

# LET'S GET MOVING! PHYSICAL ACTIVITY AND STUDENTS WITH PHYSICAL DISABILITIES

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## ABSTRACT

*Roughly 39% of children and youth with disabilities are physically active (Longmuir & Bar-Or, 2000). Increasing the number of individuals with disabilities who are physically active is a public health priority (Kosma, Cardinal & Rintala, 2002). This paper will highlight the current status of physical activity for persons with a disability by discussing (a) barriers and determinants of physical activity, (b) outcomes of physical activity, and (c) activity patterns of persons with disabilities. Strategies will be provided to help teachers, parents, and therapists heighten their awareness of the health benefits of physical activity and increase motivation toward physical activity participation among children and youth with physical disabilities.*

Physical activity has decreased among all children and children with disabilities are no exception (Longmuir & Bar-Or, 2000). Physical activity for children and youth with physical disabilities is needed for optimal health and fitness, for functional independence, for overall quality of life, and to prevent the onset of secondary disabilities due to physical limitations or obesity (Rimmer, 1999). Researchers have documented lower levels of physical activity and fitness in children with disabilities including less muscular strength, lower exercise capacity, lower aerobic fitness, and higher body mass indexes (Compton, Eiserman & Henderson, 1989; Pitetti & Yarmer, 2002;

Pitetti, Yarmer & Fernhall, 2001; Wilson, 2002). Given the link between lower levels of physical activity and quality of life, research on physical activity and fitness levels of persons with disabilities has received increased attention from the medical field and academic scholars with the focus on maintaining wellness and health, removing barriers, and restoring function and access through accommodations for persons with a disability (Ayyangar, 2002).

Students with physical disabilities are increasingly being educated in education settings with their peers without disabilities, and general physical education is no exception. It is incumbent upon all educators to become familiar with the impact of physical activity on exercise to enhance student quality of life. The purpose of this paper is to highlight the current status of physical activity for persons with a disability by discussing (a) barriers and determinants of physical activity, (b) outcomes of physical activity, and (c) activity patterns of persons with disabilities. This paper will conclude with strategies that teachers, parents, and therapists can use to heighten their awareness of the health benefits of physical activity and increase motivation toward physical activity participation among children and youth with disabilities.

#### BARRIERS TO PARTICIPATION IN PHYSICAL ACTIVITY

*Disability-related barriers.* Barriers to participation, whether perceived or real, are influenced in part by the type of disability. Physical activity levels, perceived fitness relative to peers and perceived activity limitations were all influenced by the type of disability. Individuals with hearing impairments were found to have the highest levels of physical activity participation when compared with children with spina bifida, cerebral palsy and muscular dystrophy. While the growth in and increased awareness of wheelchair sports contributes to the more active lifestyles of individuals with physical disabilities, opportunities for local participation are often limited and focused on participants using manual wheelchairs for mobility (Longmuir & Bar-Or, 2000).

*Accessibility issues.* Barriers to participation also relate to both physical and program accessibility. Physical barriers are elements of the physical environment that preclude or hinder an individual's access, movement or participation. Physical barriers can be architectural (e.g., stairs, narrow hallways, doors, curbs) or natural (steep hills, too many trees). While much has been accomplished through Title III of the Public Accommodations section of the Americans with Disabilities Act, physical barriers continue to pose difficulty for individuals with disabilities who wish to engage in physical activity. For

example, it may be difficult for persons with physical disabilities to transfer onto weight training equipment at public fitness clubs or YMCAs due to lack of space between machines and/or to lack of exercise equipment specifically designed for persons with disabilities. Program barriers refer to lack of knowledge about the interests and needs of persons with disabilities by those who develop and schedule physical activity programming. Examples of program barriers include lack of knowledge regarding modifications to exercise classes and/or physical education programming for children with disabilities. Other issues of accessibility include lack of transportation to and from the exercise setting (Blinde & McClung, 1997; Rimmer, Braddock & Pitetti, 1996).

### OUTCOMES OF PARTICIPATION IN PHYSICAL ACTIVITY

*Health related physical fitness.* Physical activity has positive effects on persons with disabilities. The Surgeon General's report *Physical Activity and Health: Persons with Disabilities* (2003) states that moderately intense daily physical activity of longer durations (such as 30–40 minutes of continuous wheeling in one's wheelchair) or shorter but more strenuous daily physical activity (such as 20 minutes of wheelchair basketball) can result in significant health benefits. Research has shown that trained runners who have mild mental retardation had comparable levels of physical fitness when their cardiorespiratory fitness, percent body fat, leg strength, and flexibility were compared to non-disabled peers (Frey, McCubbin, Hannigan-Downs, Kasser, & Skaggs, 1999).

