

Children with Down Syndrome

Discovering the Joy of Movement

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A movement program employing Laban's concepts of time, space, weight, and flow works wonders for children with Down syndrome.

Down syndrome (DS) is the most frequently occurring chromosomal abnormality. It results from the presence of an extra partial or complete 21st chromosome. This increase in genetic material disrupts all aspects of an individual's physical, mental, and social development. While the specific sensory and perceptual-motor impairments associated with DS have been well reported, less is known about how best to structure the environment and tailor programs that can maximize the potential of individuals with DS and increase their participation in physical activity.

For children with DS, it is widely recognized that the development of movement patterns and the acquisition of motor skill proficiency can be a slow and discouraging process. Although some children can attain a competence level that is somewhat comparable to their peers, motor milestones are generally delayed, and, in certain aspects of motor skill performance, children and adults with DS show a "lack of finesse" often described as "clumsy" (Henderson, 1986; Jobling 1999a, b; Latash, 2000). For children with DS, discovering the joy of movement can be a frustrating and difficult task. From a perceptual-motor perspective, the motor features of this observed "clumsiness" are "not straightforward...and sometimes puzzling" (Latash, 2000 p. 209). This awkward form of movement can add to feelings of frustration as movement and movement sequences in action become inefficient and thus ineffective as related to the task.

What Is Known About this Clumsiness

Despite the variability in the movement qualities of children with DS, there *are* consistently reported problems among this population. Several investigators (e.g., Virji-Babul & Brown, 2004) have noted that children with DS tend to treat a movement sequence as a series of separate tasks, causing their movement to appear jerky and hesitant. In a small study on balance, Jobling (1999b) reported that the movement qualities observed as the children completed the balance tasks of the TOMI-H test showed numerous movement control and quality problems. Movements lacked fluency, and the children demonstrated an inability to slow down their actions and control their forward momentum when jumping and hopping. Poor postural stability and balance, as well as increases in postural stiffness, are considered to be contributing factors to these problems (Jobling & Mon-Williams, 2000; Webber, Virji-Babul, Edwards, & Lesperance, 2004). Strength and reaction times are also important factors in controlling body movement (Parker, Monsoon, & Larkin, 1993), and it has been shown that children with DS have problems controlling these aspects when moving. There is also still much to learn about the verbal motor difficulties evident in those with DS, especially as these aspects of motor behavior persist (Heath, Elliott, Weeks, & Chua, 2000). Children with DS take longer to initiate a movement, and their movement times are also slower than the average population

of children (Virji-Babul, Jobling, Nichols, & Purves, 2004). Also, patterns of muscle activation to move do not conform to expected norms, and hypotonia (decreased muscle tone) remains a perplexing deficit that is difficult to assess (Hunt & Virji-Babul, 2002). Generally, with these difficulties in motor behavior and control, children with DS demonstrate poor form in their motor skills and actions.

This poor form is of concern as “good form is more productive of good performance than poor form” (Wickstrom, 1983, p. 7), and there is a positive causal relationship between form and actions. The developmental importance of this is that children improve their motor skill proficiency by progressing from simple skills to more complex skills; thereafter, any inefficiencies and ineffective aspects in the form of the simple skills could be replicated in the new, more complex, skill (such as progressing from walking to running). Consequently, when children are attaining movement milestones and motor skills, therapists and educators frequently emphasize the importance of facilitating quality in the form of the movement, as well as in the attainment of the function (Harris & Shea, 1991; Lydic & Steel, 1979).

Motor Programs

Therapy and educational programs have focused traditionally on the development of a specific skill or aspect of motor control, such as the development of muscle strength and muscle tone, to enhance the progress of children with motor difficulties. Many programs have been developed with the goal of enhancing learning by improving motor behavior (Cratty, 1967; Frostig, 1976; Kephart, 1971). For young children, these programs have often been highly structured, with a focus on functional skills and sequences and little opportunity for creativity or exploration. The fun of exploring and learning about oneself through movement was missing. In 1977, Sheridan commented that with the very best of intentions some programs came perilously close to drudgery. Fun and joy in moving, and learning to move, seemed to have been replaced by functional goals.

Is Dance the Solution?

Several authors have suggested that dance provides both an appropriate and effective way to improve the form and quality of the movement patterns of children with DS. Dupont and Schulmann (1987) reported the usefulness of a dance program in improving bilateral intoeing and balance in a group of children with DS. They suggested that dance, with its elements of kinaesthetic awareness and visual representations of movements, can accommodate the children’s learning styles. Also, the “inherent practice and rehearsal effects could remediate deficits in postural control and make practicing a motivating and rewarding experience for children” (Dupont & Schulmann, p. 11).

