



Mayo Clinic Obesity Researchers Test "Classroom of the Future"

Tuesday, March 14, 2006

"Can you imagine a school without desks? A school where children are moving as part of their lessons? And most importantly, they are smiling and healthy?" asks Mayo Clinic obesity researcher James Levine, M.D., Ph.D. If so, you have imagined the latest anti-obesity concept-project from Mayo Clinic — the classroom of the future.

Obesity among the young is a national epidemic according to the national Centers for Disease Control and Prevention. More than 15 percent of children in the United States are already overweight and the problem continues to grow. It is anticipated that half the children in America are likely to have weight problems during their lifetimes. The result is increasing health problems, including a staggering rise in type II diabetes, previously prevalent only in adults. A major culprit, along with poor-quality diet, is a lack of activity at school and at home.

Dr. Levine, who directs the Active Life research team, is targeting childhood obesity. He and child researcher Lorraine Lanningham-Foster, Ph.D., are testing a revolutionary concept in how society thinks of a school classroom.

They have asked a simple question: do children really need to sit at desks while they learn? To find the answer they have designed what they believe to be the first chairless school — complete with "standing" desks and a host of sophisticated learning technologies. Most important to the equation are the children — whom they find are eager to learn in a new way.

How They Did It — Collaboration

"We assembled a team of business and organization leaders who all recognize the urgency to resolve inactivity in children and realize that the future has to look different from our past," says Dr. Levine. The Rochester Athletic Club built an indoor village to house the school of the future, Apple provided iBook wireless notebook computers and iPods that play video, and America on the Move (a community-based advocacy organization) will raise awareness of the concept. "The Rochester Public Schools were amazing," Dr. Levine explains. "Teachers stood in line to take on the challenge."

"When I was approached I realized that this has to be the face of the future not only for education but also for the health of American children," said Jerry Williams, superintendent of Rochester Public Schools. "If the concepts are proven, Rochester will consider expanding such an experimental environment in one of our elementary schools."

Thirty fourth and fifth graders spent a week having all their school activity measured in their traditional classroom. This week (week of March 13th) they are moving to the "school of the future." They will be given several days to settle in. The children's activity will be monitored in the new school environment and educational testing will be performed. The Mayo team will collect data on their movements using specialized telemetry called Posture and Activity Detectors (PADs). Each child will wear a PAD on his or her leg. The PADs will measure the time spent standing and walking.

Dr. Levine developed the school's concepts during two decades of international research. They will be integrated into the children's learning experience. Some of the innovations include:

- Video-streamed "pod-casting" as a teaching aid
- "Learn 'n Move" bays — a step beyond traditional learning stations
- Wireless technology
- Personalized laptop computers
- A novel earpiece that measures physical activity of the student
- Vertical magnetic work spaces that double as projection screens

- Innovative telemetry that collects data for scientific comparison
- Personalized white boards (instead of one large blackboard for a room)
- "Standing" desks — where the children will stand and work, rather than sit

The most amazing advance, according to Dr. Levine, is giving children the chance to move at school. "Children are so amazing," he said. "They are adaptable and actually love to learn, we just have to let them move naturally."

"We hope that the novel aspect of the technology will interest them so they choose to stand and move, rather than look for a place to sit," says Dr. Lanningham-Foster. "Kids will stand at a video arcade; why not at a computerized learning center?"

"Apple is proud to be part of this important study," said John Couch, Apple's vice president of education. "We are thrilled that our products and solutions can add to this effort and help transform teaching and learning to meet the needs of today's students."

"This could be the critical step in preventing childhood obesity," says Jim Hill, president of America on the Move, a Boston-based, non-profit organization that promotes active living.

"We are seeing a generation that is increasingly sedentary and inactive," says Greg Lappin, general manager of the Rochester Athletic Club, site of the experiment. "We're excited about playing a role in something that could help turn around this national problem."

The Scientific Foundation

The Mayo Clinic research supporting this project has been amassed over 10 years of international studies and has been termed NEAT (non-exercise activity thermogenesis) http://mayoresearch.mayo.edu/mayo/research/levine_lab/. NEAT is the energy a person burns during regular, daily activities. Mayo's published findings show that NEAT is remarkably important in obesity.

"Initially this concept of a chairless school was viewed as a crazy, unachievable idea," says Dr. Levine. "But then I started to ask for help. Every organization I approached simply said, 'YES.' I could not believe it. Then I realized that they all wanted to be part of this for the same reason we did — it is for our children."

The current classroom research is funded by the National Institutes of Health and Mayo Clinic.

Media Availability Information:

News media will be able to photograph the students in the experimental environment and interview the researchers and principal collaboration partners. The period available for media access is limited to minimize distraction to the students and disruption to the ongoing study.

When: 10 a.m., Tuesday, March 14

Where: Rochester Athletic Club, 3100 19th St. NW, Rochester, Minn.

For more information, call 507-284-5005.

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