Down Syndrome

The Inclusion Strategies Series provides practical, simple and effective strategies that educators can implement as part of their day to day practice.

Down Syndrome is a condition caused by extra genetic material located at the 21st chromosome. It is one of the most common congenital syndromes and the largest single known cause of intellectual impairment.

The causes of Down Syndrome are unknown however, increased maternal age is thought to increase the risk of having a child with Down Syndrome.

Varying degrees of intellectual impairment may result from Down Syndrome. This may affect attention, memory, abstract thinking, problem solving and generalisation skills.

Besides affecting intellectual and cognitive skills, Down syndrome may also cause one or more of the following physical characteristics:

- a rounded face with a flat profile due to flattened bridge of the nose and small nose size
- slightly upward slanting eyes and epicanthus (a small fold of skin that runs vertically between the inner corner of the eye and the bridge of the nose)
- small, low set ears
- slightly smaller mouth cavity and larger tongue
- broad hands and feet with short digits rather than having three “creases” in the palm of the hand, a child with Down Syndrome usually has one single crease across the palm, and a second crease that curves down by the thumb
- short stature with arms and legs short in comparison to trunk size
- low muscle tone
- joint laxity
- diminished proprioceptive sense (movement awareness).

There are also some medical concerns related to Down Syndrome including congenital heart problems and gastrointestinal blockages, however these medical concerns will not affect all people who have Down Syndrome.

In early childhood, problems may develop affecting the eyes, ears and teeth of children with Down Syndrome.

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Eye problems may affect vision. Ear problems may result in hearing loss. Intermittent or persistent hearing loss can also affect language acquisition. Children with Down Syndrome may experience sensory processing difficulties, particularly the receiving of sensory information. Tactile discrimination and upper and lower body awareness may also be reduced. Gross motor, fine motor and oral motor skills, as well as cognitive development may be affected as a result of sensory processing problems.

Effects on Developmental Areas May Include

Social and Emotional

- Short term delays in developing clear smiles and eye contact.
- Social and emotional progress in the first year of life is essentially normal.
- Individuals show interest in people, and are socially responsive and...
A pattern of good social and emotional development and good non-verbal communication skills usually continues in later years.

**Motor and Physical Development**
There are delays in both fine motor and gross motor skills in children with Down Syndrome. The physical characteristics which delay motor development include:

- Hypotonia or low muscle tone – this may delay the development of head and body control.
- Ligament and Joint Laxity - refers to the looseness of the ligaments supporting the joints. Children may be unable to control excessive joint movement, nor prevent it from happening.
- Shorter limbs in relation to their torso may be evident.
- Hand Characteristics - some unique physical appearances including two palm creases instead of three; smaller hands and fingers; undeveloped wrist bones at birth; and an inward curved or slightly bent fifth finger.

**Language and Communication Development**
Communication skills may be affected by both physical and developmental delays.

- Limited tongue control may result in some speech delays.
- Delays in speech production may prevent children from saying clear words even though they know what they want to say.
- Words being strung together in a way that enables them to be understood but the words may lack correct grammatical understanding. Children with Down Syndrome may experience frustrations in making themselves understood. Many children may try/use gestures in order to communicate their wants or needs.

**Health and Safety**
- As many as four out of five experience hearing loss in the early years.
- Most hearing loss will be fluctuating and caused by middle ear infections blocking the ear.
- Some children will have sensory-neural deafness, which will be permanent.

**Inclusion Strategies**
**Social Development**
- Always encourage inclusion in group activities in an active or passive role.
- Provide ample opportunity for dramatic play.
- Plan for the dramatisation of favourite stories using props and felt pieces, encouraging children to participate in the retelling of these stories.
- Support peer relationships by acknowledging all in the group.
- Through play experiences, children with Down Syndrome are drawn into naturally spontaneous conversations from which their social skill development benefits enormously.

**Physical Development**
- Promote body stability in children e.g. providing push toys for the younger child; obstacle courses, balance beams and jumping rope for the older child.
- Hammering experiences help children develop accuracy in their arm movements.
- Pouring activities (such as water play) promote stability and control.
- Ball skills (including bouncing, catching and throwing) promote stability and planning for arm and hand movements. Begin with rolling experiences and substitute a ball with a balloon to allow for slower movements, or a bean bag may be easier to catch.
- Waving streamers or ribbons through the air promotes shoulder strength.
- Obstacle courses encourage skills which enhance strength and co-ordination.
- Clapping games and finger plays promote bilateral co-ordination i.e. the ability to use both hands together. Other examples include holding a book with one hand and turning pages with the other; lacing and threading experiences.
- Sensory experiences including play dough, finger painting and shovelling in the sand pit help to strengthen hands.
- Stickle bricks can be used to develop pulling apart and putting together skills.
- Tactile experiences can promote sensory discrimination (cold/warm, wet/dry, hard/soft).
- Shape sorters, stacking rings, stacking cups, simple shape puzzles and activity boards all promote dexterity - including the skills of grasp and release, pinch and thumb control, wrist movement and finger co-ordination.

**Language and Communication Development**
- Encourage children with Down Syndrome to participate verbally themselves. Avoid talking for them or allowing others to do so, instead role model correct speech patterns.
- Encourage all attempts at communication – both verbal and non-verbal. Ensure the environment provides opportunities and time for children to practice and improve these skills.
- Respect and understand the communication systems that children use (signing, visuals etc) to augment verbal communication skills.
- Be aware that the child’s communication skills may not necessarily reflect their
comprehension i.e. the child’s receptive language and comprehension is often much higher than the level of expressive language.

- Give clear instructions and send clear messages – one at a time.
- Use consistent language for routines e.g. do not interchange little lunch and morning tea – use one or the other.
- Provide children with advance warning and prepare them for transitions and any major changes to the daily routine.

**Cognitive Development**

- Provide experiences that allow for practice in memory, problem solving and gaining new knowledge e.g. memory games; books that ask questions to encourage recall of the story, such as “where is?” and “how many?”
- Provide reminders of sensory information through activities e.g. Sound Lotto, Simon Says, finger plays and clapping rhythms.
- Practice lots of facial games to strengthen muscles e.g. bubble blowing; making funny faces; looking in the mirror; show me your sad/happy face etc.

**References**


Brannelly K “Ideas for inclusion and programming tips” Book 1 Carata 2000

Noah’s Ark Children’s Services Resource Unit, Fact Sheet – Down Syndrome (2012)

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**Important things to remember:**

- Each child diagnosed with an additional need will be different and individual.
- Gain information from the parents as to what characteristics of the additional need their child displays.
- Work closely with the parents as well as any additional support specialists, e.g. therapists who may be involved with the child.
- Gain an understanding from the parent as to what is the most important aspect of their child attending your service. What is it that parents hope to gain from using your service?

The inclusion strategies featured in this fact sheet are just some examples which may be applied to support the inclusion process. This list is only the start and is dependent on a variety of factors such as environment, length of time the child is in care, the child’s interest, likes, dislikes and skills already achieved.