Practice Report

Promoting Leisure-Time Physical Activity for Students with Visual Impairments Using Generalization Tactics

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Important and favorable health effects of physical activity have been well documented. Regular physical activity for adults has been linked to decreases in the risk of several chronic diseases, including coronary heart disease, hypertension, diabetes, anxiety, depression, and obesity (Centers for Disease Control and Prevention [CDC], 2011). Developing a physically active lifestyle at an early age can help decrease chances of developing these health-related problems during childhood and later in life (CDC, 2011).

Unfortunately, school-aged individuals who are visually impaired tend to be less physically active than their peers without visual impairments (Haegele & Porretta, 2015a). Further, among individuals with disabilities, those with visual impairments tend to be among the least active (Longmuir & Bar-Or, 2000). Because individuals with visual impairments are less physically active than their peers without disabilities or with disabilities other than visual impairment, they are at greater risk for experiencing health-related problems, such as obesity (Haegele & Porretta, 2015a).

According to Pan, Frey, Bar-Or, & Longmuir (2005), the most likely environment for school-aged individuals with disabilities, including those with visual impairments, to learn about participation in physical activities is in physical education (PE) classes. Well-designed PE programs encourage students to become physically literate individuals who are active and healthy throughout their lives (Society of Health and Physical Educators [SHAPE], 2014). With proper planning and support from teachers of students who are visually impaired and orientation and mobility instructors, PE can also contribute to components of the expanded core curriculum (Lieberman, Haegele, Columna, & Conroy, 2014).

Although PE positively influences student physical activity participation during school hours, however, research suggests that school-based programs tend to have less of an impact on students' participation in physical activity outside of school (Kriemler et al., 2011). Students may be less active outside of school because of difficulties in transferring skills learned during PE to other settings. This is also known as difficulty with generalization.

Generalization

Generalization refers to the use of newly acquired skills or behaviors in non-training environments (Cooper, Heron, & Heward, 2007). Although students with visual impairments learn skills to participate in physical activities during their PE classes, they may have difficulty using those skills in other settings, at other times, or with other people. Therefore, the generalization of skills learned during PE may not be occurring. In order to ensure generalization, school personnel, including PE teachers, teachers of students who are visually impaired, and orientation and mobility (O&M) professionals, can plan to train students who are visually impaired for generalization during PE and throughout the school day.

Cooper and colleagues (2007) identify 13 tactics that can effectively promote generalized behavior change. These tactics are typically used to help students transfer skills mastered in the classroom to independent use in other places or situations, at different times, or in new creative ways (Alber-Morgan, 2010). PE teachers, teachers of students who are visually impaired, and O&M specialists can promote physical activity participation in environments outside of PE by embedding

some of these generalization tactics into the school day. Therefore, the purpose of this report is to describe how educators can use generalization tactics to promote leisure-time physical activity.

Promoting Leisure-Time Physical Activity Using Generalization Tactics

The following sections will briefly describe how four of the 13 generalization tactics identified by Cooper and colleagues (2007) can be utilized to promote leisure-time physical activity for school-aged individuals with visual impairments. These tactics include (a) asking significant others to notice and reinforce physical activity participation, (b) teaching students to recruit reinforcement, (c) teaching sufficient stimulus examples, and (d) teaching self-management skills. Teachers can plan to use one or a combination of these tactics to program PE skills for generalization.

Recruiting reinforcements for physical activity participation

During school hours, students receive reinforcement of different kinds when performing skills correctly. A reinforcement is an addition to (for example, a sticker, a high-five) or subtraction from (for example, pausing an activity when students are not on task) the environment that increases the future frequency of a targeted behavior (Cooper et al., 2007). Reinforcement opportunities that are available during school hours are typically unavailable in other settings. In order for behaviors to be replicated regularly in settings outside of school, students must receive reinforcement in those settings as well (Alber-Morgan, 2010). Therefore, it becomes essential for significant others, including parents, siblings, and friends, to reinforce physical activity participation in order to increase the likelihood that students will participate in those activities during their leisure time.

Research suggests that parents tend to believe that communication with PE teachers is an important factor in promoting physical activity for students with visual impairments (Perkins, Columna, Lieberman, & Bailey, 2013). This tactic further highlights the importance of active and reciprocal communication between these parties. When parents are informed about the types of activities occurring at school, they can prompt and reinforce those behaviors at home. This tactic can be successful with students of all ages and ability levels, including those with cognitive impairments. Therefore, when communicating with parents, school personnel should discuss individualized activity modifications to ensure activity appropriateness and success for each student.

