

Chapter 1

Assistive Technology to Promote Physical Activity in Students With Disabilities

Laura A. Bassette
Ball State University, USA

Melissa N. Savage
University of North Texas, USA

ABSTRACT

Students with disabilities engage in lower levels of physical activity compared to those without disabilities. Assistive technology (AT) is a strategy that can be used to promote physical activity in students with disabilities. The purposes of this chapter are to discuss (1) the importance of physical activity for students with disabilities, (2) cutting-edge research on the use of digital technology to support physical activity engagement, (3) the implementation of evidence-based physical activity interventions in school settings, and (4) implications for practice and future directions.

OVERVIEW OF ASSISTIVE TECHNOLOGY TO PROMOTE PHYSICAL ACTIVITY IN STUDENTS WITH DISABILITIES

Overview of Physical Activity and Disability

The benefits of physical activity are well-established and can help individuals maintain and improve health, function, and overall well-being (Physical Activity Guidelines [PAG] Advisory Committee, 2018; Piercy & Troiano, 2018). The PAG

DOI: 10.4018/978-1-7998-8874-1.ch001

recommends a combination of aerobic activity (150–300 minutes of moderate intensity or 75–150 minutes of vigorous intensity) and muscle strengthening activities two or more days per week. While the percentage of children and adults who engage in these recommended levels of physical activity is low, it is even lower for individuals with disabilities (Carroll et al., 2014). Physical inactivity is consistently lower across disability categories including: intellectual disability (Frey et al., 2008; Pitetti et al., 2013), autism spectrum disorder (Srinivasan et al., 2014; McCoy et al., 2016), and physical disabilities (Longmuir & Bar-Or, 2000). Youth and adolescents with disabilities are more obese compared to peers without disabilities (Kim et al., 2013; Kim & Greaney, 2014) and are more likely to later develop secondary conditions such as depression, diabetes, and heart disease (Carroll et al., 2014; Rimmer et al., 2011). Establishing regular engagement in physical activity during childhood can help mitigate these concerns and promote healthy habits.

Barriers to Physical Activity

While there are a number of benefits of physical activity (e.g., cardiovascular health, decrease anxiety and depression, increase strength; Bartlo & Klein, 2011), individuals with disabilities often face additional barriers when it comes to access and engagement in physical activity. For example, individuals with disabilities may have lower gross motor skills as compared to individuals without disabilities (Westendorp et al., 2011). The medical model of disability focuses on a deficit perspective, and suggests that some individuals with a disability are unable to be physically active and may highlight the need to fix the individual (Shields & Synnot, 2016). The model, however, fails to account for environmental and social barriers to physical activity participation. These may include a lack of structural supports (e.g., pool lifts) as well as discrimination (Martin, 2013), oppression, or other biases which may prohibit or limit individuals with disabilities comfort in engaging in various physical activity, particularly in public or community settings (Richardson, et al., 2017).

In addition, lack of exposure to experiences during K–12 years creates a challenge for future engagement in physical activity. For example, older students may not choose to engage in physical activity if exercise was not an expectation for them in prior years. Furthermore, students with disabilities may have limited knowledge in basic gym equipment use or rules of various sport activities which can lead to a lack of habit development and motivation (Roberts et al., 2018).

I remember my first day teaching an adapted physical education class at a new school. I walked into the gymnasium and talked to the students about their favorite things to do in PE class. Most shrugged and some mentioned just running around. I asked if they ever played a game of baseball, or learned to hold a tennis racket,

23 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/assistive-technology-to-promote-physical-activity-in-students-with-disabilities/300020

Related Content

Evolving Concepts for Use of Stem Cells and Tissue Engineering for Cardiac Regeneration

Jahnvi Sarvepalli, Rajalakshmi Santhakumaran and Rama Shanker Verma (2016). *Optimizing Assistive Technologies for Aging Populations* (pp. 279-313). www.irma-international.org/chapter/evolving-concepts-for-use-of-stem-cells-and-tissue-engineering-for-cardiac-regeneration/137798

Communication Technology Integration in the Content Areas for Students with High-Incidence Disabilities: A Case Study of One School System

Anna S. Evmenova and Michael M. Behrmann (2014). *Assistive Technologies: Concepts, Methodologies, Tools, and Applications* (pp. 26-53). www.irma-international.org/chapter/communication-technology-integration-in-the-content-areas-for-students-with-high-incidence-disabilities/80605

Capacity Building for Different Abilities Using ICT

Ina Freeman and Aiofe Freeman (2014). *Assistive Technologies: Concepts, Methodologies, Tools, and Applications* (pp. 261-276). www.irma-international.org/chapter/capacity-building-for-different-abilities-using-ict/80616

Web Portal: Modern Way to Activation and Development of the Reader's Skills

(2021). *Dyslexia and Accessibility in the Modern Era: Emerging Research and Opportunities* (pp. 87-100). www.irma-international.org/chapter/web-portal/256012

Assistive Technologies for Children and Adolescents With Autism Spectrum Disorders

Leila Goosen (2022). *Assistive Technologies for Assessment and Recovery of Neurological Impairments* (pp. 1-24). www.irma-international.org/chapter/assistive-technologies-for-children-and-adolescents-with-autism-spectrum-disorders/288125