Boswell (1993) also found that dance improved the balance skills of children with mild intellectual disability more than a traditional gross-motor program. Specifically for children with DS, Jobling (1993) advocated the use of



All photos by Naznin Virji-Babul

A creative dance program can help children with Down syndrome improve the form and quality of their movement patterns.

Laban-based movement education for play programs. More recently, Dunphy and Scott (2003) have also presented dance as a valuable form of movement-skill development and expression, and reinforced the earlier notion that Laban’s core concepts should be used to frame dance education for individuals with intellectual disabilities. Dunphy and Scott felt that creative expression can be interwoven with well-being and health, as well as with community participation and involvement.

Rational for Using a Laban Framework

Rudolph Laban (1879-1958), a pioneer movement theorist, reconceptualized the essential elements of movement in dance and provided an analysis of those movements. With his comprehensive movement notation system, he was responsible for a significant shift in the approach to movement in general education and provided an exciting framework of core concepts with which to teach creative movement and dance (Laban, 1963). Throughout the 1970s the concept of movement education had a significant influence on physical education programs worldwide. For examples, see Fowler (1981), Gallahue (1976), Gilliom (1970), and Kane (1977). Gallahue (1989) believed that there are endless opportunities for teachers to devise a variety of creative and expressive movements in the performance of the stability, locomotor, and manipulative activities. He suggested that in order to enhance the movement experiences, movement questions should be asked by the teacher. For example, “How many parts of your body can you bend?” or “Can you swing quickly?” and “Can you swing slowly?” The children then perform the answers based on their abilities. Gallahue also suggested the use of activities such as bending, stretching, twisting, turning, swinging, dodging, landing, stopping, and rolling to frame the movement questions and to assist children in using movement language.

For children with intellectual disabilities such as DS, Laban’s core concepts (space, weight, time, and flow) could be used with a movement education approach to provide an ideal framework within which children can learn to

move. Jobling (1993) has suggested that movement learned in this way could become a language of expression and communication for young children with DS, and Barham (1993) recognized the potential of the framework to teach the movement concepts of game skills such as netball to children with DS. These authors considered movement an important part of physical development and suggested that the ability to move makes the environment more accessible for exploration and learning.

A Framework for the Development of the Language of Movement

The authors of this article believe that the use of Laban's core concepts of movement in a creative dance program can cultivate specific aspects inherent in moving and that the use of the associated movement words can greatly facilitate the learning and understanding of movement by children with DS. These children could be taught the concepts of the time, weight, space, and flow of movements as they produce them and develop the "language of movement" as they talk about what they are doing. This experience also allows children opportunities to practice, rehearse, and enjoy the experience, free of formal structures.

The authors also believe that there are four core concepts that should be used in such programs: (1) development of an awareness of body, space, and effort; (2) development of the language of movement; (3) sufficient time for exploration and practice; and (4) communication and interaction with others. An initial framework (figure 1) and program have been developed using these core concepts (Virji-Babul et al., 2004), and some examples from the program are provided below.

First, with a Laban approach, children with DS are taught awareness of their body in three ways as they move—body awareness, space awareness, and effort awareness. *Body awareness* is an important prerequisite to knowing what the body does and how limbs function in movement. For example, what parts of my body are moving now? How does my body move? How can I use my body to perform that action? Where are my head, arms, legs, and trunk?

The children can be introduced to body parts during a circle time. A percussion instrument provides the rhythm as they sing or recite the following words: "clap, clap, clap your hands; tap, tap, tap your head; beep, beep, beep your nose; wiggle, wiggle, wiggle your toes." At first the children

can remain sitting for this activity, but later they should be encouraged to sing or recite standing, moving about, or in a dance, as they become more confident with their actions. More body parts and actions are later added to create a wider range of movements. This adds to the children's movement vocabulary.

Space awareness explores the body in relationship to space and other people and objects in the environment (e.g., walking along a crowded street or moving around a playground). In actions, movement occurs at various levels and in various pathways—the high and low; the near to me and far away; and the under, over, and through. Where is my body moving? Into what space is my body moving?