There are many ways that PE teachers, teachers of students who are visually impaired, and O&M professionals can inform parents of the physical activities taught in school and how to reinforce them in leisure settings. Some examples include class-wide e-mails, parent-teacher conferences, announcements on school webpages, and PE newsletters. Accordingly, when significant others are aware of and are available to reinforce behaviors, the likelihood of students participating in physical activity outside of school increases.

Teaching students to recruit reinforcement

Another tactic for students to interact with reinforcement outside of PE is to teach them to recruit reinforcement. *Recruiting reinforcement* is defined as a student calling attention to his or her accomplishments to obtain praise or assistance for those efforts from significant others (Alber & Heward, 1997). In scenarios where adult attention or reinforcement is not being provided regularly in the leisure-time physical activity setting, students with visual impairments themselves can take the first step toward reinforcement.

For example, when a student with visual impairment successfully completes a physical activity in school, such as a yoga routine, he or she typically receives praise or reinforcement from

teachers. However, when a student completes the same routine at home, adult attention (that is, reinforcement) may not be immediately available. Therefore, the student may not receive the reinforcement needed to maintain or increase participation in that activity at home. In this scenario, the student can be taught to approach a significant other and recruit reinforcement after the completion of the yoga routine, therefore receiving the needed reinforcement necessary to maintain or increase the frequency of completing this physical activity outside of school.

When recruiting reinforcement, it is important for students to do so in an appropriate way. Alber and Heward (1997) provide guidelines for instructing students to recruit reinforcement that teachers should consider. They suggest (a) teaching students to perform a skill correctly before attempting to recruit attention, (b) teaching students to limit the number of times they recruit attention, and (c) modeling a simple recruiting sequence for students (Alber & Heward, 1997). When developing and teaching students about recruiting reinforcement, teachers should work in a team and develop a common recruitment procedure that can be used across content areas. It should be noted that students of various ages and abilities have successfully learned to recruit reinforcement for performing a wide range of skills. This includes individuals with intellectual impairments, behavioral disorders, and learning disabilities (Cooper et al., 2007).

Teaching sufficient stimulus examples

In order to ensure generalization, most behaviors, including physical activity participation, must be performed in various ways across a wide range of environments during training. Teaching sufficient stimulus examples involves teaching students to perform a behavior correctly in response to more than one prompt or condition (Cooper et al., 2007). To do so, dimensions of the skill, activity, or environment of instruction should be changed from one instructional session to the next. Some dimensions that can be changed include (a) the specific skill or activity being taught, (b) the way in which a skill is taught, (c) the setting of instruction, and (d) the person doing the teaching. For example, when teaching a student with a visual impairment to run with a guide runner using a tether, PE teachers tend to do so in a gymnasium while acting as the student's guide. In order to teach sufficient stimulus examples, the PE teacher can plan to change some critical elements of instruction, such as teaching the same running technique in different settings (for example, on a track, in the community) or with different people acting as guides (for example, a sighted peer, a paraeducator). To further ensure generalization of this running technique to settings outside of school, the PE teacher may ask parents or siblings to occasionally join the student in PE to act as the guide runner.

The previous example demonstrates how PE teachers can systematically introduce different stimuli (for example, environment and guide runner) when instructing running techniques. Another strategy in teaching sufficient stimulus examples is for individuals other than the PE teacher to give lessons on physical activity either during or outside of PE. During PE, paraeducators or peer tutors can teach small groups of students with the support of evidence-based practices such as video modeling (Haegele & Kozub, 2010). Outside of PE, teachers of students who are visually impaired, O&M professionals, and other school personnel can teach activities that promote physical activity participation throughout the school day. The important element here is for students to experience a prompt or instruction that varies in order to promote generalization. Prompting students to be physically active in a variety of ways during school hours can further ensure that students can respond to noninstructional

prompts and be more physically active outside of school.

Teaching self-management skills

According to Cooper and colleagues (2007), the most potentially effective tool in promoting generalization rests with the learner. Self-management skills can be thought of as the personal application of strategies that produce a desired change in behavior (Cooper et al., 2007). Self-management skills are of benefit to students because they ensure that the students function with the greatest degree of independence possible (Alber-Morgan, 2010). Accordingly, when students can set their own goals and monitor their own behavior, they can generalize many different skills to a wide range of settings and situations (Alber-Morgan, 2010).

One strategy for incorporating self-management skills into instruction is using physical-activity journals. Such journals ask students to develop short-term (that is, biweekly) or long-term (that is, within six months) physical activity goals and monitor them by recording information about their physical activity participation each day. Recorded information can include (a) the activities they participate in, (b) the person or persons performing the activity with them, (c) the duration of activity, and (d) feelings about the activity. Keeping track of personal physical activity goals using journals can contribute to the self-determination component of the expanded core curriculum (Haegele, Lieberman, Columna, & Runyan, 2014).

