

# ■ Research That Matters

## **Sharpening the Mind Through Movement: Using Exercise Balls as Chairs in a University Class**

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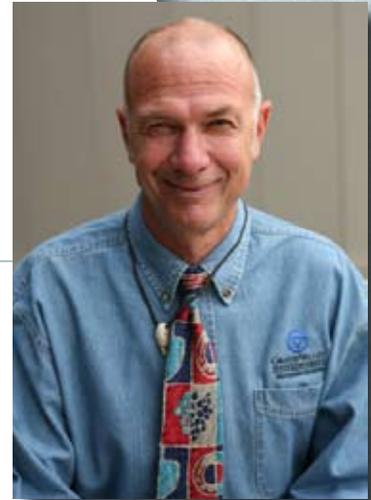
### **Objective**

The objective of this project was to explore the use of UltiFit Antiburst Stability Balls (exercise balls) as seats for students in lecture classes at Grand Valley State University. The title of the course was MOV 101, "The History and Philosophy of Sport and Physical Education." The hypothesis was that using the exercise balls as seats would be a positive experience for students in a university lecture class. Quantitative data (questionnaires) and qualitative data (student comments) were collected from the students at the conclusion of the 14-week semester, fall 2008.

### **Literature Review**

There is a growing body of scientific knowledge that affirms the positive benefits exercise has on teaching and learning. In his informative book, *SPARK: The Revolutionary New Science of Exercise and the Brain*, Harvard Professor John J. Ratey, M.D., said, "In addition to priming our state of mind, exercise influences learning directly, at the cellular level, improving the brain's potential to log in and process new information" (Ratey, 2008, p. 35). He went on to say, "Research from kinesiologists to epidemiologists shows again and again that the better your fitness level, the better your brain works" (Ratey, 2008, p. 247).

There is an increasing number of teachers using exercise balls as seats in classrooms. Many are reporting positive results in student attention and focus. Occupational therapist Sally Geerlings said, "The ability to pay attention increases when given the opportunity to move. These seats (exercise balls) give children tactile stimulation while they are working on balance, assisting their brains to be ready to learn" (Grandville Public Schools Board of Education, 2007). In addition, Bob Nellis of the Mayo Clinic in Rochester, Minnesota, conducted a study on the benefits of chairless classrooms and said the following, "Kids move around. They're supposed to be active" (Pytel, 2007). His study showed that students with attention problems could focus better using the exercise balls for chairs in their classrooms. What is more, children in the classrooms who require extra movement could do so in a quiet manner without disturbing other students (Pytel, 2007). Also, in one private school in Minnesota, the teachers found the exercise balls so successful that they replaced all of the classroom chairs with balls. The principal, Deb Kelzer, said, "The kids were really excited to come back to school and sit on those balls" (Pytel, 2007).



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Corinne Westphal, in her article “Exercise Ball Moves to the Office: Just Sitting at Your Desk Is a Workout,” talked about the physiological benefits of using an exercise ball. She said using an exercise ball provides:

**“Greater Balance**—The body must constantly change its center of gravity in order to remain balanced and still. Greater balance promotes better posture and decreases risk of accidents from falls.”

**“Core Strength Training**—To maintain balance while sitting on an exercise ball, postural muscles (neck, upper and middle back, and shoulder girdle), abdominals, gluteals and leg muscles make constant tiny adjustments.”

**“Improved Posture and Body Alignment**—Sitting on an exercise ball, the body naturally assumes an upright, straight position. In fact, it’s very difficult and uncomfortable to slouch on an exercise ball” (Westphal, 2008).

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### Project

The goal of the project at Grand Valley State University (GVSU) was to explore the use of exercise balls for college-age students in lecture classrooms and solicit student feedback about their experience at the end of the semester.

The project began in the fall of 2008 in four MOV 101 classes at GVSU. Students in the classes had the option of sitting on an exercise ball at their tabletop desks. A grant from the PEW Teaching & Learning Center at GVSU provided the funds to purchase 24 exercise balls and racks for easy and convenient storage. The balls came in three sizes appropriate for university-age students.

Following are the responses (in *italic*) to the questionnaires administered to the students at the end of the semester.