*Physical and social self.* Participation in sports and exercise can enhance self-esteem and strengthen athletic identity thereby reducing perceived negative external evaluations of body physique, enhancing perceptions of competence within and outside sport settings, facilitating social integration, and promoting attainment of personal goals (Kosma, Cardinal & Rintala, 2002). Individuals with physical disabilities ages 19 to 54 who were involved in a recreational program commented that participation enabled them to (a) experience the body in new ways, (b) enhance perceptions of their physical attributes, (c) redefine their physical capabilities, and (d) increase their perceived confidence to pursue new physical activities (Blinde & McClung, 1997). Participation in recreational activities not only influenced perceptions of the physical self but also perceptions of the social self. Through participation in physical activity, individuals with disabilities commented that perceptions of their social self were modified by (a) expanding their social interactions and experiences, and (b) initiating social activities in other contexts (Blinde & McClung, 1997). While little research has focused on the

psychological and social benefits of participation in physical activity for children with physical disabilities, it is reasonable to assume similar outcomes as for young and older adults.

#### STRATEGIES FOR ENCOURAGING PARTICIPATION IN PHYSICAL ACTIVITY

Despite the physiological, psychological, and social benefits of physical activity participation, only 23% of individuals with disabilities engage in regular physical activity (i.e., 3 or more times per week for a minimum of 20 minutes). It is critical to identify strategies that can be used by parents, teachers, and therapists alike to increase motivation toward healthy active lifestyles (Kosma, Cardinal & Rintala, 2002). The following section highlights five strategies that teachers, therapists, and parents can use to increase participation in physical activity by children and youth with disabilities. These strategies are (a) introduction of role models, (b) involvement in and knowledge of disability sport organizations, (c) incorporation of disability sport into general physical education curriculum, (d) application of disability specific motor behavior assessment instruments in teaching and assessment, and (e) identification of family oriented activities.

*Profile role models.* Many individuals with disabilities view themselves as accomplished athletes in the arena of sport. Select individuals are listed in Table 1. These and other individuals should be profiled when discussing what people with disabilities *can* do when it comes to sport and physical activity. Profiles of athletes with disabilities can be found on many disability sport websites (Paciorek & Jones, 2001). The use of role models can improve *I can* and *I am* attitudes, intentions, and behaviors of both present and future athletic competence and motivation (Sherrill, 1998).

*Disability sport options and organizations.* It can be a challenge for children with a disability to identify sport interests and locate opportunities and services for participation in physical activity. To help facilitate opportunities for students, physical educators, parents, physical and occupational therapists and therapeutic recreation specialists should brainstorm opportunities during development of the Individualized Education Program (IEP) and other regularly scheduled meetings. *Disability Sport and Recreation Resources* (Paciorek & Jones, 2001) is among the most comprehensive resources available. This reference book provides descriptions of 46 different disability sport and recreation opportunities as well as a list of disability sport organizations and their respective sport offerings. Publications such as *Sport N' Spokes* ([www.sportnspokes.com](http://www.sportnspokes.com)) and *Palaestra* ([www.palaestra.com](http://www.palaestra.com)) provide up to date information on sports equipment, competitions, training programs, and summer sports camps for children with physical disabilities. For an addition-

**TABLE I**  
**Profile of Athletes with Disabilities**

Name of Athlete	Disability	Sport	Brief Biography
James V. Mastro	Visually Impaired	Wrestling, Track & Field	He medaled in the 1976 and 1992 goalball and Judo Paralympics, 1991 Judo Championships, the 1984 International Games for the Blind and has competed with able bodied athletes. Dr. Mastro was the first person with a VI to earn a doctoral degree in physical education in 1985.
Kai Schrameyer	Amputee	Wheelchair Tennis	He won a silver medal at the 1992 Paralympics and won the French open, Swiss Open and the Dutch Open in 1993. Kai graduated from Georgia State University with a masters degree in Sport Administration.
Duncan Wyeth	Cerebral Palsy	Cycling, discus, javelin	Won gold, silver, and bronze medals in the Michigan Regional Cerebral Palsy Games, National Cerebral Palsy Games and the 1988 Paralympics. He served on the Atlanta Paralympic Organizing Committee, the International Committee on Inclusion of Athletes with Disabilities, and the US Olympic Committee Board of Directors.
Jean Driscoll	Spina Bifida	Wheelchair racing	World record holder in the Boston Marathon, 10K and 800m and 1992 Paralympics. She was awarded Women's Sport Foundation Amateur Sportswoman of the Year in 1991.

