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Exercise seen as priming pump for students' academic strides

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Let's imagine that each weekday before class our youth are running sprints, jumping rope, lifting weights, and engaging in other activities, all aimed at getting their heart pumping. This early-morning exercise class is about more than getting in shape, it is correlated with a growing number of experts and educators suggesting that physical activity primes the brain for learning at the same time as sculpting biceps.

Dr. Ratey is the author of "Spark: The Revolutionary New Science of Education and the Brain," a book published last month by Little, Brown and Co. It draws together emerging findings from neuroscientific, biomedical, and educational research that correlate exercise with a wide range of brain-related benefits — improving attention, reducing stress and anxiety, and staving off cognitive decline in old age, for example.

The interest in documenting a link between exercise and learning in children and adolescents comes as trends in physical activity seem to point in the opposite direction. Studies suggest that with 30 percent of the nation's school children classified as overweight, childhood obesity is reaching epidemic proportions.

An example of this was completed when research assessed the physical-fitness levels of 239 third and fifth graders from four Illinois elementary schools. Their findings published last year, in the *Journal of Sport & Exercise Psychology*, showed that children who got good marks on two measures of physical fitness— those that gauge aerobic fitness and body-mass index — tended also to have higher scores on state exams in reading and mathematics. That relationship also held true regardless of children's gender or socioeconomic differences.

Another study published last year, involving 163 overweight children in Augusta, Ga., found, in addition, that the cognitive and academic benefits of exercise seemed to increase with the size of the dose. For that study, a cross-disciplinary research team randomly assigned children to one of three groups. One group received 20 minutes of physical activity every day after school. Another group got a 40-minute daily workout, and the third group got no special exercise sessions. After 14 weeks, the children who made the greatest improvement, as measured by both a standardized academic test and a test that measured their level of executive function — thinking processes, in other words, that involve planning, organizing, abstract thought, or self-control — were those who spent 40 minutes a day playing tag and taking part in other active games designed by the researchers. The cognitive and academic gains for the 20-minutes-a-day group were half as large.

There's no way to say for sure that activity improves learning capacity for kids, but it certainly seems to correlate to that. What seems to continue to be important, though, is what gets put in those brain cells— in other words, whether students are given complex learning fodder to practice and master.

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