

Development and attention

January 2023

Executive function

Executive function is a term that covers several brain processes related to planning, organising and sequencing, working memory and impulse control. Paying and maintaining attention is part of these functions.

This is an area that people who have Down's syndrome may find challenging. These functions may develop later than expected, however it is likely that the person will need some supports built in. Attention skills, like all other skills, develop with successful learning experiences and practise over time.

Research looking at executive function in people who have Down's syndrome is ongoing to find the early intervention path to foster executive function in preschool children that might influence the development of other skills important for daily life.

What do we mean by attention?

Attention is the concentration of awareness on something or someone while tuning out other stimuli.

The development of attention

Attention develops from birth and the ability to sustain attention will improve with age. The ability to sustain our attention is a combination of cognitive ability, impulse control, and the ability to filter out distractions.

The following stages of attention development are adapted from Cooper, Moodley and Reynell (1978):

Stages of development of attention skills	
Stage 1 – Distractibility	<p>Attention flits from one thing to another. Attention is involuntary and is caught by stimuli. For example: attention shifts from one object / person to another and is easily distracted by a new event occurring eg. a loud noise.</p>
Stage 2 – Rigid attention	<p>Can attend to a concrete task of child's own choice. Attention is involuntary. Ignores external stimuli to focus. For example: may concentrate on blocks but will ignore adult intervention both verbal and visual.</p>
Stage 3 – Single channelled attention	<p>Child still cannot attend to other stimuli while focussing on an activity. Can shift full attention with adult's help to the adult. Control of the child's attention lies with the adult. For example: if a child is playing a game, the adult can shift the attention of the child, for example by saying " look at this" the child will respond and then go back to their game.</p>
Stage 4 – Focussing attention	<p>The child is starting to control their own focus. Child can still only focus on one activity at a time. Will give full attention to specific activity including both visual and auditory. Can focus and refocus their attention by themselves. For example: child can be playing a game will stop when adult speaks, give their full attention to the adult and then continue with their game.</p>
Stage 5 – Two channelled attention	<p>Child can focus on an activity but can also listen to what is being said without stopping their activity and looking at the speaker. Can focus on a single aspect of a complex situation.</p>

<p>Stage 6 – Integrated attention</p>	<p>Two channel attention is well entrenched, and the child can implement it across different situations and people. Attention is well established and sustained. Child can shut out unwanted and unrelated information and can concentrate only on the necessary features.</p>
--	--

We can then look at attention as falling into three types:

Selective attention

is the ability to select from many factors or stimuli and to focus on only the one that you want while filtering out other distractions.

Sustained attention

is the ability to focus on one specific task for a continuous amount of time without being distracted.

Joint attention

sharing & maintaining a focus of attention with another person.

Role of attention in learning & development

Attention is essential for our development and is crucial in the following:

- Listening skills
- Speech and language development
- Social communication & interaction
- Classroom behaviour
- Following instructions
- Working memory & executive functioning (planning, organising (etc)

Differences in people who have Down's syndrome

- Sustained attention corresponds with developmental age rather than chronological age.
- Relative weakness in selective attention and difficulties filtering.
- Joint attention may be a strength.
- Attention can be improved with training and practice (see below).

Strategies for supporting development of attention

Adapt strategies to the stage of development of the person.

- Very early: rattles, bubbles, peek a boo
- Early: play alongside, e.g. build tower/knock down - encourage child to attend to adult – directed activity

Copying and turn-taking, choosing & matching tasks.

Responding to instructions whilst continuing play, e.g. musical bumps, Simon says, preparing for doll /teddy outing or party

Increase concentration span - now can listen and do at same time - involve other people (small group) in games.

When do attention difficulties become a cause for concern?

If a child is showing difficulties with attention that are not in line with their development, there may be several reasons.

Hearing and Vision Issues

All children who have Down's syndrome have poor visual acuity and many will also have an additional visual impairment. Any resources should be in high contrast such as black writing on a white background, and writing /handwriting should be in black felt pen. Children who have Down's syndrome also have a higher chance of hearing loss. Both vision and hearing should be assessed regularly to rule out things like ear infections, the need for glasses, and other vision and auditory diagnoses that may contribute to attention difficulties.

Gastrointestinal Issues

People who have Down's syndrome are at increased risk for coeliac disease and constipation. Both diagnoses can cause changes in energy, behaviour, and restlessness.

Thyroid Issues

About 30% of people who have Down's syndrome have thyroid disease at some point in life. Most have hypothyroidism or an underactive thyroid gland; a few have a disease that results in an overactive thyroid gland (Graves' disease). An underactive thyroid gland can make a child very tired and apathetic. Too much thyroid activity can cause agitation and restlessness. Therefore, both conditions can look like poor attention and behaviour.

Sleep disorders

People who have Down's syndrome are frequently diagnosed with various sleep disorders. These disorders are a group of conditions with many different causes, but all result in insufficient sleep. Lack of sleep can result in restlessness, poor attention, mood swings, inability to focus, and challenging behaviours.

Communication

People who have Down's syndrome frequently experience barriers to effective communication. The receptive language skills of children who have Down's syndrome are often much stronger than their expressive language skills. Communication challenges may present as poor attention.

Education

Children who have Down's syndrome learn in different ways. A child's educational team may need to try many methods of presenting material before finding ways that work best for the child. If material is presented in a way that does not match a child's attention skills, learning strengths or interests, that child may appear bored, hyperactive, fidgety, or inattentive.

The first step would be to discuss any concerns with school and a Paediatrician or GP).

If you are still concerned about attention difficulties, please see separate factsheet on ADHD.

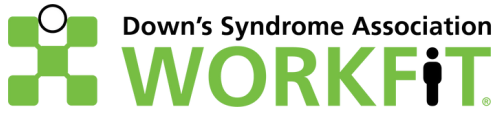
References

Cooper, Moodley and Reynell, 1978 'Helping Language Development'



CONTACT US

Down's Syndrome Association



LANGDON DOWN CENTRE



Langdon Down Centre,
2a Langdon Park, Teddington,
Middlesex, TW11 9PS

t. 0333 1212 3007

e. info@downs-syndrome.org.uk
e. training@downs-syndrome.org.uk
w. downs-syndrome.org.uk

Wales

e. wales@downs-syndrome.org.uk

Northern Ireland

e. enquiriesni@downs-syndrome.org.uk