### Survey: “Sharpening the Mind Through Movement—Exercise Balls”

This research project (09-27-H. Kilbourne) has been approved by the GVSU Human Research Review Committee as exempt from the federal regulations under 45 CFR 46.101(b)(2).

#### MOV 101—Fall 2008

By completing this survey you are consenting to participate in the research project.

1. I certify that I am at least 18 years of age (Circle One): Yes (*52*) No (*0*)
2. Sex (Circle One): M (*26*) F (*26*)
3. Year in School (Circle One): Freshman (*22*) Sophomore (*12*) Junior (*11*) Senior (*7*)
4. Number of days you used the exercise balls as a seat in a lecture class:  
*Mean: 11.6 days; Minimum: 1 day; Maximum: 28 days*

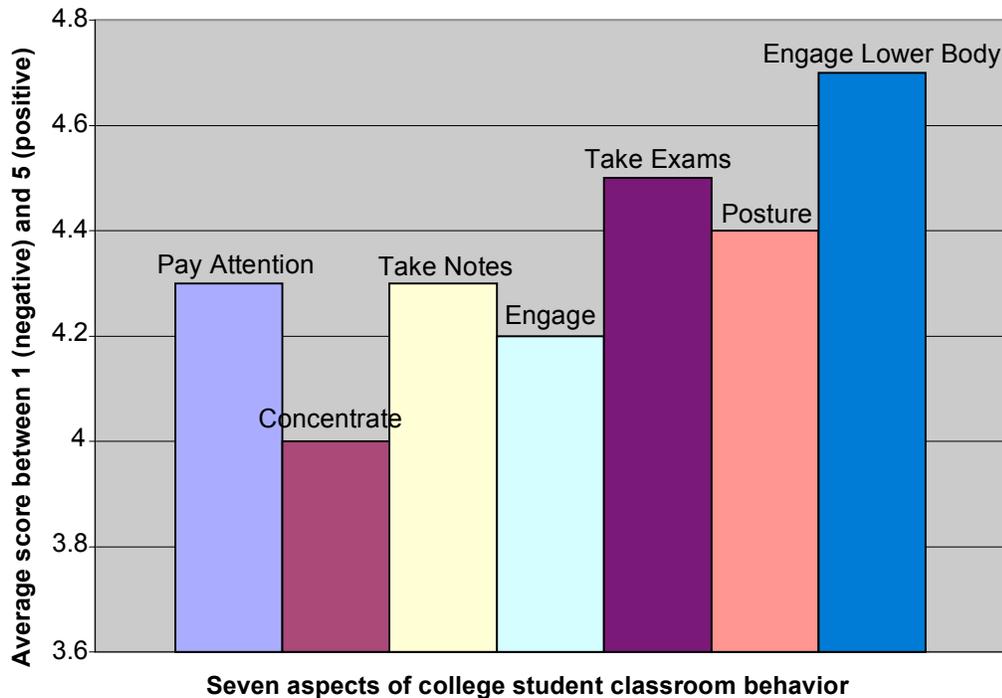
On a scale of 1 to 5 (1 being negative and 5 being positive), please rate using the exercise balls in a lecture class (Circle One):

- |  |   |   |   |   |   |                  |
|--|---|---|---|---|---|------------------|
| 5. Ability to pay attention in class   | 1 | 2 | 3 | 4 | 5 | <i>Mean: 4.3</i> |
| 6. Ability to concentrate in class   | 1 | 2 | 3 | 4 | 5 | <i>Mean: 4.0</i> |
| 7. Ability to take notes in class  | 1 | 2 | 3 | 4 | 5 | <i>Mean: 4.3</i> |
| 8. Ability to engage in classroom discussions  | 1 | 2 | 3 | 4 | 5 | <i>Mean: 4.2</i> |
| 9. Ability to take exams   | 1 | 2 | 3 | 4 | 5 | <i>Mean: 4.5</i> |
| 10. Ability to maintain upright posture  | 1 | 2 | 3 | 4 | 5 | <i>Mean: 4.4</i> |
| 11. Ability to engage the lower body   | 1 | 2 | 3 | 4 | 5 | <i>Mean: 4.7</i> |
| 12. If given the opportunity, would you use an exercise ball as a seat in other classes at Grand Valley State University? (Circle One): Yes ( <i>51</i> )<br>No ( <i>1</i> ) |   |   |   |   |   |                  |

