

Down's syndrome

A booklet for
Nursery and Reception staff



Prepared by Downsyndrome OK
Registered Charity (no. 1099580)
www.downsyndromeok.org.uk

Down's syndrome

1 in every 650 births is a child with Down's syndrome. A small number of births have a hereditary factor but most Down's syndrome births are a random event. Although the prevalence of Down's syndrome increases with maternal age, most babies with Down's syndrome are born to mothers under 35, as there are more births generally, in this age group.

What causes Down's syndrome?

Down's syndrome is caused by an additional chromosome, 47 instead of the usual 46. A person with Down's syndrome has three of chromosome 21, instead of the usual two.

This difference causes a number of physical changes in the developing foetus. It also brings prevalence to certain illnesses and ailments and protection from others and some degree of learning and developmental disability.

About Down's syndrome

Learning and developmental disability

Just as in the typical population there is a whole range of ability in Down's syndrome. The effect of learning disability varies from person to person with Down's syndrome from mild to severe. All children with Down's syndrome's early development will have been delayed to varying degrees and this will mean a child has had less time up and mobile in the world in which to gather new experiences.

Heart defects

40% of children with Down's syndrome are born with some kind of heart defect. These are usually operated on quite young in life.

Movement and physical skills

Babies with Down's syndrome are born with low muscle tone. This means they have to work harder to develop walking and movement skills. Children may need attention to develop good posture, they may tire easily and only be able to walk short distances for many years. With practice children with Down's syndrome can develop good large motor skills, playing football and using playground equipment with confidence. There are likely to remain some difficulties with balance and co-ordination.

Some people with Down's syndrome have a weakness in the upper neck vertebrae, which can cause a condition called Atlanto-axial instability. Because of this, advice should be sought before children with Down's syndrome take part in any physical activity that could involve particular pressure on the neck vertebrae such as forward rolls.

Fine motor skills are more difficult for people with Down's syndrome. The size and shape of a child's hand coupled with co-ordination problems mean children with Down's syndrome need a great deal of practice at drawing, threading, painting, writing skills etc.

Hearing

Some children with Down's syndrome are hearing impaired. This is often due to glue ear collecting in the middle ear. This condition will be worse when a child is experiencing a cold or ear infection. Hearing impairment has obvious implications in speech development. Some children lip-read to some extent. The insertion of grommets or hearing aids is used to treat hearing loss. Because of these difficulties a speaker should sit near to the child, face the child, and speak clearly and normally. The use of Makaton or Signalong signs or any gesture that re-enforces the spoken word is very helpful.

Even those children with normal hearing often have some difficulty in distinguishing similar sounding words e.g. Trees and cheese.

Sight

Children with Down's syndrome have a tendency to long-sightedness. Many wear glasses to correct their vision. It has also been found in research that there is a tendency for the child to accept a more blurred image without noting this or moving print towards or away from himself to try to correct it.

Language development

Speech and language development is delayed in Down's syndrome. All children and adults with Down's syndrome have cognitive abilities which exceed their level of speech production.

- The physical shape of the face and the size of the child's tongue in comparison to the size of the mouth makes tongue to palate control more difficult and so initially children have considerable difficulty articulating sounds and words. As the child grows and with practice and speech and language therapy this improves. A prevalence to frequent coughs and colds also makes the breathing involved in speech production more difficult.
- Hearing difficulties and poor auditory short-term memory means the child often misses the many repetitions needed to learn words.
- As the child's early speech is not clear and hard for those around him to understand a child misses the re-enforcement of having his speech repeated back to him or acted upon.
- Children and adults with Down's syndrome find it much easier to learn nouns than verbs and other parts of speech. This can be used as a relative strength with many people developing good vocabularies for nouns.
- People with Down's syndrome find learning and using grammar particularly difficult.
- Even in adulthood many people with Down's syndrome have an economic, telegraphic style of speech.

Auditory short-term memory

People with Down's syndrome have poor auditory short-term memory. This means that a young child hearing an instruction or sentence finds it hard to hold each word in their memory for long enough to process the language. Like all skills this can improve with age and experience.

Self care

Although most children are reliably clean and dry for much of the time by the age of about 5, accidents may sometimes occur up to 8 or 9. Changing facilities, the provision of a change bag and possibly the use of pull-ups are things to think about in the Foundation stage and Key stage 1. Children with Down's syndrome respond to routine very well and will benefit from hand washing routines, tidy up times etc.

Down's syndrome and other disabilities

Although rare, it is important to know that having Down's syndrome does not mean a child cannot have a co-existing disability such as autism, ADHD or dyslexia.

Teaching & learning strategies for children with Down's syndrome

General teaching and learning strategies

- Although children with Down's syndrome have poor auditory short-term memory, they have strength in VISUAL LEARNING. Thus the use of signs, gestures, picture boards, posters, books, videos needs to support all teaching.
- Single instructions and simple sentences should be used at first. The child will tend to remember the last words heard.
- A strategy such as repeating back to himself an instruction can help the child to remember.
- Many children with Down's syndrome respond well to rote learning of such things as days of the week, months of the year etc.
- In order to learn and consolidate a skill children with Down's syndrome need almost daily practice of that skill. Teaching a skill everyday for a month, for example, is a more effective strategy than teaching something once a week.
- Children with Down's syndrome have difficulty generalising what they have learned, so it is a good strategy to use many different ways of repeating the same skill.
- Children with Down's syndrome tend to learn in plateaux and bursts of learning. There may be quite long periods when a child appears not to be progressing. The child needs this time to consolidate learning. Typically this will then be followed by a burst of progress.
- Teaching should be by breaking down a skill into smaller steps.
- The use of backward chaining is effective. For example to teach a puzzle or how to close a zip, let the child initially perform the very last step in the task, then the last two steps and so on and so on until the whole task is learned.

