

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

International Journal of Educational Research

journal homepage: www.elsevier.com/locate/ijedures

Sitting on a stability ball improves attention span and reduces anxious/depressive symptomatology among grade 2 students: A prospective case-control field experiment

Anca Gaston^{a,*}, Sherri Moore^b, Leslie Butler^c

^a School of Kinesiology, Western University, 1151 Richmond Street, London, Ontario N3T 6M5, Canada

^b Essential Physiotherapy, 97 Brant Ave, Brantford, Ontario N3T 3H4, Canada

^c Brantford, Ontario, Canada

ARTICLE INFO

Article history:

Received 31 May 2015

Accepted 28 March 2016

Available online 25 April 2016

Keywords:

Attention span

Classroom management

Elementary students

Stability ball

Classroom environment

ABSTRACT

This study used a prospective matched case-control design to examine the effects of sitting on a stability ball on inattention, hyperactivity, oppositional defiant behaviours, and anxious/depressive symptomatology among 23 experimental and 18 control grade 2 students. Classroom teachers completed the NICHQ Vanderbilt Assessment Scale at baseline and 8-weeks (T2) and 5-months (T3) after the experimental group switched to stability balls. Social validity was assessed at year-end. ANCOVAs controlling for baseline scores demonstrated that students in the experimental condition had improved attention at T2 and T3 and reduced anxious/depressive symptoms at T2. All students and the classroom teacher preferred the balls. In conclusion, sitting on stability balls is well received and may represent an effective classroom management strategy for improving attention.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

'Control the class, then teach the class' is a common idea passed from one teaching generation to another which implies that teachers who are unwilling or unable to establish control over their classroom never get to the point of actually being able to teach (Denscombe, 2012). This idea is supported by a strong research base. For example, Wang, Haertel, and Walberg (1993) examined evidence from 61 research experts, 91 meta-analyses, and 179 handbook chapters and narrative reviews and found that out of 28 variables, classroom management was ranked first in terms of its influence on student learning. Classroom control is made increasingly difficult by the growing numbers of children displaying disruptive behaviour disorders (e.g., attention-deficit hyperactivity disorder (ADHD), oppositional defiant disorder, and conduct disorder), internalized disorders such as anxiety and depression, or autism spectrum disorder. It is now estimated that in Canada, 14% of children between the ages of 4 and 17 years have one or more clinically important disorder which causes significant distress and impairment at school, home, and in the community (Flett & Hewitt, 2013). Even greater are the numbers who may not meet clinical criteria but are still considered 'difficult' by both teachers and parents (Barkley & Benton, 2013). In light of these challenges, there is no shortage of informed writing on the topic of instructional and behavioural classroom management

* Corresponding author.

E-mail addresses: ancagaston@gmail.com (A. Gaston), smooremccall@gmail.com (S. Moore).

strategies. However, fewer studies have focused on the relationship between the physical classroom environment and children's behaviour and emotional health. One intervention which may be promising for improving attention span and reducing disruptive behaviours is the use of stability balls as classroom chairs.

To the best of our knowledge, only a handful of studies have examined the use of stability balls as classroom chairs. Schilling, Washington, Billingsley, and Deitz (2003) reported improved in-seat behaviour and legible word productivity among 4th grade students with ADHD only when the students were sitting on stability balls. Both the teacher and students preferred the stability balls and the teacher continued to use them after the completion of the study. Schilling and Schwartz (2004) found that 3–4 year old boys with a diagnosis of autism spectrum disorder displayed significant improvements in engagement and in seat behaviour when they were seated on stability balls. Social validity findings revealed that the teachers preferred the therapy balls. Bagatell, Mirigliani, Patterson, Reyes, and Test (2010) examined the effectiveness of stability ball chairs on classroom participation among six boys with autism spectrum disorder. Results indicated that each child showed a unique response, with some children demonstrating improved behaviour and others appearing less engaged.

Fedewa and Erwin (2011) evaluated the effect of sitting on stability balls in lieu of classroom chairs among 76 children in grades 4 or 5. Attention and hyperactivity scores improved in all children when the stability balls were implemented. However, only those students diagnosed with ADHD demonstrated significant improvements, as well as improvements in-seat and on-task behaviour. Furthermore, the teacher preferred the stability balls over classroom chairs. In an unpublished report submitted to the Superintendent of the Poudre School District in Colorado, Lisa Witt reported that seven out of 12 grade 6 students (58%) displayed reduced squirminess and five of the 12 students (42%) improved in their ability to stay on task when seated on stability balls (Witt, 2001).

Although these studies provide some preliminary evidence that elementary school children may benefit from the use of stability balls in the classroom, this research is limited by the failure to include a control group and a focus primarily on children with clinically significant behavioural disorders. Using a prospective matched case-control design, the purpose of this study was to address these limitations and examine the effects of sitting on a stability ball (vs. regular classroom chair) on attention span, hyperactivity, oppositional defiant behaviours, and anxious/depressive symptomatology among general grade 2 students from one school in Southwestern Ontario, Canada. We hypothesized that children in the experimental group would demonstrate improved scores in all domains as a result of sitting on stability balls.

2. Method

2.1. Participants

The experimental group consisted of grade 2 students from one classroom who used stability balls for the duration of the 2013–2014 school year ($n = 23$; 56.5% female; $M_{\text{age}} = 7.20$; $SD = 0.22$). Eighteen grade 2 students matched for age and sex from two other classrooms not using stability balls served as controls (55.6% female; $M_{\text{age}} = 7.22$; $SD = 0.27$). Thus, a total of 41 students and 3 classroom teachers took part in this study.

Table 1

Child Attention Problems Scale and NICHQ Vanderbilt Assessment Scale mean and standard deviation scores and repeated measures ANOVA results across time for experimental and control groups.

Variable	Experimental (n = 23)			Control (n = 18)			Reliability (Cronbach's Alpha- α) (n = 41)		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Inattention	1.06 (0.93)	0.52 (0.74)	0.61 (0.69)	0.96 (0.83)	0.89 (0.70)	0.77 (0.69)	0.97	0.96	0.95
Hyperactivity	0.64 (0.75)	0.32 (0.68)	0.36 (0.63)	0.67 (0.73)	0.46 (0.60)	0.43 (0.59)	0.96	0.97	0.94
OD behaviour	0.13 (0.40)	0.06 (0.13)	0.07 (0.21)	0.19 (0.36)	0.13 (0.27)	0.17 (0.36)	0.94	0.83	0.94
Anx/Dep	0.31 (0.33)	0.21 (0.28)	0.25 (0.38)	0.39 (0.50)	0.52 (0.36)	0.27 (0.31)	0.85	0.83	0.78

Notes: Anx/Dep = Anxious or depressive symptomatology; NICHQ = National Initiative for Children's Healthcare Quality; OD = Oppositional defiant; Time 1 = Baseline; Time 2 = 8-week follow-up; Time 3 = 5-month follow-up. Standard deviation shown in brackets.

Download English Version:

<https://daneshyari.com/en/article/356877>

Download Persian Version:

<https://daneshyari.com/article/356877>

[Daneshyari.com](https://daneshyari.com)