



## CLINICAL REPORT

# Promoting the Participation of Children With Disabilities in Sports, Recreation, and Physical Activities

Guidance for the Clinician in Rendering  
Pediatric Care

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**ABSTRACT**

The benefits of physical activity are universal for all children, including those with disabilities. The participation of children with disabilities in sports and recreational activities promotes inclusion, minimizes deconditioning, optimizes physical functioning, and enhances overall well-being. Despite these benefits, children with disabilities are more restricted in their participation, have lower levels of fitness, and have higher levels of obesity than their peers without disabilities. Pediatricians and parents may overestimate the risks or overlook the benefits of physical activity in children with disabilities. Well-informed decisions regarding each child's participation must consider overall health status, individual activity preferences, safety precautions, and availability of appropriate programs and equipment. Health supervision visits afford pediatricians, children with disabilities, and parents opportunities to collaboratively generate goal-directed activity "prescriptions." Child, family, financial, and societal barriers to participation need to be directly identified and addressed in the context of local, state, and federal laws. The goal is inclusion for all children with disabilities in appropriate activities. This clinical report discusses the importance of physical activity, recreation, and sports participation for children with disabilities and offers practical suggestions to pediatric health care professionals for the promotion of participation.

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The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

**Key Words**

disabilities, participation, sports, recreation

**Abbreviation**

CP—cerebral palsy

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**T**HE BENEFITS OF physical activity are universal for all children, including those with disabilities. Although ~18% of children and adolescents in the United States have a chronic condition or disability, opportunities for their participation in fitness and activity programs, whether for leisure, recreation, or competition, are limited.<sup>1</sup> International efforts to promote the social and emotional well-being of children with disabilities through participation in recreational sports and physical fitness activities began with the first competitive sporting event for individuals with disabilities in 1948, followed by the first Paralympics competition in 1960, and the establishment of the Special Olympics in 1968.<sup>2</sup> The Special Olympics is now the largest recreational program for children with intellectual disabilities, with >1 million athletes in 125 countries.<sup>3</sup> Despite these efforts, children with disabilities have lower levels of cardiorespiratory fitness, lower levels of muscular endurance, and higher rates of obesity than typical children. In addition to the physiologic benefits of decreased body fat and increased fitness overall, regular physical activity for children with disabilities has been shown to help in controlling or slowing the progression of the chronic disease, improving overall health and function, and mediating the psychosocial impact of the condition on children and their families (J. H. Rimmer, PhD, written communication, 2007). Pediatricians and other medical home professionals may overestimate the risks or overlook the benefits of physical activity in children with disabilities. Parents often seek information about recreational opportunities, but some pediatricians are relatively unaware of the value of these opportunities for children with disabilities.<sup>4</sup> This clinical report discusses the importance of physical activity, recreation, and sports participation for children with disabilities and offers practical suggestions to pediatric health care professionals for the promotion of participation.

**BENEFITS OF SPORTS PARTICIPATION**

The term "participation" is defined by the World Health Organization as the nature and extent of a person's involvement in life situations and includes activities of self-care, mobility, socialization, education, recreation, and community life.<sup>5</sup> Participation in activities is the context in which people form friendships, develop skills and competencies, express creativity, achieve mental and physical health, and determine meaning and purpose in life.<sup>6</sup> Children with disabilities tend to be more restricted in their participation than their peers: a gap that widens as children become adults.<sup>7</sup> One way in which health care professionals can assist children with disabilities to

participate fully in the lives of their families and communities is by promoting participation in sports, recreation, and physical activities in the least restrictive environment.

The primary goals for increasing physical activity in children with disabilities are to reverse deconditioning secondary to impaired mobility, optimize physical functioning, and enhance overall well-being. Regular physical activity is essential for the maintenance of normal muscle strength, flexibility, and joint structure and function and may slow the functional decline often associated with disabling conditions.<sup>8</sup> Children with cerebral palsy (CP) are significantly weaker than age-matched controls, and strengthening and weight-bearing programs are recommended.<sup>9</sup> Moreover, female adolescents with CP have a lower self-concept than their counterparts without disability in the domains of physical appearance, social acceptance, athletic competence, and scholastic competence.<sup>10</sup> Adequate levels of muscular strength and endurance are associated with increased bone mass, reduction in injury from falls, and a greater ability to complete activities of daily living.<sup>9,11</sup> A strength-training program for young patients with CP demonstrated increased strength, improved mental well-being, and better overall function.<sup>12</sup> Another example is that of children with Down syndrome; although they have less muscle strength than typical children, they show increased exercise endurance and work capacity after participation in a specialized aerobic training program.<sup>13</sup>

The current epidemic of obesity associated with inactivity is a global health care concern for all children, including those with disabilities.<sup>14</sup> Children with disabilities are more likely than other children to be sedentary, placing them at higher risk of obesity and associated health conditions.<sup>15</sup> In fact, children with certain developmental disorders have higher prevalences of being at risk of overweight and being overweight than do children without developmental disorders.<sup>16</sup> Physical consequences of inactivity for persons with disabilities include reduced cardiovascular fitness, osteoporosis, and impaired circulation. In addition, the psychosocial implications of inactivity include decreased self-esteem, decreased social acceptance, and ultimately, greater dependence on others for daily living. Overall, the participation of children with disabilities in sports and physical activities can decrease complications of immobility.