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## Research That Matters, *continued*

Mean score given to seven aspects of college student classroom behavior after sitting on exercise balls instead of standard chairs



### Comments:

#### Class I

- "This is a really great idea; I think it's wonderful!"
- "I really enjoyed it. I think it should be used more often in more places. I always used one when helping the athletes in high school do their rehab or evaluations."
- "Provided more cushion to a boney butt, even small adjustments were easy; posture was/has improved. Excellent project."
- "It's a good idea to engage one's body while sitting in class."
- "It keeps you awake and helps keep a good posture for paying attention in class."

#### Class II

- "I did not use an exercise ball while taking exams. I only would use them during lecture dates. I HIGHLY recommend that this experiment should be spread throughout the Movement Science department and throughout GVSU."
- "I think if balls were available in classroom, better results would be seen."
- "I felt that if the balls were readily available in the same classroom as the actual class, I would have sat on one every day."

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- “[The ball] helps my back a lot because I’m not sitting in a regular chair!”

### Class III

- “It was a fun change in the classroom.”
- “My posture is very poor, and sitting on these exercise balls helped a lot. They were also fun to sit on.”
- “I enjoyed it very much, maybe even bragged a little to friends.”
- “I learn so much better when I am engaged in activities so this was a great way to learn.”
- “I liked it more the most part, but made my back hurt.”
- “I thought it was much more comfortable than a regular chair.”

### Class IV

- “It was fun and enjoyable.”
- “I would have used it more if they were not upstairs. It was difficult to get to class on time when I had to go up to get one! I loved the idea and I am asking for one for Christmas for my desk at home!”
- “It was a lot of fun and was able to be more attentive.”
- “Excellent!”
- “All of this works very well for me as well because I do this at home every day.”
- “Very good! Much easier to always stay engaged.”
- “I really enjoyed them. If they were always in the class I would have participated every day.”
- “It’s fun, but got uncomfortable after an hour. As you can tell, popularity faded throughout the year. You have to incorporate other activities with the ball through the class time to make it more comfortable.”

## Conclusions

The student’s responses to the questionnaires clearly demonstrated an excitement and enthusiasm for having the option to use an exercise ball for a seat in a lecture class. Responses to each question, from students’ ability to pay attention, take notes, engage in classroom discussions, and take exams, were all 4.0 (positive) or higher.

As the professor of the class, it was exciting to walk into the classroom and see students sitting on the brightly colored red and blue balls. Students would often gently bounce on the balls as they took notes or engaged in classroom discussions. What was most exciting was to see that 98% (51 out of 52 students) would use an exercise ball as a seat if provided the opportunity. Considering the costs of new classroom chairs and the students’ desires to sit on an exercise ball, it might be wise for colleges and universities to rethink their purchase of standard desk chairs.

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The exercise balls added an enhanced level of excitement for the students in class. Several students actually became attached to their ball seats, wanting to use their special ball in each class. Using the exercise balls required limited maintenance. Twice during the 14-week semester, air was added to the balls to maintain required firmness.

The results of the research project clearly demonstrate that additional research is needed to further establish the effectiveness of using exercise balls in a classroom setting. Research possibilities include examining student performance sitting on exercise balls versus sitting in traditional chairs and research examining students' ability to balance (pre and post). The aforementioned research project will be repeated with classes during the winter semester, 2009, at GVSU. Adjustments will be made so that students will have easier access to the balls before and after class.

### **References**

- Grandville Public Schools Board of Education. (2007, October). *The Communicator*.
- Pytel, B. (2007, November 21). No more classroom chairs: Students are sitting on exercise balls. *Student Health Issues*.
- Ratey, J.J. (2008). *SPARK: The revolutionary new science of exercise and the brain*. New York: Little Brown & Co.
- Westphal, C. (2008). Exercise balls move to the office: Just sitting at your desk is a workout. *Fitness*. ■