This approach gives the child a great sense of success in achieving the task even if they have only played a small part.

- Children with Down's syndrome have difficulties with sequencing. They may therefore have difficulty learning to say the number names in order, but this does not mean children should not be offered challenging number activities, as they are found to be able to carry out many number operations in spite of this difficulty. Apparatus which draws on the visual recognition of number such as Numicon will facilitate this.
- Children with Down's syndrome are very sensitive to failure and can also employ avoidance strategies. Consequently, it is important to strike a balance between giving the child time to respond and stepping in to model the response. Forms of testing should be kept to a minimum.
- Children with Down's syndrome have difficulties with categorisation and filtering out information so that it is necessary not to give too much information together, for example if asking a child to select a pictorial response offer a choice of two, then more choices later as the child matures.
- Visual and tactile teaching materials aid learning.
- Specific memory training work is recommended, by a cover and reveal method e.g. revealing one, then two, then three pictures for the child to recall in order.
- In mainstream settings, it is good practice to seat a child with Down's syndrome beside a much more able child for some of the time. This has been found to be more successful than always grouping the child with DS with the least able children.

Large motor development

The child with Down's syndrome is likely to be physically small for their age and they are likely to be less confident initially on large play equipment and to have difficulties with balance and co-ordination of movements. They will need adult support initially to access the curriculum and careful supervision in the playground for their own safety. However, many children with Down's syndrome go on to thoroughly enjoy PE lessons and to perform on equal terms with mainstream peers in this area of the curriculum. Dance and drama work are often popular choices too.

Rules and the organisation of team games are likely to be more difficult and need to be broken down into smaller steps.

Fine motor skills

The advice of an occupational therapist may be advisable in this area. A great deal of fine motor skills practice is necessary and working with materials which offer resistance such as chalk and which make the hand muscles work harder are an advantage. In addition activities using the pincer grasp also need practice.

Some schools have developed the daily use of hand gyms. In this case a small shoebox is filled with a variety of malleable, squeezey and pincer grasp materials for the child to practise manipulating each day.

Speech and language

The speech and language therapist needs to work with the child on both sound production work and language skills. The Learning Support Assistant or Teaching Assistant will also need to practise activities with the child arranged by the SaLT (Speech and Language Therapist)

A Sign Assisted English system such as Makaton or Signalong will help the child and staff and peers to communicate. For most children signing will have been their first means of communication at home. The LEA or Early Years service can advise about Makaton or Signalong training courses. Signing as well as saying a word means the child's utterances are more likely to be understood and the child is more likely to follow what is said. It also has the effect of making the adult slow down their speech and so model speech better. Through creating brain pathways signing actually appears to facilitate the articulation of speech sounds for the child.

It is important to remember that if you do not know the sign for something, *any visual prompt* is better than none, so pointing or gesturing will help you and the child to communicate.

Reading

Most children with Down's syndrome can become successful readers, sometimes reading more successfully than some mainstream peers.

Because of the hearing and auditory memory difficulties associated with Down's syndrome a whole word approach is the proven successful strategy in teaching reading to children with Down's syndrome in Foundation and Key Stage 1. Children usually begin with word matching activities and flashcards of key words and words personal to the child, also word games and home made books. Children with Down's syndrome usually progress to the same reading schemes as other children.

The written word is therefore another visual learning strategy that can be advantageous in teaching. Consequently books and labels should be incorporated in lesson preparation and the classroom environment.

Maths

Children with Down's syndrome will need concrete teaching of number concepts with practical materials. Concrete teaching with practical materials will need to continue for some years and some children and adults will not be able to move beyond this to manipulating numbers in their head. The Numicon number materials have been found to be successfully used with children with Down's syndrome. They are a resource, which shows the quantity and pattern of number visually.

Alongside this practical teaching of number and maths concepts children also benefit from rote learning of number names, time etc, especially in areas where a concept does not need to be understood for a skill to be put to practical use.

We hope this booklet has given you useful background information and ideas to get you started on teaching your pupil with Down's syndrome.

Children with Down's syndrome develop successfully in both mainstream and special school settings and make an important contribution to learning in the classroom.

Useful addresses

Down's Syndrome Association

Langdon Down centre
2a Langdon Park
Teddington
Middlesex
TW11 9PS

0333 1212 300

email: info@downs-syndrome.org.uk

Website: www.downs-syndrome.org.uk

Telephone information services for parents and professionals, training opportunities, books and leaflets and a website

The Down Syndrome Educational Trust

0300 330 0750

email: info@dseinternational.org

Website: www.dseinternational.org

Publications, teaching materials, training opportunities and extensive educational research into Down's syndrome.

Numicon

For the purchase of Numicon maths teaching materials.

Contact: Oxford University Press,
Educational Supply Section,
North Kettering Business Park,
Hipwell Road,
Kettering,
NN14 1UA.

01536 452610

email: primary.enquiries@oup.com

Website: www.numicon.com

DownsyndromeOK

Email: info@downsyndromeOK.org.uk

Website: www.downsyndromeOK.org.uk

DownsyndromeOK is affiliated to the Down's Syndrome Association and provides help for people with Down's syndrome, parents, carers and professionals in south-eastern England. We arrange information days for parents and professionals as well as social activities.