

## PEDAGOGY

# Unfit to Teach

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## Abstract

**Purpose:** Physical education (PE) teachers appear to have a powerful influential effect on learners in the instructional environment through the manner in which they model those behaviors and practices they espouse. The purpose of this study was to determine if Georgia secondary PE teachers are capable of modeling Healthy Fitness Zone (HFZ) standards, as determined by FitnessGram 9, at a level that secondary students perceive as fit. **Method:** One hundred forty-eight participants (112 males, 36 females) ranging in age from 23 to 55 years ( $M = 37$ ,  $SD = 8.5$ ) were assessed independently using the FitnessGram 9 protocols for Aerobic Capacity via the 20-meter PACER test, Muscular Strength and Endurance via the push-up and curl-up tests, Flexibility via the single leg sit-and-reach test, and Body Composition via the height and weight BMI test. Assessments occurred during the 2015–2016 school year. Participants represented 64 of the 193 state public school districts, including 86 of the 954 secondary schools. **Results:** Males performed significantly below the HFZ in all of the areas, with the exception of upper body muscular strength and endurance. Females scored significantly below the HFZ in the majority of areas, with the exceptions of upper body and abdominal muscular strength and endurance. **Conclusion:** The results of this study indicate that male and female secondary PE teachers within the state of Georgia

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*are unable to perform the majority of FitnessGram tests within the HFZ designated for adults—a score of > 17—and are therefore likely to be perceived by students as hypocritical, which thereby undermines their instructional effectiveness.*

Social cognitive theory maintains the position that a portion of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions (Bandura, 1986). Physical education (PE) teachers in particular appear to have a powerful influential effect on learners in the instructional environment, through the manner in which they model those behaviors and practices they espouse (Cardinal, 2001; Esslinger, Pyle, Hey, & Manny, 2014; Melville, 1999; Melville & Maddalozzo, 1988; Schunk & Zimmerman, 1998). As such, the National Standards and Guidelines for Physical Education Teacher Education expect teachers to be fitness competent and physically fit to model those espoused messages related to physical fitness (National Association for Sport and Physical Education, 2009). However, past and current data suggest that PE teacher education (PETE) programs are typically underperforming in their initiative to prepare physically fit preservice teachers and that in-service teachers are thereby largely failing to fulfill their position as credible fitness role models in the instructional setting.

Staffo and Stier (2000) found that department chairs in PETE programs “unanimously agreed that PE students seeking teacher certification need to be physically fit” and were “dissatisfied with the fitness levels of their current majors” (p. 51). This point of view is still supported today by researchers such as Kamla, Snyder, Tanner, and Wash (2012), who suggested that “PETE majors are no better role models for physical fitness than non-PETE majors” (p. 20). This notion is further reinforced by the work of La Vine and Ray (2006), who agreed that PETE programs have been too lenient on fitness requirements and that “physical education majors need to be more physically active” to fulfill the functions of their jobs (p. 191). Heidorn (2013) articulates this same message, arguing that “our profession is not consistently demonstrating effective modeling in skill and fitness development among our students” (p. 5).

Yet, despite indications from the field that it may be time for PETE programs to implement fitness accountability measures into

preparation programs, little progress has been made. Staffo and Stier (2000) acknowledged that despite the misgivings of department chairs regarding preservice teacher fitness levels, few of those chairs were invested in working on curricular changes to advance any form of physical fitness assessment within their respective program. This unwillingness of some programs to change is potentially problematic to the field. If PETE programs are truly going to embrace their role of preparing effective educators to combat the growing obesity epidemic in today's youth, then they need to ensure interventions are in place to ensure their teacher candidates are effective fitness role models. As Webster et al. (2014) stated, "Pre-service programs need to carefully think about assessing candidates' fitness and helping candidates improve their fitness as a means to increase their teaching effectiveness" (p. 215).

To initiate such changes, La Vine and Ray (2006) explicitly advocated that the field should be taking broader steps to recruit majors who are convincing role models, thereby implicitly calling for the field to be more selective and exclusionary in regard to poor fitness role models. This position seems to support Staffo and Stier's (2000) message that PETE programs might benefit from introducing fitness testing into course requirements to "cull would-be physical education teachers" who do not adhere to the fitness requirements deemed acceptable of an effective role model "from the departments programs" (p. 51). The addition of fitness requirements to PETE programs may be a viable means of reducing the number of unfit preservice teachers; for instance, Baghurst and Bryant (2012) found fitness testing requirements to be limiting factors that deter unfit, would-be majors from enrolling in PETE programs.