Sports participation enhances the psychological well-being of children with disabilities through the provision of opportunities to form friendships, express creativity, develop a self-identity, and foster meaning and purpose in life.<sup>17</sup> Special Olympics participants show heightened self-esteem, perceived physical competence, and peer acceptance when compared with nonparticipants.<sup>18</sup> Parents of Special Olympians reported that their child's participation promoted social adjustment, life satisfaction, family support, and community involvement.<sup>19</sup> Such events provide a much-needed venue for informal peer support and sharing of experiences among families of children with disabilities.<sup>20</sup> Mildly strenuous exercise has been shown to reduce stereotypic movements, mal-

adaptive behaviors, and fatigue in children with autism and other developmental disabilities.<sup>15,17,21</sup> Last, participation in regular physical activity can foster independence, coping abilities, competitiveness, and teamwork among children with disabilities.<sup>22</sup>

## PREPARTICIPATION CONSIDERATIONS

Currently, a wide variety of sporting activities are accessible to children with disabilities, and guidelines are available to assist pediatricians in recommending activities appropriate for children with specific conditions.<sup>23</sup> The American Academy of Orthopedic Surgeons has developed a "participation possibility chart" that outlines sporting options for individuals with the most frequently occurring physical disabilities.<sup>13</sup> For example, it is recommended that children with Down syndrome, after being screened radiographically for atlantoaxial instability, participate in sports they enjoy, with the exception of those that involve contact or collision.<sup>24</sup> Similarly, children with asthma should have readily available medications for use before participation as needed and should be permitted to modify participation as needed for airway exacerbations or environmental conditions without negative ramifications. Rather than exclusion from sports participation, the goal is inclusion for all children with disabilities in appropriate activities. It is important that children are empowered with an "I can do" attitude rather than discouraged by the message "you can't do that."<sup>2</sup>

Properly designed and implemented programs of sports and physical activities for children with disabilities should target cardiovascular endurance, flexibility, balance, agility, and muscular strength and accessibility, safety, and enjoyment.<sup>8</sup> Strategies to minimize the risks of illness or injury to children with disabilities during sporting activities should be implemented before participation. Exercise that is of longer duration, greater frequency, and lower intensity compared with programs for typically developing children is recommended.<sup>8</sup> In the example of an adolescent with a cervical spinal cord injury, participation in wheelchair rugby should be permitted only after the athlete, parents, and coaches can readily recognize acute sweating, sudden and often severe headache, apprehension, and hypertension as autonomic dysreflexia and quickly identify and remove the triggering factor(s).<sup>22</sup> Latex-safe environments should be provided, and resuscitation medications should be readily accessible when children with spina bifida (25%–65% prevalence of latex allergies) are participating.<sup>22</sup>

Children with neurodevelopmental disabilities often demonstrate abnormalities of thermoregulation secondary to impaired vasomotor control, decreased muscle mass, and impaired central temperature-regulating mechanisms.<sup>22</sup> Anticholinergic medications may further increase the risk of hyperthermia in children with spinal cord injuries. Approximately one half of athletes in a Junior National Wheelchair Games competition experienced hyperthermia, and 9% of swimmers in the same study experienced hypothermia.<sup>22</sup> Careful attention must be directed at proper training, hydration, clothing,

and equipment. Some children with disabilities have impaired motor coordination, decreased endurance, limited mechanical efficiency, and osteopenia, factors that can predispose to musculoskeletal injuries and overuse syndromes. For example, athletes in wheelchairs have increased rates of shoulder overuse injuries and carpal tunnel syndrome.<sup>2</sup> Pediatricians are encouraged to access published resources for sports-specific and condition-specific guidelines regarding the participation of children with disabilities in sports and physical activities.<sup>25</sup>

Health supervision visits afford pediatricians, children with disabilities, and parents with opportunities to collaboratively generate goal-directed activity “prescriptions.” The longitudinal relationship between the pediatrician, child, and family provides a broad and deep understanding of the implications of participation for each child. Conditions that may limit a child’s participation or predispose the child to injury, individual preferences, and the availability of appropriate local programs must be individually considered. The child’s current health status, the level of competition, the specific sport and position to be played, availability of protective or adaptive equipment, whether the sport can be modified to allow safer participation, and the ability of child and parent to understand and accept the risks involved must all be addressed before participation.<sup>23</sup>

For example, a child with autism and communication impairments might struggle with verbal instructions from coaches during certain team sports and benefit more from participation in individual sporting activities. Because standardized preparticipation forms may not adequately communicate the issues involved in safe participation for children with disabilities, alternative forms have been developed.<sup>2</sup> Overall, the sports preparticipation evaluation for children with disabilities may not occur in the context of a single office visit, but rather, over a period of time with input from physicians, coaches, physical education teachers, physical and occupational therapists, and others. The American Academy of Pediatrics policy statement on care coordination for children with special health care needs provides guidance on the complexities of this process.<sup>26</sup> With the proper guidance, the risk of injury to physically challenged children is no greater than that to athletes without disability.<sup>22</sup>

