. I don't mind a little boosterism in a good cause, and I thought there might be food, so I joined the hundred or so of my fellow fans for a healthful buffet and an even more satisfying pep talk/warning.

Athletics Director Mike Alden gave one of his better performances. He and his warm-up act, Gary Link, extolled the many achievements of Missouri athletes and emphasized the phrase that has become a sort of mantra since last November: "We've got to step up."

Gary, whose unflinching enthusiasm for our alma mater seems genuine, recited recent triumphs. The football team has been to seven consecutive bowl games. The men's basketball team won 30 games and its final Big 12 tournament. The baseball and wrestling teams duplicated the latter feat. The softball team came within a game of the college world series.

Then he offered the first hint of just what "stepping up" is likely to mean. The Tiger Scholarship Fund, of which I'm a low-level member, has 7,733 contributors, who give \$7.5 million to \$8 million a year. Pretty good, you might think. Among the 14 SEC schools, we rank 13th.

He passed the mic to his boss. I've been a Mike Alden fan since his early days on campus. When I was the Missourian's managing editor, he won my heart by calling and volunteering to come over to get acquainted. Ever since, he has run a clean and increasingly successful athletics program. I've always liked the fact that, unlike most of my faculty colleagues, he regularly attends the semiannual meetings of the general faculty.

He understands and regularly says publicly that his department isn't the most important on campus. He describes its contribution to the academic enterprise as being the "front porch"

that most outsiders encounter before they know anything about the History Department or even the Missouri School of Journalism.

Beginning July 1, when our SEC membership becomes official, our nice little front porch is going to look awfully modest in the company of those palatial southeastern verandas.

Take, for example, the Tiger Performance Complex itself and the gymnastics team it houses.

Before the summit, I wandered down to the training room and was admiring the facility when a stocky, gregarious fellow offered to explain what I was looking at. He turned out to be Rob Drass, the gymnastics coach.

I asked whether this really is an SEC-quality gym. He said it is. Then he commented that Georgia also has a new training center for its gymnastics team. That one cost about \$25 million. Mike Alden later said the price tag on ours was \$5.6 million. Georgia, which has won five national titles in gymnastics, isn't even the best in the SEC. Alabama and Florida finished No. 1 and 2 nationally this year, Coach Drass said.

He has a perennial Top 20 team, but he expects to be "in the middle of the pack" in the SEC.

That may be a reasonable goal for some sports but ambitious for others. In football, for example, we've never been to a BCS bowl, while Alabama beat LSU for the national championship this year. In baseball, three of the eight teams in the College World Series are from the SEC. Softball: Our team was knocked out by an SEC team. Track and field: Florida won the men's national title; LSU the women's. And let's not mention swimming or tennis.

Of the 20 varsity sports in which Missouri competes, the only one sure to be unequaled in the SEC is wrestling. None of the our new siblings offers it.

Mike promised us an exciting announcement within the next couple of weeks about facility upgrades.

At that point, his performance became passionate. He made clear that the most important "stepping up" we'll have to do is financial.

The Tiger Performance Complex and the newly laid \$1 million synthetic turf on the football field were paid for with private donations, he said. Those will amount to a small down payment on the cost of the football stadium expansion, the new softball stadium and the other expensive enhancements that are rumored to be in the works.

“We have to broaden our base of supporters,” he said. The goal for scholarship donors is a minimum of 10,000.

Mike said he’d be happy with new donors at the minimum level of \$50. I’m pretty sure he was lying about that. Sure, he welcomes us low-dollar supporters. But we’re not the ones he really needs.

We’re in the big time now. That means big bucks.

In the coming athletics competition for dollars, it’ll be step up or get stepped on.

George Kennedy is a former managing editor at the Missourian and professor emeritus at the Missouri School of Journalism. Questions? Contact Opinion editor [Elizabeth Conner](#).

ST. LOUIS POST-DISPATCH

Get away, just for a day

Posted: Friday, June 15, 2012 12:00 am | [\(0\) comments](#).