However, if the field is going to move into an era of mandating fitness testing for preprofessionals and holding preservice and in-service teachers accountable for fitness levels, then the justification for doing so needs to be clear. One such prominent rationalization supporting the need for practitioners to be fitness competent revolves around the correlations between physical fitness and content competency. As Webster et al. (2014) found, physical fitness, specifically muscular strength, is an important factor in a teacher's ability to demonstrate skills competently and accurately. Furthermore, the correlation between unfit adult role models and youth obesity is

becoming increasingly clearer. Wilkinson et al. (2014) attributed the significance of a teacher's modeling a healthy lifestyle to the relationship that appears to exist between youth observations of poor role models and youth obesity. Moreover, physically fit teachers tend to be more active instructors. As Conlin (2014) found, middle schoolers perceived active teachers to be proper role models for their ability to participate in warm-ups, demonstrate skills, and participate in gameplay, a perception not afforded to spectator teachers, whose passive instructional style was perceived to be a limitation associated with poor physical fitness. This particular finding is similar to that of Ryan, Fleming, and Maina (2003), who found that middle school students had a tendency to admire the abilities of teachers who were fit and displayed advanced motor skills.

Secondary students' admiration regarding teacher fitness levels appears to relate largely to visible criteria. For this reason, body composition continues to be the most readily identifiable measure of fitness, based on secondary students' perceptions. This is significant because body composition continues to be the weakest area of teacher health-related fitness (Cardinal, 2001; Peterson, Byrne, & Cruz, 2003). Consistently over the years, approximately 30% to 40% of in-service health, physical education, recreation, and dance (HPERD) participants tested in research studies have had an unhealthy percentage of body fat. These visible levels of poor fitness present a significant problem for the field; findings such as those of Dean, Adams, and Comeau (2005) continue to "indicate that the physical appearance of obesity does affect the test scores of secondary students on health-related fitness knowledge" (p. 21). This concept is probably best noted in the seminal 1988 study by Melville and Maddalozzo, in which students instructed by a visibly fit teacher performed better on a cognitive test compared to students receiving the same instructional lesson from the same teacher in a fat suit, whereby the instructor's image was distorted to make him appear obese and unfit. The students in this study further reported the "fit teacher" to be a better role model, a knowledgeable practitioner, and someone whose advice they would follow regarding exercise, and they expressed contrasting opinions to the aforementioned regarding the visibly "unfit teacher." Baghurst and Mwavita (2014) and Garrett and Wrench (2008) have noted similar findings, articu-

lating that unfit teachers are readily identifiable to students based on body composition. Hence the notion that physical appearance and perceived fitness levels of PE teachers are important to student achievement becomes increasingly apparent. Yet, despite this realization that student perceptions of teacher fitness may significantly affect learning, little is currently being done to enhance fitness levels in PETE programs or to remediate in-service teacher fitness levels.

## **Background**

Beginning with the 2011–2012 school year, the Official Code of Georgia § 20-2-777 (Elementary and Secondary Education, 2015) required each school district to conduct an annual fitness assessment program (FitnessGram) for all students in Grades 3 to 12 enrolled in Georgia public school PE classes taught by certified PE teachers. The initiative is a direct response to the escalating obesity epidemic plaguing the state's youth. The focus on fitness testing is designed to remediate consequential behaviors associated with a sedentary lifestyle, in an effort to facilitate more significant engagement with physical activity.

However, if the PE teachers charged with leading the initiative are not modeling healthy fitness lifestyles and are not physically fit, the possibility that the initiative will fail to achieve the desired results will increase. If teachers are not modeling the behaviors they espouse, students could perceive a level of hypocrisy within delivered instructional messages, which could undermine the value of the instructional messages being delivered and thereby hinder the success of the planned remediation strategy (Cardinal, 2001; Dean et al., 2005).

Currently, no data detailing fitness levels of secondary PE teachers within the state of Georgia exist. The purpose of this investigation was to (1) determine fitness levels of practicing secondary PE teachers using the fitness battery FitnessGram 9 and (2) compare those scores against the FitnessGram 9 Healthy Fitness Zone (HFZ) outcome standards for adults. The resulting data provide evidence related to whether remediation strategies need to be implemented to enhance the fitness levels of practicing PE teachers in secondary school settings in Georgia.

