



Physical activity for children with Down syndrome

By Nora Shields and Fiona Blee

This article discusses four common barriers to physical activity for people with Down syndrome and some practical strategies to overcome them.

Physical activity is integral to a child with Down syndrome's health, fitness and wellbeing. It supports the development of their bones, improves their movement and encourages balance and coordination skills. Additionally, physical activity promotes the development of social skills, encourages children to be independent and helps them maintain a healthy body weight. Performing enough physical activity can improve sleep, concentration, academic performance and self-esteem. Regular physical activity has long-term health benefits, as it reduces the risk of developing conditions such as heart disease, type 2 diabetes, osteoporosis, depression and obesity. These benefits are particularly important for people with Down syndrome, as they are at a higher risk of developing these conditions.

Activity guidelines for children with Down syndrome

There are guidelines about how much physical activity children need to do to be healthy. You can download a copy of the Australian national physical activity guidelines from the Department of Health and Ageing website. The guidelines suggest that:

- Toddlers (1-3 years) and pre-schoolers (3-5 years) should be physically active every day for at least three hours. This includes activities such as standing up, moving around, active playing, running and jumping.
- Primary school aged children (5-12 years) and adolescents (12-18 years) should do at least sixty minutes of moderate and vigorous activities each day, and for additional health benefits, they should do twenty minutes or more of vigorous activity at least three to four days a week.

Moderate activity increases heart rate and breathing and causes a light sweat, for example, walking briskly or active play. Vigorous physical activity makes the heart and lungs work even harder, for example swimming laps, playing

tennis or running. These guidelines are the minimum recommended levels of physical activity for children. There is some evidence that suggests the guidelines are conservative and that children and adolescents should be doing closer to 120-150 minutes of physical activity each day. As the saying goes, some physical activity is better than none, but more physical activity is better!

An important aspect of the guidelines is the advice they provide about limiting sedentary behaviour. Television and electronic media have transformed our lives in many positive ways, but the downside is that they can make children more sedentary. The amount of time children spend watching television and using electronic media should be limited. Research has found that watching TV for more than two hours a day in youth is associated with being overweight, having poor fitness, smoking and raised cholesterol in adulthood. All children need *down time* but they are not naturally inactive for long periods of time. The guidelines recommend that very young children (up to two years) should not spend any time watching TV or using electronic media, pre-schoolers should limit these activities to less than one hour per day, and primary and secondary school aged children should spend no more than two hours per day of electronic media, particularly during daylight hours.

One question that is often asked is whether these physical activity guidelines are relevant for children and adolescents with Down syndrome. People with Down syndrome may have a reduced capacity for exercise and may participate in less physical activity compared to their peers without disability for lots of reasons including congenital heart defects, muscle hypotonia, low cardiovascular fitness, decreased muscle strength, poor coordination and balance and an intellectual disability. The guidelines are clear that *children with disability should meet the guidelines*, or do as much physical activity as their

condition allows. The guidelines also specify that *children with disability should avoid being inactive*. For most children and adolescents with Down syndrome, there is no reason why they should not be active and so they should aim to meet the guidelines. In addition, children and adolescents with Down syndrome may derive therapeutic benefits from physical activity in addition to general health and social benefits. In this case, participation in physical activity is even more important for them.

Barriers to physical activity

Many children with Down syndrome do not take part in the recommend amount of daily physical activity. There are personal, family, social, environmental, program and policy factors that can act as barriers to taking part in physical activity for all children. Children with Down syndrome face additional barriers to participating in physical activity because of their disability. Our recent study (Barr and Shields, 2011) found the four most common barriers reported by parents to participation in physical activity among children with Down syndrome were:

1. characteristics commonly associated with Down syndrome, such as their propensity to have lower muscle strength and cardiovascular fitness than a typically developing child
2. competing family responsibilities, and parent's concern about things such as the safety of their child
3. reduced physical or behavioural skills of the child with Down syndrome
4. a lack of accessible programs.

