

Research Paper

# Physical activity differences for college students with disabilities

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## Abstract

**Background:** Previous literature suggests that individuals with disabilities have increased rates of obesity and decreased participation in physical activity contributing to overall higher incidence of secondary health conditions compared to the general population without disabilities.

**Objective/hypothesis:** The purpose of this research study was to examine the differences in physical activity rates for college students with Attention Deficit Hyperactivity Disorder (ADHD) and Learning Disabilities (LD).

**Methods:** A secondary analysis was utilized to examine differences in physical activity rates based on disability, gender, and factors influencing participation in physical activity. The 2011 Fall National College Health Assessment was used as the reference group with a sample of 27,774 students. Multiple independent samples *t*-tests were utilized in this research.

**Results:** The results of this study indicated that physical activity for college students with disabilities does not have significant variations compared to those without disabilities. However, gender influences participation in physical activity for this population.

**Conclusions:** This research helps in narrowing the research gap in this topic through analysis of the college population with ADHD and LD. This paper concludes with implications that could benefit the health status of this population. © 2016 Elsevier Inc. All rights reserved.

**Keywords:** Disability; Health; Physical activity; ADHD; LD

Obesity is one of the leading risk factors for chronic diseases including cardiovascular disease, diabetes, sleep apnea, stroke, and certain cancers. Obesity is typically determined by a Body Mass Index (BMI) of greater than 30, while overweight is a BMI from 25 to 29.9. The main cause of weight management issues is an imbalance between calories consumed and calories expended. Increasing physical activity rates in US is one possible solution to reducing the obesity rates, which have doubled in the last decade.<sup>1</sup> Currently, it is estimated that one third of the U.S. population is considered overweight or obese.<sup>1</sup> The Behavioral Risk Factor Surveillance System found that half of the country's population is sedentary and that 54.1% of adults do not meet the national recommendations for physical activity. The recommended minimums for cardiorespiratory physical activity are 150 min of moderate intensity physical activity or 75 min of vigorous physical activity.<sup>2</sup>

Previous literature demonstrates that decreasing obesity rates and increasing physical activity need to become priorities. However, the subpopulation of individuals with disabilities has even more alarming rates of unhealthy body

weight and sedentary behavior. Sohler et al found overweight or obesity rates 16.3% higher for those with Intellectual and Developmental Disabilities compared to peers without disabilities.<sup>3</sup> A research study based out of the United Kingdom found 8% higher obesity rates for individuals with Learning Disabilities (LD) compared to the general population without disabilities.<sup>4</sup> Multiple studies in the United States confirm the findings of this study regarding disparities in obesity rates amongst individuals with LD and individuals without disabilities.<sup>5,6</sup> Similar to the research for individuals with LD, Erhart, Willie, and Holling and Fuemmeler, Ostbye, Yang, McClernon, and Kollins found significant differences in overweight/obesity rates for individuals with Attention Deficit Hyperactivity Disorder (ADHD) or symptoms of ADHD.<sup>7,8</sup>

In terms of physical activity, one study found that individuals with disabilities are 13% more inactive during the week than those without disabilities and only 12% of individuals with disabilities were physically active for at least 30 min per day most days of the week.<sup>9</sup> Specifically for individuals with LD, one study indicated a 42% difference and a 20–28% difference in physical activity for women and men, respectively, compared to their peers without disabilities.<sup>6</sup> Research examining physical activity rates for individuals with ADHD is minimal, however a study by Verret et al found that individuals with ADHD taking part

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in a 10 week physical activity program had decreased impulsivity and inattention compared to a control group of students with ADHD not participating in the program.<sup>10</sup>

## Purpose

Limited research exists on physical activity for individuals with disabilities, especially for college students. Thus, this research study attempted to fill the gaps by examining the physical activity rates for college students with disabilities using a sample from the National College Health Assessment (NCHA). More specifically, the purpose of this quantitative research study was to examine differences between self-reported physical activity for individuals with Learning Disabilities (LD) and Attention Deficit Hyperactivity Disorder (ADHD) and the general population of college students in a national sample of US college students. An additional purpose for this research study was to examine the influence of gender on physical activity participation among college students with ADHD and LD. Previous literature indicated that cost, equipment, lack of knowledge, and accessibility were some of the barriers for participation in physical activity amongst individuals with disabilities.<sup>11,12</sup>

## Methods

A secondary data analysis using a sample from the American College Health Assessment was utilized to examine differences in physical activity participation amongst college students with ADHD and LD. Specifically, this research looked at differences among individuals with and without ADHD and LD as well as how gender influences physical activity rates. The following research questions were analyzed using independent samples *t*-tests.

*Research question 1:* Do college students with ADHD and/or LD engage in less strength training, moderate intensity physical activity, and vigorous intensity physical activity compared to their peers without disabilities?

*Research question 2:* Do college students with ADHD engage in more strength training, moderate intensity physical activity, and vigorous intensity physical activity compared to their peers with Learning Disabilities?

*Research question 3:* Do female college students with ADHD and/or LD engage in less strength training, moderate intensity physical activity, and vigorous intensity physical activity compared to males with ADHD and/or LD?

## Setting

Permission was received from the American College Health Association (ACHA) for the 2011 Fall National College Health Assessment (NCHA) reference group. This sample included 27,774 students from 44 institutions across

the United States. The only data utilized for analysis included responses of undergraduate students over the age of 18. Final data for analysis included 21,836 participants, with 1477 and 954 who self-identified as having ADHD and LD, respectively. Institutions of higher education across the U.S. elect to participate in the National College Health Assessment through web or paper based formats and the response rate of participants is typically about 20%. The questionnaire contains 66 questions in 7 different categories: 1) health, health education, and safety; 2) alcohol, tobacco, and drugs; 3) sex behavior and contraception; 4) weight behavior and exercise 5) mental health; 6) impediments to academic performance; and 7) demographic characteristics. Questions from the category of weight behavior and exercise and the demographic category were utilized for this research study. Previous literature shows that NCHA is both reliable and valid based on the triangulation method.<sup>13</sup>

## Measures

Analysis of physical activity differences amongst individuals with ADHD and LD utilized six independent samples *t*-tests. The dependent variable in these research questions was physical activity (vigorous physical activity, moderate physical activity, and strength training). Physical activity scores were reported in days per week and defined on the NCHA survey. Vigorous physical activity was defined as at least 30 min of activity that significantly raises the heart rate. Moderate physical activity was defined as at least 30 min of physical activity, which raises the heart rate. Strength training was defined as at least 8–10 exercises with 10–12 repetitions.

The independent variable for the first two research questions was disability status, determined based on participants responding yes or no to the following disabilities: ADHD, chronic illness, deafness/hearing loss, LD, mobility/dexterity disability, partial sightedness/blindness, psychiatric condition, speech or language disorder, or other disability. LD and ADHD were the only disability statuses utilized for this research. Participants who selected none of the disabilities listed on the survey were considered to not have a disability.

The independent variable for the independent samples *t*-test examining gender as factor influencing physical activity, included male and female responses only. The dependent variable for this question was a combined physical activity score of the mean of vigorous physical, moderate physical activity, and strength training. This new variable is called combined physical activity. The three measures of physical activity were combined into one mean score to account for gender differences, which exist, in types of physical activity. By creating a combined physical activity score, the research question looked to examine the general physical activity participation for individuals with

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