## Method

### Participants and Setting

A power analysis was conducted using GPower to determine the minimum number of participants required for inclusion in the study for findings to be generalizable. With a viable sample size for generalizability determined to be  $N > 137$ , potential participants from the state of Georgia's total population of current secondary public school PE teachers were then randomly selected using a standard computer selection program. All identified potential participants were contacted through their independent public school e-mail address through an informative contact letter. The contact letter outlined study protocols and procedures, outlined study outcome goals and objectives, and requested voluntary participation. Independent assessor contact information was then provided through a follow-up e-mail to those consenting to participate in the study. Arrangements were then made for testing dates, times, and locations. Initially, 250 potential participants were contacted. Of those, 163 replied, agreeing to participate.

The study team then applied exclusionary criteria to limit participant engagement, for the safety of potential participants with pre-existing medical conditions. Foremost, as is generally compulsory with students participating in FitnessGram testing, each potential adult participant was required to produce confirmation of a current annual physical, which cleared the participant for engagement in fitness-related activities. Furthermore, in conjunction with the physician physical, a medical questionnaire (PARQ) was used to exclude potential participants with cardiorespiratory disease, asthma, and/or other recent injuries and disabilities that could be exacerbated through physical exercise. Finally, accepted voluntary participants were informed that agreement to participate was in no manner binding, and as such, they were free to remove themselves from further engagement in any and all aspects of the study at any time, for any reason. The exclusionary criteria and dropout rate reduced the final participant numbers to 148 (112 males, 36 females). Participants ranged in age from 23 to 55 years ( $M = 37$ ,  $SD = 8.5$ ). Males ranged in age from 25 to 55 years ( $M = 38$ ,  $SD = 8.1$ ) and females ranged in age from 23 to 53 years ( $M = 34$ ,  $SD = 9.2$ ). Participants represented

64 of the 193 state public school districts, including 86 of the 954 secondary schools.

### **Assessment Procedures**

Participants were assessed independently at their own school. However, the assessment team provided the testing instruments to maintain reliability and validity. Equipment such as sit-and-reach boxes, height and weight scales, tape measures for PACER course marking, and FitnessGram cadence audio recordings were calibrated and standardized for testing purposes. During testing sessions, one of five trained researchers facilitated each independent assessment session. The assessment team implemented FitnessGram 9 protocols (Meredith & Welk, 2010) to record reliable and valid data for the five most common tests assessed in Georgia: Aerobic Capacity via the 20-meter PACER test, Muscular Strength and Endurance via the push-up and curl-up tests, Flexibility via the single leg sit-and-reach test, and Body Composition via the height and weight BMI test. Data collection sessions were videotaped for postassessment inter- and intrarater reliability analysis. Two iPad Minis operating Dartfish Express were used for recording each testing session. Data were recorded live using FitnessGram 9 software, whereby each participant's data were coded using a numerical replacement-representation system, which ensured confidentiality. Immediately prior to testing sessions, participants were required to watch a formal prerecorded video demonstration detailing procedures and protocols for each of the five assessed areas, even though they regularly implement the assessment battery and were presumed to be familiar with the assessment procedures, protocols, and inherent risks. Specific attention was provided in the video demonstration to form breaks that were likely to lead to a halt in engagement in specific testing areas. Participants were provided with the opportunity to ask the researchers clarification questions regarding assessment scoring protocols.

### **Healthy Fitness Zone**

This study design was not structured to test the age- and gender-appropriate physical fitness levels of the participating secondary teachers; other measures are more appropriate for this type of assessment. The intent was to determine if Georgia's secondary teachers were performing physically at a level of performance per-

ceived by secondary students as “appropriate” regarding physical fitness. Because secondary students typically struggle with differentiating age-appropriate fitness measures, the majority of secondary students determine “appropriate” fitness to be the standards to which they are personally held accountable. Hence, this study set the HFZ score of  $> 17$ , as defined by FitnessGram measures, as the standard for evaluations of the secondary teachers.