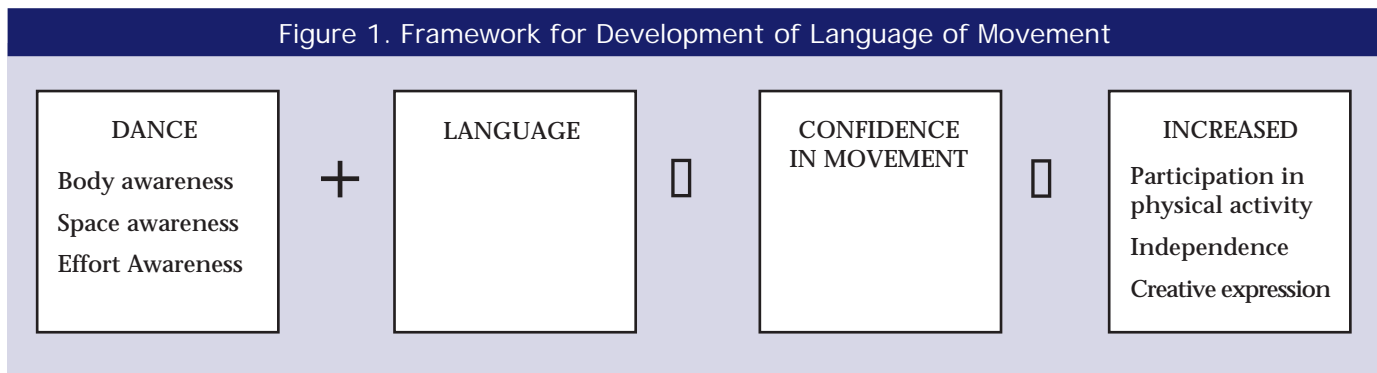
To develop space awareness, an obstacle course can be constructed. This often has a theme such as a forest, a playground, or the circus. In a course using the forest theme, the children moved into and out of pylons, which represented trees; around hoops, which represented ponds; and over bean bags, which represented rocks. They also walked along a low beam, which represented a log fallen in the forest; and under and over ropes, which represented branches of trees. The movement vocabulary here related to space and direction. It is important to ensure that the area in which the movement activities take place is comfortable for the children—too much space is unnerving and too little is constricting.

Effort awareness refers to the feeling and the pace of the movement—the speed, the accuracy, and the sustaining of the movement. For example, moving slowly or quickly are movement feelings related to time, while moving heavily or lightly are movement feelings related to weight. Laban believed that the "feel" of a movement was essential and stressed self-awareness as a qualitative component of *time*, *weight*, *space*, and *flow*. Pushing or pulling slowly are examples of sustained movements that require the individual to pay attention to the feeling of the movement. Actions that flow—such as running, skipping, or jumping—may require sustained effort awareness as well as body and space awareness.

To develop effort awareness, children can repeatedly pull a parachute up and let it fall. The joint effort in the up movement and the limited effort as the parachute falls down can be discussed with the children.

Practicing these concepts may improve the movement form of children with DS. Doing so may give them a better

Figure 1. Framework for Development of Language of Movement





Negotiating an obstacle course of cartons (left) can help develop spatial awareness, while pulling a parachute up (above) and letting it fall back down can improve effort awareness.

sense of fluency and timing, thereby ameliorating their typical jerkiness and lack of finesse.

Second—simultaneous with the development of body, space, and effort awareness—children with DS are given opportunities to develop their language around the movements taught. This development of the language of movement, as children move using Laban’s core concepts, can support the child’s acquisition of a vocabulary that may help them to understand their own movement. For example, movement can be linked to the vocabulary for developing *space awareness* (up, down, under, over, through, and around) and for understanding the levels in which movements take place (high, to the side, and low). A descriptive vocabulary of movement words can also assist with understanding the concept of *time* (quick and slow), the *weight* of the movement (push and flick), as well as the feeling of the *flow* of the movement (slide, squirm, and freeze).

The dance program described in this article recognized the inherent importance of including language as a part of all the movement experiences. These experiences were labeled, described, talked about, and enjoyed. The use of a movement language became integral to making decisions about moving. For example, when using a bean bag or ball in an activity, this could mean deciding whether to “run,” “stop,” “balance,” and “catch” or “run,” “leap,” and “catch.” Movement poems can also be created in order to construct verbal pictures of movement. Children with DS created the following examples:

- “When I move upwards, I am like a mountain climber scaling the highest peak or a seed pushing up through the soil...or a rocket soaring into outer space.” (Borten, 1963, n.p.)
- “When I move in a quick and jerky way I am a mechanical doll...or a clown stumbling over my feet...or a frantic fish

struggling on a fisherman’s hook.” (Borten, 1963, n.p.)

This development of a “movement language,” has great implications for children with DS. In the past, several researchers have suggested that individuals with intellectual disabilities lack adequate knowledge and understanding of how to use movement for their own needs (Henderson, 1986; Newell, 1985; Wall, 1986) and that they often rely extensively on vision to confirm their movements (Weeks, Chua, & Elliott, 2000). Thus, it may be important to assist them in developing some vocabulary that they can use to expand their knowledge and understanding of movement. Repeated practice in enjoyable dance programs where visual, verbal, and kinesthetic perceptions can be heightened may help children with DS to consolidate this knowledge in order to support their movement in the performance of motor tasks.