Students with visual impairments can supplement physical activity journals by using talking pedometers to monitor steps taken. Talking pedometers provide auditory as well as visual feedback for users, and research suggests that they can motivate students with visual impairments to be more active (Lieberman, Stuart, Hand, & Robinson, 2006). In addition to contributing to self-management skills, the use of talking pedometers can also contribute to at least four components of the expanded core curriculum, including self-determination, independence, compensatory and access skills, and independent living skills (Haegele & Porretta, 2015b). Incorporating self-management into PE by using physical activity journals and pedometers can promote leisure-time physical activity with a high degree of student independence.

Discussion

Research suggests that students with visual impairments tend to participate in fewer physical activities outside of school than their peers without visual impairments (Haegele & Porretta, 2015a). The purpose of this report was to describe how school personnel can use generalization tactics to promote leisure-time physical activity participation for students with visual impairments. In addition to promoting physical activity, the use of these tactics can also touch upon components of the expanded core curriculum. For example, as previously discussed, teaching students self-management skills and how to use talking pedometers can contribute to at least four different components of the expanded core curriculum (Haegele & Porreta, 2015b). Since school-based programs, such as PE classes, are the most likely environments for students with visual impairments to learn about physical activity participation (Pan et al., 2005), it is essential for PE teachers, teachers of students who are visually impaired, O&M specialists, and other educators to understand and utilize strategies, such as the ones discussed in this report, that can promote physical activity outside of school.

References

Alber, S. R., & Heward, W. L. (1997). Recruit it or lose it! Training students to recruit contingent teacher attention. *Intervention in School and Clinic*, *32*(5), 275–282.

Alber-Morgan, S. R. (2010). *Using RTI to teach literacy to diverse learners, K-8*. Thousand Oaks, CA: Sage Publishing.

Centers for Disease Control and Prevention [CDC]. (2011). *Physical Activity & Health.* Retrieved from http://www.cdc.gov/

physicalactivity/everyone/health/index.html

Cooper, J. O., Heron, T. E. & Heward, W. L. (2007). *Applied behavior analysis* (2nd Ed.). Upper Saddle River, NJ: Pearson Education.

Haegele, J. A., & Kozub, F. M. (2010). A continuum of paraeducator support for utilization in adapted physical education. *Teaching Exceptional Children Plus, 6*(5), 2–11.

Haegele, J. A., Lieberman, L. J., Columna, L., & Runyan, M. (2014). Infusing the expanded core curriculum into physical education for children with visual impairments. *Palaestra, 28*(3), 44–50.

Haegele, J. A., & Porretta, D. L. (2015a). Physical activity and school-aged individuals with visual impairments: A literature review. *Adapted Physical Activity Quarterly, 32*(1), 68–82. doi:10.1123/apaq.2014-0110

Haegele, J. A., & Porretta, D. L. (2015b). Validation of a talking pedometer for adolescents with visual impairments in free-living conditions. *Journal of Visual Impairment & Blindness, 109*(3), 219–223.

Kriemler, S., Meyer, U., Martin, E., Van Sluijs, E. M. F., Andersen, L. B., & Martin, B. W. (2011). Effects of school-based interventions on physical activity and fitness in children and adolescents: A review of reviews and systematic update. *British Journal of Sports Medicine*, *45*(11), 923–930. doi: 10.1136/bjsports-2011-090186

Lieberman, L. J., Haegele, J. A., Columna, L., & Conroy, P. (2014). How students with visual impairments can learn components of the expanded core curriculum through physical education. *Journal of Visual Impairment & Blindness*, *108*(3), 239–248.

Lieberman, L. J., Stuart, M. E., Hand, K., & Robinson, B. (2006). Motivational effects of talking pedometers among children with visual impairments and deaf-blindness. *Journal of Visual Impairment & Blindness*, *100*(12), 726–736.

Longmuir, P., & Bar-Or, B. (2000). Factors influencing physical activity levels of youth with physical and sensory disabilities. *Adapted Physical Activity Quarterly*, *17*(1), 40–53.

Pan, C., Frey, G. C., Bar-Or, O., & Longmuir, P. (2005). Concordance of physical activity among parents and youth with physical disabilities. *Journal of Developmental and Physical Disabilities*, *17*(4), 395–407. doi: 1.1007/s10882-005-6622-7

Perkins, K., Columna, L., Lieberman, L. J., & Bailey, J. (2013). Parents' perceptions of physical activity for their children with visual impairments. *Journal of Visual Impairment & Blindness*, *107*(2), 131–142.

Society of Health and Physical Educators. (2014). *National standards & grade level outcomes for K–12 physical education*. Champaign, IL: Human Kinetics.

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