### **Data Analysis**

Testing data were recorded live electronically using FitnessGram 9 software and then transferred into IBM SPSS 22 (Chicago, IL), in which analyses were performed. Descriptive statistics including percentages, means, and standard deviations were generated and represented male and female scores on each of the five fitness tests. Single-sample *t* tests compared the participants’ scores on the five assessed areas to the FitnessGram HFZ standards for adults ( $> 17$ ) by gender (Meredith & Welk, 2010). The *t* tests were two-tailed, with a .05 level of significance.

During the data collection process, each assessor rescored the first, middle, and final assessment session 2 days after the original scoring. Intrarater reliability was established at  $> 99\%$ . Furthermore, all five assessors simultaneously rescored a random selection of five recordings from the total number of participants assessed, 2 weeks after the conclusion of the final assessment session. During the rescored session, interrater reliability was established at  $> 98\%$ .

### **Results**

Descriptive statistics (see Table 1) represent the number and percentage of males and females within their respective groups performing below, at, or above the HFZ standards as stated by FitnessGram for adults. Males performed significantly below the HFZ in all areas, with the exception of upper body muscular strength and endurance. Females scored significantly below the HFZ in the majority of areas, with the exceptions of upper body and abdominal muscular strength and endurance.

**Table 1***Descriptive Statistics for FitnessGram Measures by Gender*

Measure by gender	<i>M</i>	<i>SD</i>	HFZ	# ≥ HFZ	% ≥ HFZ
Males ( <i>N</i> = 112)					
BMI (ht/wt)	30.04	5.29	< 25.1	24	21
Flexibility (in.)	4.75	1.50	> 8	10	9
PACER (VO <sub>2</sub> max)	39.05	4.15	> 44.3	13	11
Push-Up (max)	21.00	9.50	> 18	98	88
Curl-Up (max)	22.50	5.50	> 24	33	29
Females ( <i>N</i> = 36)					
BMI (ht/wt)	29.56	4.49	< 25.1	8	22
Flexibility (in.)	7.75	2.00	> 12	15	41
PACER (VO <sub>2</sub> max)	30.36	6.51	> 38.6	4	11
Push-Up (max)	7.50	4.75	> 7	17	47
Curl-Up (max)	18.25	7.75	> 18	16	44

Single-sample *t* tests (see Table 2) compared the mean scores of the male participants on each of the five assessed areas to the HFZ standards for those areas. A significant difference was found on the BMI test,  $t(111) = 10.08$ ,  $p = .000$ , whereby the sample mean of 30.04 ( $SD = 5.29$ ) was significantly higher than the HFZ standard for BMI. A significant difference was found on the Flexibility test,  $t(111) = -21.09$ ,  $p = .000$ , whereby the sample mean of 4.75 ( $SD = 1.50$ ) was significantly lower than the HFZ standard for flexibility. A significant difference was found on the 20-meter PACER test,  $t(111) = -13.39$ ,  $p = .000$ , whereby the sample mean of 39.05 ( $SD = 4.15$ ) was significantly lower than the HFZ standard for VO<sub>2</sub>max. A significant difference was found on the Curl-Up test,  $t(111) = -2.94$ ,  $p = .004$ , whereby the sample mean of 22.50 ( $SD = 5.50$ ) was significantly lower than the HFZ standard for abdominal muscular strength and endurance. Only on the Push-Up test did males score significantly higher than the HFZ standards,  $t(111) = 3.13$ ,  $p = .002$ , with a sample mean of 21.00 ( $SD = 9.50$ ). Hence, male public school PE teachers performed significantly below the adult HFZ in all areas, with the exception of push-ups.

**Table 2***Single-Sample t Tests: Participant Scores Versus HFZ Standards*

Measure	Males		Females	
	<i>t</i> (111)	<i>p</i>	<i>t</i> (35)	<i>p</i>
BMI (ht/wt)	10.08	.000	6.09	.000
Flexibility (in.)	-21.09	.000	-12.93	.000
PACER (VO <sub>2</sub> max)	-13.39	.000	-7.59	.000
Push-Up (max)	3.13	.002	-.68	.503
Curl-Up (max)	-2.94	.004	.22	.829

