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Doctoral Candidate Eyes the I-Tri Girls

"My hypothesis is that exercise will improve executive functioning in the brain, that it will improve organization, problem-solving, goal-directed actions, and working memory."

By Jack Graves | March 19, 2014 - 10:34am

Jen Gatz thinks there is a connection between aerobic exercise and one's attitude toward science. *Jack Graves*

Jen Gatz, an exercise physiologist and doctoral candidate who teaches an Advanced Placement biology class at Patchogue-Medford High School, hopes a research study in which Theresa Roden's I-Tri girls are to participate will validate her hypotheses that exercise improves problem-solving abilities, and that the consequent neurocognitive improvement can produce a change for the better in junior high girls' attitudes toward the study of science.

"I'm interested in how exercise contributes to the speed with which information can be processed," said Gatz following a recent presentation to a large group of I-Tri girls and their parents at the Eleanor Whitmore Early Childhood Center. "My hypothesis is that exercise will improve executive functioning in the brain, that it will improve organization, problem-solving, goal-directed actions, and working memory."

“There have been plenty of studies indicating that this is so,” she continued, “but most of them have been with older people, not so much with younger ones. The study I’m embarking on with these girls, who range in age from 11 to 14, and who are at a stage in their lives when their neurocognitive processes are developing, is unique.”

Provided she receives the requisite parental consents, Gatz said she’ll collect and compare before-and-after academic and physical data to ascertain the efficacy of her hypothesis.

(I-Tri, which oversees annual running and swimming tests, which are being administered at the Y.M.C.A. East Hampton RECenter now, and which keeps track of its members’ academic achievement over the years, bids fair to serve as an ideal study group.)

Gatz has reason to believe her hypothesis will prove out, she said, given the improvement she’s already seen in the science, math, and English scores of I-Tri girls who have spent a year in the program. It stood to reason, she said, that the confidence gained through the aerobic physical training and the mentoring I-Tri provided would result in an attitudinal change as regards the study of science and math.

The daughter of a civil engineer, Gatz, who is 43, was dissuaded by her father from following his path, “though that,” she said, “was a different time.”

Still, things have not changed all that much, she said. “Middle school is the time when girls start to lose interest in science, technology, engineering, and math, and we’re still not sure why that is. If they remain interested in science, they tend to be steered toward biological studies, not toward physics or chemistry, the hard sciences.”

It wasn’t, as Larry Summers had famously said, that women weren’t up to the task. There were many female scientists and engineers elsewhere in the world, she agreed, “but why should we import them, why not grow them here? Actually, I think we are starting to see a change.”

Her study, which she hopes to complete within the coming year, was of two parts, said Gatz: “One, what effect does aerobic exercise have on neurocognition and learning. Two, how does this change in attitude relate to scientific achievement.”

Her doctoral work, she told the recent gathering, was “a culmination of everything I love to do.”

Later, she told this writer that she had been “a hyperactive child who if I wasn’t playing soccer, I was swimming, or who, if I wasn’t playing soccer or swimming, I was doing gymnastics [from the age of 3]. To me, life wouldn’t be life without sport.”

She had been a gymnast in high school, she said, and rowed at Ithaca College. “I loved it,” she said in reply to a question. “It’s the best feeling in the world . . . synchronicity.”

A lot of athletes she knew, said Gatz, who, while she lives in Riverhead, has participated in triathlons here for years, were of a similar mind — athletes with scientific bents. “I do think there is a connection between the two,” she said.

While her doctoral work obviously would not constitute a longitudinal study, she said, the results could well give rise to longer-term inquiry down the road.

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