Knowing the language of movement and using it appropriately in verbal self-talk, may also assist those with DS to plan their movements and coordinate them with others. Leivia (1961) supported this notion and wrote about the importance of instructing children on what to say in order to direct their movement activity.

Third, “individuals with DS may require much more time for the kind of exploration necessary to understand the task and build the confidence in the environment” (Latash, 2000, p. 211). This need can be addressed by a Laban approach in a dance program where the movement and dance opportunities offer continual exploration and practice without the boredom of structured repetition. Often, as knowledge and understanding grows, confidence is built, frustration is decreased, and the children discover the joy of moving. This can be seen in the comments made by a dance teacher in the authors’ program:

- Susan is creative and has done very well this session. Her confidence is building. She has lots of fun and enjoys participating.
- It is very exciting to watch Kevin’s transition from being

very scared and tentative—crying when parents leave—to being independent and comfortable with the class. He enjoys dancing and is coming out of himself more and more. He is becoming more assertive and verbalizing more.

Fourth, dance has always been considered a creative art form that enables individuals to communicate and interact with others. This creativity is preserved in the Laban approach to movement education through dance. This approach gives individuals opportunities to expand their creative skills as they grow to know and understand their body and the ways in which it can move together with others. They can use their developing “movement language” to communicate with others and formulate their ideas. These socio-emotional aspects are often the primary reason for the inclusion of movement and dance in programs for individuals with intellectual disabilities (Williams, 2001). Observations by teachers in the authors’ program confirm this effect:

- It has been exciting to see Robyn move and grow in the past seven classes. She has become a leader in class and works well with others too. She takes turns appropriately and respects personal boundaries. She remembers and delights in the repeated parts of the classes and enjoys new activities.
- Adam has become more interactive with other children. He now enjoys the sequence of the obstacle course (initially he would not go on it) and moves freely in this space, accepting its challenges.

Conclusion

Opportunities for creative dance using Laban’s core concepts of movement and his approach may provide children with DS with opportunities to learn movement skills in a relaxed and enjoyable environment. With the supportive use of music, rhythm, and language stimulation, children with DS may develop an understanding of their bodies as they move, learn to communicate and interact with their peers, develop skills necessary to problem-solve and learn new movement skills, and develop the capacity for creative expression.

Children with DS have the potential to expand their movement repertoire and develop through dance. During the dance movement sessions, it is the children who are in control and can take the initiative as they focus on movements that reflect their own feelings, ideas, abilities, and interests. With this focus, the teaching and learning of movement shifts from an emphasis on overcoming the learner’s inabilities to an emphasis on the mover’s uniqueness and competencies, while movement activities retain their playfulness, spontaneity, and challenge. As they understand, move, and improve the form of their movements, the children may also improve their general mobility and fitness, which will positively affect their health and well-being.

An initial investigative project (Virji-Babul et al., 2004) is underway to examine the likely measurable improvements in children’s movement quality using the above approach. It is proposed that if children who have difficulties with language, such as those with DS, can be given a “movement



As one of its four core concepts, the authors’ creative dance program aimed to enhance communication and interaction among children with Down syndrome.

language” and experience using that language, an improved movement quality may occur. The importance of these improvements could then be examined in relationship to the interaction between physical activity and health, as well as between social and emotional development and inclusion in environments such as playgrounds. It is now recognised that there is a need for physical activity planning and programming that is initiated early in the life of children with DS to help facilitate a healthy and active lifestyle.

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~~resonate throughout their lives. A major factor associated with a positive service learning experience is the student's degree of interest in the subject matter. This allows the student to view education as a learn-~~

~~ing experience, rather than as just the memorization of rote knowledge (Astin, Vogelgesang, Ikeda, & Yee, 2000).~~

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Editorial

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~~the triad to hide in the shadow of popular obesity issues. It is important for those working with~~

~~young females, including parents, physical educators, and coaches, to be trained about energy needs during intense workouts and to understand the nutritional requirements for normal growth and development during adolescence (Golden, 2002). It also is important that physical education teachers and coaches deemphasize the association between a lean body shape and performance and focus on educating females about sound nutritional principles for enhancing overall health (Beals, 2000). Similarly, it is important to teach females to work towards enhancing personal health and well-being (e.g., stress management, making good food choices, eating regular meals and healthy snacks) instead of focusing on an arbitrary weight goal set by the sport, a coach, parent, or friend (Manore, 2002). Females can tell if they are making progress by measuring positive changes in their energy levels and performance, noting a decrease in injuries and illnesses, the return of normal menstruation, and general well-being (Manore). Overall, it is essential to ensure that young, active females consume a healthy diet and maintain the energy needed in order to maintain a regular menstrual cycle for optimal health and performance.~~

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