### What Determines Participation?

The most frequently identified barriers to the active participation of children with disabilities in sports and physical recreation are the child’s functional limitations (18%), high costs (15%), and lack of nearby facilities or programs (10%).<sup>27</sup> In fact, adolescents with disabilities cited the cost of specialized equipment as the most frequent reason for nonparticipation.<sup>27</sup> Participation is further influenced directly by time, the home environment, and the child’s perceived self-competence and indirectly by social support from schools and communities, family demographics, and family and child preferences.<sup>27</sup> Families who engage in physical activities themselves tend to

promote similar participation for their children with disabilities.<sup>14,27</sup> Moreover, inactive role models, competing demands and time pressures, unsafe environments, lack of adequate facilities, insufficient funds, and inadequate access to quality daily physical education seem to be more prevalent among populations with special needs.<sup>14</sup> Overall, environmental and family factors seem to be more significant determinants of participation than characteristics of the children themselves.<sup>27</sup> The establishment of short-term goals, emphasizing variety and enjoyment, and positive reinforcement through documented progress toward goals can help spark and sustain the motivation for participation.<sup>8</sup>

Many individuals with disabilities are still, to a large extent, socially segregated and experience negative societal stereotypes and low performance expectations, rendering them with limited opportunities for participation in group physical activities.<sup>27</sup> These attitudinal barriers in the community contribute to a lack of awareness regarding current programs and opportunities for participation. Although specialized programs are beneficial, the participation of children with disabilities with other children in community activities can reduce societal barriers. It is a common misconception that children with disabilities are susceptible to trauma and, therefore, should avoid rigorous sporting activities that are typically associated with injury. Although athletes with disabilities have rates of injury similar to those of other athletes, fear of injury frequently remains a barrier to participation. Overall, misconceptions and attitudinal barriers at the level of the individual, the family, and the community need to be addressed to integrate children of all abilities into recreational and sports activities.

### The Right to Participate

Federal laws exist to protect the rights of children with disabilities to participate in sports and physical activities. The Individuals with Disabilities Education Act mandates free, appropriate public education in the least restrictive environment. Section 504 of the Rehabilitation Act of 1973 states that no individual shall be excluded because of disability in programs that receive federal funds.<sup>28</sup> Physical education is a federally mandated component of special education services, including the promotion of physical and motor fitness, fundamental motor skills, and skills in individual and group games and sports.<sup>29</sup> Pediatricians and parents of children with disabilities can advocate for programs of adapted physical education and recreation in each child’s individualized education plan.<sup>17</sup> Schools are required to modify programs or activities according to the abilities of each child. Students with disabilities have the same right as all students to compete for inclusion on interscholastic teams that use performance criteria to determine who will participate.

Although national initiatives from the US Department of Health and Human Services (*Healthy People 2010*),<sup>30</sup> the Centers for Disease Control, and the American Academy of Pediatrics stress the daily participation of all students in programs of physical education, this

goal remains unmet. In fact, according to a 2000 study, only 8% of American elementary schools, 6.4% of middle schools, and 5.8% of high schools with existing physical education requirements provided daily physical education classes. More than three fourths of elementary, junior/middle, and senior high schools allow students to be exempted from required physical education; cognitive and physical disabilities are among the most common reasons for these exemptions.<sup>31</sup> The combined advocacy efforts of well-informed pediatricians, parents, educators, and others are needed to ensure and promote the participation of all children in sports and physical activity programs, each according to his or her abilities.

### ADVICE FOR PEDIATRICIANS

Overall, it is important for pediatricians to:

1. Understand the benefits of the participation of children with disabilities in sports and physical activities.
2. Perform preparticipation evaluations for children with disabilities in collaboration with the child and family, pediatric specialists, therapists, coaches, and others.
3. Identify strategies to minimize risks of illness and injury related to participation through activity adaptations and safety precautions.
4. Recognize and reduce child, family, and societal barriers to the participation of children with disabilities in athletics.
5. Advocate for the participation of all children, including those with disabilities, in sports and physical activity programs.
6. Be aware of resources regarding appropriate sports and physical activity programs for children with disabilities in their local communities. The National Center of Medical Home Initiatives for Children with Special Needs ([www.medicalhomeinfo.org/health/recreation.html](http://www.medicalhomeinfo.org/health/recreation.html)) reviews the benefits of recreation for children with disabilities, provides information on national initiatives, and identifies Web sites of organizations such as Special Olympics and the National Center on Physical Activity and Disability.<sup>32</sup>

### SUMMARY AND CONCLUSIONS

All children benefit from physical activity, and children with disabilities are no exception. Participation of children with disabilities in sports and physical activity programs promotes physical, emotional, and social well-being. Well-informed decisions regarding each child's participation must consider overall health status, individual activity preferences, safety precautions, and availability of appropriate programs and equipment. Child, family, financial, and societal barriers to participation need to be directly identified and addressed in the context of local, state, and federal laws. Pediatricians are urged to promote the participation of children with disabilities in competitive and recreational sports and physical activities. The benefits are substantial.

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