Missouri, Illinois abound with day trip possibilities

High gas prices don't have to affect your ability to take a vacation this year. The St. Louis area has the benefit of being near dozens of attractions that are affordable to get to, but far enough away to feel like a true outing. Make a day trip out of it, and save yourself the cost of lodging, too.

Most of these suggestions are drawn from the websites of the St. Louis Convention and Visitors Commission (explorestlouis.com) and the Missouri Division of Tourism (www.visitmo.com). Pick two or three places from one of the cities or regions listed below to create your own day trip.

The Meeting of the Great Rivers National Scenic Byway

Some of the most stunning scenery in the area can be found north of St. Louis on what's often called the Great River Road, where the Missouri, Mississippi and Illinois rivers come together. The route begins in Hartford, Ill., and travels for 33 miles north and west through the Illinois river towns of Wood River, Alton, Godfrey, Elsah and Grafton.

If you choose to simply enjoy the river views set against colossal bluffs, the drive will take about an hour. But there's plenty of places worth stopping at along the way – you can watch barges push through the Melvin Price Locks and Dam, see where the Underground Railroad traveled through the area, go antique shopping, do some bird watching at Olin Nature Preserve, or enjoy the trails and scenic overlooks at Pere Marquette State Park.

For more information: Contact the Alton Regional Convention and Visitors Bureau at 618-465-6676 or go to www.visitalton.com.

Columbia, Mo.

The home of Mizzou offers much to do in addition to the college sports that draw fans by the thousands. The University of Missouri has several museums on its campus, including the Museum of Art and Archaeology, featuring ancient and contemporary art, plus artifacts from six continents. The Museum of Anthropology has the world's largest collection of prehistoric Missouri artifacts, as well as artifacts from around the world. And if six- or eight-legged creatures are your thing, there's the Enns Entomology Museum, which holds about 6 million insects, arachnids and fossils.

The campus is also home to the State Historical Society of Missouri, whose holdings include a number of works by George Caleb Bingham and Thomas Hart Benton, a large collection of editorial cartoons, and, for the research-minded, extensive collections of newspapers, manuscripts and photographs (if you're researching something in particular, the society recommends calling ahead in case an item needs to be pulled from storage).

Visitors will also enjoy downtown Columbia, known as The District, where live entertainment and dozens of shops and restaurants can be found.

To learn more, visit www.visitcolumbiamo.com or call the Columbia Convention and Visitors Bureau, 573-875-1231.

Jefferson City

Of course the capitol building is here, offering 45-minute tours year round. The building also houses the Missouri State Museum, which currently has exhibits commemorating the 150th anniversary of the Civil War. History buffs will also like the Museum of Military History, featuring exhibits that begin with the Missouri Militia's creation in 1808, and the Jefferson Landing State Historic Site, the oldest riverfront landing on the Missouri River.

The Missouri State Highway Patrol Safety Education Center offers exhibits that detail the patrol's history and work. The Missouri State Penitentiary, opened in 1836 and decommissioned in 2004, is open for tours. In front of the capitol building is the Lewis and Clark Monument, commemorating the Corps of Discovery's passage through the area in 1804.

For more information, call the Jefferson City Convention and Visitors Bureau at 573-632-2820 or go to <http://visitjeffersoncity.com/>.

Southern Illinois

You may already be familiar with Southern Illinois attractions like Eckert's, Cahokia Mounds and Our Lady of the Snows. These sites are worth a repeat (or first time) visit. If you're ready to try something new, visit Maeystown, a 160-year-old German settlement that will be having its annual Fruehlingsfest (Springfest) on May 6. Belleville will host Art on the Square May 18-20, a juried festival featuring more than 100 artists, live entertainment and food. One of the last remaining drive-in theaters in America, the Skyview in Belleville, has opened for the season.

But these sites just scratch the surface of all the historic homes, nature preserves, orchards and farms, museums, and theaters and galleries on the Illinois side of the river.

For more information, call the Tourism Bureau ILLINOISouth at 618-257-1488 or visit www.thetourismbureau.org.