

## Hydrocephalus & Child Development



There can be difficulties associated with Hydrocephalus such as problems with concentration, reasoning and short-term memory. Hydrocephalus can also result in subtle effects such as problems with co-ordination, motivation and organisational skills. Physical effects such as visual problems, or early puberty in children, may also occur. These difficulties may affect child development. However, many of these effects can be overcome with teaching strategies or treatment where relevant.

### Sensitivity to Noise

Many people with Hydrocephalus are very sensitive to sudden high-pitched sounds or very loud noises, e.g. amplification. Young children react by crying and may become very distressed although many become less sensitive over time. Some adults report feeling sensations in the shunt and others have an echoing feeling in the head, others feel panic, nausea and may burst into tears.

### Seizures

Approximately one third of people with Hydrocephalus have seizures at some time in their lives. A rise in intra cranial pressure due to shunt blockage may trigger an Epileptic fit. Fits sometimes occur after shunt revision. It is often just an isolated incident, but some people go on to develop Epilepsy. Epilepsy is usually treated with anti-convulsing drugs and is the same for people with or without Hydrocephalus.

### Premature Puberty

Some children with Hydrocephalus may develop early puberty. It is seen more often in girls than in boys. Preparation of the child for the onset of periods and sexual development needs to be handled sensitively.

### Eye Problems

Eye problems may be the first sign of raised pressure in the brain or shunt blockage, so it is important to monitor the eyes. Visual assessments and ocular assessments, which monitor the eye movements and examine the back of the eye, are recommended. There is a high incidence of eye problems in patients with Hydrocephalus, such as strabismus (squint), nystagmus (fine wobble of the eyes), papilloedema, (swelling of the optic disk), optic atrophy and blindness. All Hydrocephalic children are at risk of losing vision and developing a squint. Squints can cause problems with judging distances, speed of approaching vehicles etc.

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### Language

In some children with Hydrocephalus their ability to use language is often ahead of their ability to understand it. Their vocabulary can be good because they are able to imitate what they hear. If they do not understand fully what is said their response may be inappropriate. A child with a language problem will pick out words they understand and guess the rest or give a stock answer.

#### Helping the child

- Talk in short phrases about things the child can see and understand.
- Use pictures and books and talk about them.
- Use photos to remind child of things they have done or places they have been.

### Speech

If the child has a problem with forming sounds he/she may need to be referred to a Speech Therapist.

#### Helping the child

- Don't draw too much attention to speech defects.
- Give the child plenty of opportunity to hear sounds repeated naturally.
- Encourage child to use more words, even if the sounds aren't clear.

### Weak Upper Limb Control and Hand Function

Problems with upper limb control and hand skills are common in people with Spina Bifida and Hydrocephalus. The majority have weak muscle power in their upper limbs. It is important to encourage the use of both hands, especially if one hand is weaker than the other. Loss of sensation in the hands results in an inability to discriminate between differences in water temperature or the temperature of objects such as radiators, kettles etc. Problems with fine finger movements are shown in everyday tasks such as fastening buttons, threading needles, catching balls, screwing lids on jars and using scissors, as well as handwriting. For many everyday tasks and handwriting, it is necessary to stabilise trunks and shoulders and maintain a good sitting position. The non-dominant hand should be used as a support e.g. to hold the copybook as the child uses the dominant hand to write.

#### Helping the child

- Regular exercise such as adapted gymnastics, PE or swimming helps the development of gross movement and hand function.

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- Children should take part in PE at school.
- Ask the child's Physiotherapist or Occupational Therapist to devise a programme and liaise with the PE teacher.
- Correct seating and table height are important so that both hands may be used (get seating advice).
- Simple exercises improve finger strength, especially thumb and index finger. Span grip (use of all fingers) can be improved.
- Provide plenty of chubby crayons, paper etc. for drawing.
- Encourage craft work to improve hand skills.

### Visual Perception

Children with Hydrocephalus often have problems with visual perception. Although they recognise objects, they find it difficult to understand their position and relationships. A squint or other eye problems can exacerbate the problem. Some experience loss of depth perception or have difficulty in judging distance or speed. There may be a difficulty with scanning visual images, with consequences for reading, writing and drawing. Difficulty in discriminating between different shapes has implications for learning to read and write, also problems with shape, size, direction, volume and position can cause difficulties with maths and practical tasks. Figure ground discrimination i.e. identifying an object from its background, may show up in problems with crossing a road, maps, diagrams and artwork in school.

Visual perception difficulties can also mean that judging slopes, height of kerb, width of doors or space in a room may prove problematic. It also affects placing objects accurately i.e. a glass left near the edge of a table and even feeding - difficulty in getting spoon or cup accurately to the mouth. Dressing and undressing e.g. getting clothes on inside out, upside down etc may be difficult too. Sometimes people with Hydrocephalus are not aware of signals given by facial expressions in others. Perceptual difficulties are not the only problems associated with Hydrocephalus. Some people with Hydrocephalus may have problems with decision-making, logical thinking, organisational problems, and inability to follow verbal instructions, short-term memory difficulties and passive behaviour. All of these have major implications for adult life.

### Spatial Awareness

Spatial awareness is the ability to understand the surrounding space and judge distance, height, width, size, volume. Problems with spatial and visual perception are inter-related. It can affect the way people move about, e.g. a wheelchair user may bump into tables,

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graze doorways or clip people's heels. Fear of tilting a wheelchair backward to climb a kerb or fear of the drop may also be apparent. People with Hydrocephalus may have a fear of being left in a room alone, of venturing outside, or of long corridors. Manual tasks might be carried out poorly e.g. matching buttons to buttonholes, getting an arm into a sleeve, laying a table, making a bed. Their handwriting might also be quite poor and illegible - letters uneven or poorly spaced, mixture of upper and lower case, due to visual perception dysfunction.

### Helping the child

- As visual and spatial perceptions are closely linked, approaches to improving them overlap. Perception improves with experience and specific teaching. Children with Hydrocephalus need extra help. The child needs the opportunity to explore the environment and handle objects to develop skills.
- Devise a routine for the child to work and explain each step.
- Allow plenty of time to practice tasks e.g. washing, dressing, learning to lay table.
- Provide a variety of manipulative toys e.g. Lego.
- Play games with the child, using balls, bean bags etc.
- In teaching handwriting, encourage the child to observe space, position, height, size and direction of letters.
- Drama and role play are important tools for teaching non verbal communication, such as facial expressions, gestures, appearance, posture and touch, as well as appropriate behaviour in different situations.
- Most important - praise and encourage.
- An Occupational Therapist can assess the child, work out individual programmes and advise about suitable toys, games etc.
- Encourage your child to make simple choices from an early age.
- Children can be taught the logical consequences of actions through ordinary life situations and daily living skills.
- A systematic method of teaching can improve organisational skills and short-term memory.
- Carrying out activities in a sequence of steps helps memory and the ability to follow verbal instructions accurately.

It must be stressed that the effects of Hydrocephalus vary from one individual to another and some people will have very few, if any, problems. For further in depth information visit our the Teaching & Learning Section of our website [www.sbhi.ie](http://www.sbhi.ie).