Encouraging physical activity

Published literature currently tells us more about the barriers to physical activity for children with disability than what facilitates engagement in activity (Shields et al 2012). Our research (Shields and Barr, 2011) also asked parents of children with Down syndrome what they thought enabled their children to take part in physical activity. The four most common facilitators reported were:

- the positive role and influence of the family
- opportunity for social interaction with peers
- structured accessible programs that make adaptations for children with Down syndrome
- children who were determined to succeed, were physically skilled and encouraged by parents and coaches.

Having a social component as part of a physical activity is a particularly strong facilitator for children with disability, and in the case of children with Down syndrome is often the primary reason for participating. Formal activity programs, in particular, offer a structured opportunity for socialisation, which may also facilitate a sense of belonging.

The role of family is paramount to helping children with disability participate in physical activity. Parents who are informed about the benefits of physical activity, who are physically active themselves and who initiate and encourage their children to be active tend to have children who are more engaged in physical activity.

Practical strategies to encourage physical activity

A key goal for every family is to encourage children to be active from an early age, through structured exercise, sports or active play, as their activity behaviours become routines that are likely to continue into adulthood. It is important to make strategic decisions around which types of physical activity your child participates in and to consider whether they can continue participating in that activity into adolescence and adulthood.

Some tips to help encourage children with Down syndrome to be physically active include:

- Choose active toys and active pursuits over sedentary options. For example, for pre-schoolers and primary school children choose toys that help develop skills like kicking, throwing and catching, such as balls, bats, tricycles and kites.
- Encourage traditional childhood games such as hopscotch, skipping ropes, hula-hoops, hide-and-seek, obstacle courses, follow the leader, stuck in the mud, or tip/tag games which also encourage movement and skill development.
- Choose an activity that your child enjoys—music and dance are popular among people with Down syndrome.
- Keep it simple—running, jumping, dancing and trampolining are great aerobic activities.
- Walk or cycle places rather than drive—particularly to school.
- Take the stairs instead of the lift when in large buildings.
- Encourage your child to be outdoors—simply spending more time outdoors can increase physical activity.
- Involve the whole family and use physical activity as an opportunity for social interaction between all family members.
- Set up a routine—many children like routine and repetitive behaviours which allow them the opportunity to master tasks and skills.
- Give your child lots of positive feedback and encouragement.
- Start with small exercise goals and build on them over time.

Physical activity is really important to health, so get moving and be active!

References

Barr, M & Shields, N 2011, 'Barriers & facilitators to physical activity in children with Down Syndrome', *Journal of Intellectual Disability Research*, 55, 1020–1033.

Shields, N, Synnot, A & Barr, M 2012, 'Barriers & facilitators to physical activity in children with disabilities: a systematic review', *British Journal of Sports Medicine* (In press).

Nora Shields is an Associate Professor in Physiotherapy at La Trobe University. Her research interest is increasing physical activity among people with disability and in particular people with Down syndrome.

Fiona Blee is a Masters in Public Health graduate with an interest in the social determinants of health and behaviour change.



Encouraging physical activity through Special Olympics

People with an intellectual disability are often ridiculed, misunderstood, isolated or simply ignored. Yet, with the understanding and support of Special Olympics they discover the skills that allow them to improve their health, and together with social interaction from other events run by Special Olympics, develop self-confidence and bring joy to themselves, their families and their community.

On average, each Special Olympics program offers training in six sports, and volunteers deliver a total of 15,000 weekly sports and competition sessions annually through 350 local sports clubs.

Every two hours an Australian child is diagnosed with an intellectual disability, so we are working with a range of stakeholders to increase our ability to improve more lives. Until then too many people with an intellectual disability will be denied access to sport, limiting their ability to make friends and share their talents with their families and the wider community.

Motivating physical activity

While some Special Olympics athletes strive to win medals, others enjoy the chance to be active, have fun, make friends and be part of a family. Whatever their motivation, we cater for them by providing meaningful sports programs delivered within a supportive environment where people with an intellectual disability are accepted and can feel proud. (Victorian Office of Special Olympics, State Manager Kevin O'Byrne)