Single-sample *t* tests (see Table 2) compared the mean scores of the female participants on each of the five assessed areas to the HFZ standards for those areas. A significant difference was found on the BMI test,  $t(35) = 6.09$ ,  $p = .000$ , whereby the sample mean of 29.56 ( $SD = 4.49$ ) was significantly higher than the HFZ standard for BMI. A significant difference was found on the Flexibility test,  $t(35) = -12.93$ ,  $p = .000$ , whereby the sample mean of 7.75 ( $SD = 2.00$ ) was significantly lower than the HFZ standard for flexibility. A significant difference was found on the PACER test,  $t(35) = -7.59$ ,  $p = .000$ , whereby the sample mean of 30.36 ( $SD = 6.51$ ) was significantly lower than the HFZ standard for VO<sub>2</sub>max. However, a significant difference was not found on the Push-Up test,  $t(35) = -.68$ ,  $p = .503$ , whereby the sample mean of 7.50 ( $SD = 4.75$ ) was neither significantly higher nor lower than the HFZ standard for upper body muscular strength and endurance. Nor was a significant difference found on the Curl-Up test,  $t(35) = .22$ ,  $p = .829$ , whereby the sample mean of 18.25 ( $SD = 7.75$ ) was neither significantly higher nor lower than the HFZ standard for abdominal muscular strength and endurance. Hence, female public school PE teachers performed below the HFZ in the areas of body composition, flexibility, and aerobic capacity, but not abdominal and upper body muscular strength and endurance.

## Discussion

Public school PE programs have been called upon to remediate the escalating childhood obesity epidemic plaguing today's youth. A predominant mitigating factor that appears to be limiting the effectiveness of PE programs in altering the current obesity trends asso-

ciated with today's youth is tied to notions advanced within social cognitive theory. Social cognitive theory advances the notion that learners have the tendency to perceive poor role models as hypocrites. Hence, the instructional messages delivered by unfit teachers espousing the benefits of health-related physical fitness are undermined by the teacher's failure to model those principles. As such, based on student positions articulated during focus group interviews, secondary students appear to be less inclined to adhere to the instructional messages being delivered by these instructors and thereby appear to be less inclined to abide by healthy lifestyle choices that will enhance physical fitness levels. For teachers to deliver effective messages related to physical fitness, they need to model those lifestyle choices they espouse.

The results of this study indicate that secondary PE teachers within the state of Georgia are likely unable to perform the majority of FitnessGram tests within the HFZ designated for adults, with a score > 17. As such, it appears that a large population of secondary PE teachers in Georgia are failing to model the healthy fitness lifestyles they espouse in the classroom. The findings in this study are consistent with many of the findings of the aforementioned research, suggesting that health and PE practitioners are not achieving fitness and wellness recommendations across the board and are thereby not fulfilling their duty as role models.

This obvious disconnect between espoused positions and practice with regard to modeling healthy lifestyle practices requires immediate attention for remediation. To bridge this disconnect, schools and professionals in the field must place some form of accountability upon practicing teachers. It is paramount that school administration establish and enforce measures to hold teachers accountable for maintaining acceptable levels of physical fitness. Anymore continued failure on the part of the profession to hold teachers accountable is unacceptable.

### **Follow-Up Study**

As this was an initial study into the practical fitness abilities of a large-scale population, further studies need to explore in-service teacher fitness levels. Furthermore, more research could deconstruct the correlations between teacher role-modeling ability and student performance, particularly those relationships between teacher

role-modeling abilities and student perceptions of instructional credibility. For that reason, the follow-up study implemented semi-structured focus group interviews to students in three randomly selected classes, at each of 22 randomly selected schools, from the original sites assessed. The students were specifically asked, (1) What kind of shape (physically) would you say your teacher is in today? (2) Does the physical shape your teacher is in matter to you? (3) Do you think the information your teacher provides you related to health and fitness is accurate and/or useful? (4) What could your teacher do better to promote a healthy and fit atmosphere in your classes? (5) Do you follow your teacher's advice and instruction as it relates to eating healthy and staying active? A follow-up manuscript will present these results and compare student responses regarding those teachers within this study who were defined as "fit" and "unfit" based on their performance on the FitnessGram battery.

### **Limitations**

All of the scores recorded are reflective of secondary teachers who were willing to participate. Hence, it is possible that these scores reflect the high end of fitness levels of practicing teachers in Georgia. Moreover, the number of voluntary female participants was far fewer than that of voluntary male participants. Thus, female scores may be less indicative of population mean scores than were male scores on individual assessment batteries.

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