



# New study shows positive relationship between physical fitness and academic test scores among Kansas students

## Executive Summary

### K-FIT Overview

Kansas Fitness Information Tracking (K-FIT) is a Healthy Kansas Schools project administered by the Kansas State Department of Education (KSDE) and Kansas Department of Health and Environment (KDHE) and funded by the Kansas Health Foundation (KHF). The goal of the initiative is to enhance the understanding of the relationships between various fitness components and individual academic performance. The FITNESSGRAM online system enables participating schools to incorporate uniform fitness testing into their physical education curriculum and submit results to KSDE.

During the 2011-2012 school year, 152 schools representing 40 school districts across Kansas submitted FITNESSGRAM data on more than 17,000 students. The findings of the study highlight aggregate, de-identified data from more than 13,000 students in grades 4-9.

### Key Findings

- On average, students who are physically fit score above standard on Kansas state assessments in reading and math. For students who met fitness standards for zero to one fitness test, 50.4 percent scored above standard on reading assessments and 41.8 percent scored above standard on math assessments. In comparison, among students who met fitness standards for all five fitness tests, 73.5 and 70.3 percent scored above standard on reading and math assessments, respectively.
- Students who met all five fitness standards were absent from school significantly less than students who met two or fewer fitness standards.

### Quotes

*"Encouraging fitness and healthy eating within our Kansas schools has always been a priority for us, and this report further emphasizes the critical role USDA's revised school nutrition standards and programs like Healthy Kansas Schools and Team Nutrition play in the overall learning success of students. We recognize that schools provide one of the most important venues for modeling consistent, healthy behaviors for students of all ages, and we're committed to ensuring this is happening."*

- Dr. Diane DeBacker, Kansas Commissioner of Education, KSDE

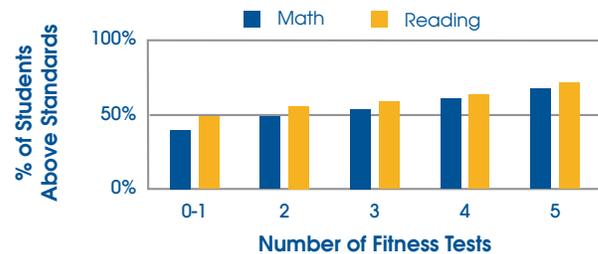
*"Exercise has a tremendous impact on the growing brain. We've known for years that increased physical activity and a good diet are important to help children stay focused, stay alert and learn better. This data reinforces the national trends we're seeing are certainly true for our children in Kansas."*

- Dr. Robert Moser, Secretary and State Health Officer, KDHE

*"The evidence is clear – we must prioritize getting our kids active in all schools across Kansas whether it includes after-school programs, active recess, quality P.E. classes or broadly an increased culture of activity,"*

- Steve Coen, President and CEO of the Kansas Health Foundation.

### Percentage of students who were above standards for reading and math by number of fitness tests for which fitness standards were met, 2011-12 K-FIT database



*"The fitness level of a student was determined by the number of fitness tests for which the student achieved the "healthy fitness zone" (or met fitness standards) out of five key tests that measured aerobic capacity, strength and flexibility. The odds of being above math and reading performance standards were significantly higher among students who met fitness standards in all five fitness tests compared to those who did not."*

### How to Get Involved

At the time of data collection for this report, 152 schools were participating in K-FIT. To date, physical educators from over 650 schools have been trained on K-FIT, but funding is available for up to 900 schools from across Kansas. If the goal of 900 participating schools is reached, approximately 60 percent of all Kansas students would be represented through future K-FIT reports.

Would you like to get your school or your child's school involved in K-FIT? For more information, contact Mark Thompson (mathompson@ksde.org), Jennifer Church (jchurch@kdheks.gov) or Josh Mathiasmeier (jmathiasmeier@ksde.org).

### How is K-FIT Funded?

Funding for K-FIT is provided by the Kansas Health Foundation and is part of a collaboration between Healthy Kansas Schools and KHF to facilitate a pattern of healthy behaviors among youth in Kansas and pave the way for a lifetime of positive health outcomes. KHF supports a number of school-based wellness initiatives centered around making the school buildings and districts across the state healthy environments for our children. This includes funding programs like K-FIT, Let's Move! Active Kansas Schools, Youth Risk Behavior Survey, School Health Profiles and local school wellness policies.

# Overview of FitnessGram Fitness Tests

Five student fitness tests were administered using the FITNESSGRAM: Progressive Aerobic Cardiovascular Endurance Run (PACER), curl-up, trunk lift, 90 degree push-up, and the back-saver sit and reach. The following is a brief description of each test and how it is scored.

**PACER:** The PACER is the default aerobic capacity test in FITNESSGRAM. The PACER score is the total number of laps completed by the student. A lap is defined as one 20-meter distance. A 15-meter version of the PACER is also available for use in smaller facilities. PACER laps are converted to an aerobic capacity score.

## Curl-up:

The curl-up is a test of abdominal strength and endurance. It is a safer and more effective test than the modified sit-up because it does not involve the use of the hip flexor muscles and minimizes compression to the spine. The score is the number of curl-ups performed by the student (maximum=75).



## Trunk lift:

The trunk lift is a test of trunk extensor strength and flexibility. For this test, a student lifts their upper body off the floor using the back muscles and holds the position to allow for measurement. The score is the number of inches the upper body is lifted off the ground while the student is facedown (maximum=12 inches).

## 90 degree push-up:

The 90 degree push-up is a test of upper body strength and endurance. For this test, a student bends the elbow to 90 degrees with the upper arm parallel to the floor. The score is the number of 90 degree push-ups performed by the student.



## Back-saver sit and reach:

The back-saver sit and reach is a test of flexibility, particularly the flexibility of the hamstring muscles. For this test, a student reaches to a specified distance on the right and left sides of the body. The score is the number of inches on each side the student can reach on the test apparatus (maximum=12 inches).

For each test, students were categorized based on whether or not their score met the FITNESSGRAM Healthy Fitness Zone (HFZ) standard as outlined in the FITNESSGRAM Test Administration Manual. HFZ standards are age and gender specific. Additionally, a HFZ score is computed to sum the total number of fitness tests for which students met the HFZ standard. The HFZ score values were fewer than one, two, three, four, or all five HFZ standards met.