DePauw & Gavron (1995); Shapiro, Lieberman, & Moffett, (2003).

al list of organizations which provide developmental and competitive sport opportunities for children with disabilities, readers are referred to an article by Sayers, Shapiro, and Webster (2003).

*Incorporate disability sport into physical education curriculum.* Inclusive sport provides several benefits including (a) bridging the gap between students with and without disabilities, (b) broadening curricular offerings for all students, and (c) providing appropriate services to students with disabilities (Davis 2002). Teachers who need information about disability sport or inclusive physical education practices can attend state professional conferences in physical education as well as the national convention for the American Alliance for Health, Physical Education, Recreation, and Dance. There are also organizations such as Blazesports programs of America (Blazesports.com) and the American Association of Adapted Sports Programs (AAASP.com) that provide coaches training and in-service workshops on program development. Additionally, *Inclusion Through Sport: A Guide to Enhancing Sport Experiences* (Davis, 2002) contains fundamentals of six disability sports along with rules, modifications, and skill progressions, providing physical educators, therapists, and parents a concise resource to begin learning and teaching disability sport. Teachers should focus on providing sports that are popular in the student's community and ones that relate to local or regional disability sports teams or organizations.

*Use of motor behavior assessments.* When a student with a disability understands that he/she is good at a sport and physical fitness skills and can participate with peers with and/or without disabilities in partial or fully included sport/recreation settings, motivation to participate in sport and physical activity is likely to increase (Shapiro, Lieberman & Moffett, 2003). One way to accomplish this goal is to assess and compare the motor performance and fitness scores of students with disabilities with other children with the same disability. The Brockport Physical Fitness Test (BPFT) (Winnick & Short, 1999) was the first criterion referenced health-related fitness test for children 10–17 years of age with disabilities, including children with mental retardation, spinal cord injuries, cerebral palsy, blindness, congenital anomalies and amputations. The BPFT also provides criterion referenced standards for students without disabilities so teachers can compare students with disabilities to other students without disabilities of the same age and gender.

There are many potential uses of the BPFT in a school setting. The test can be administered to an entire inclusive physical education class during fitness testing. It can be used to develop IEP goals and benchmarks or personal fitness goals for individual students. It can also be employed to track a student's physical fitness levels across time. Most of the testing equipment is

commonly found in physical education programs. Test item substitutions are allowed when a piece of equipment is unavailable.

When standardized assessment instruments are not available, the instructor can use rubrics, checklists, and/or rating scales to document progress. When shared with the student, this evidence of improvement in skill can make a tremendous difference in the motivation of individuals with disabilities to participate in physical activity (Shapiro, Lieberman, & Moffett, 2003). Examples of rubrics for sport related skills for students with visual impairments are the Camp Abilities Activity Analysis Checklists (Lieberman, n.d). Sport specific assessments have been developed for gymnastics, track & field, goal ball, beep baseball, tandem biking, swimming, and judo. Each sport is task analyzed such that assessment instruments outline performance criteria ranging from simple to more complex and document the level of independence for each item. Copies of the Camp Abilities Activity Analysis Checklists can be found at [www.campabilities.org](http://www.campabilities.org). Additional rubrics relevant to developing physical fitness are available in the text *Strategies for Inclusion: A Handbook for Physical Educators* (Lieberman & Houston-Wilson, 2002).

*Identifying family oriented physical activities.* Research has shown that when families become involved with helping children with disabilities manage their physical activity, and in particular when there is a home-based physical activity program, children's physical activity levels increase (Stanton, 1995; Tuzin, et al., 1998). Because physical activity can encompass sports, fitness or exercise activities and recreational activities, it is an area that offers many opportunities for family involvement (Fiorini, Stanton, & Reid, 1996). An assessment of the physical activities in which the family enjoys and has the resources to participate will give educators an idea of activities that the student may desire to learn (Kozub, 2001). Sample list of questions family members can respond to through questionnaires sent home with the student or through interviews with family members include: (a) sports each family member participates in and where each participates in the activities, (b) physical activities each family member does for exercise, (c) sport, recreation, and exercise activities that all family members can participate in together, and (d) adaptations or modifications that need to be made for each family member to participate in these activities. This information can be used to plan the student's individual education program or individualized transition plan goals and objectives for physical education (Sayers, Shapiro, & Webster, 2003).

## SUMMARY

Physical activity is a part of overall health wellness. It is also an opportunity for recreation, socialization, and independence. When teachers, parents, and therapists increase their knowledge of barriers to and outcomes of physical activity participation by children and youth with physical disabilities they can better assist each other with adapted physical activity program planning and implementation. By including the family during planning and programming implementation, the student will likely have more opportunities to participate in physical activities and learn skills that will help develop lifelong interests and participation in physical activities.

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