

# Glossary

## Specific memory disorders: Short-term memory

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### What are specific memory disorders?

It is increasingly recognised that like adults, children can have specific memory disorders (Gathercole, 1998). It is known that these can adversely affect the development of other skills, such as children's language development, academic attainments, independent living skills and general problem solving abilities (Hood and Rankin, 2005).

Research into the links between specific memory disorders and subsequent learning difficulties and scholastic achievements is ongoing. It is useful to identify specific memory disorders as early as possible in order to ensure that children's educational and life skills programmes are adapted to maximize their learning and independence skills (Bristow et al 1999), although most specific memory disorders are difficult to diagnose clearly until children reach the age of six years or upwards. There are many competing theoretical models that propose different types of memory difficulties in adults and children. However, a lot of researchers agree that one clear difference is between short-term memory and long-term memory disorders.

### Short-term memory

Short-term memory is the ability to hold information for a limited period of time, such as visual images (e.g. a shape or a face) and phonological/auditory information (e.g. a spoken telephone number or sentence). Information can be held in this way for a few seconds. If the information has to be held for longer a system of rehearsal can be used (e.g. repeating a number to yourself to help you remember). Should one of these skills fail to work in some way, this could lead to specific short-term

memory problems. However, problems that appear to be due to poor memory can also have other causes, such as inattention, language difficulties and general learning difficulties. Therefore a comprehensive neuropsychological assessment is necessary to reliably identify a specific memory disorder and rule out other possible causes of problematic behaviour.

Children who have short-term memory disorders can have particular problems in a number of areas, including:

- Speech and language difficulties (including impairments in speech production and the acquisition of language)
- Remembering instructions and learning common sequences like nursery rhymes and the days of the week
- Visual learning difficulties (including learning their numbers and letters, finding their way around new environments as well as manipulating visual information like shape, colour and space)
- Managing more complex problem-solving tasks like mental arithmetic

### Interventions

A neuropsychological assessment is needed to identify where the memory process is failing e.g. whether it is a problem of processing, storage or retrieval. The neuropsychologist can then advise on intervention e.g. whether better memory processes can be taught or compensatory strategies are needed. Precise assessment is needed because sometimes normal teaching and questioning strategies can inhibit learning.

Following the assessment, the neuropsychologist may make recommendations for supporting the child to improve areas of weakness and also guide teachers and parents regarding how to use the child's strengths to maximize their learning despite their specific difficulties. Interventions will depend on the diagnostic information for each child, and his/her age and particular circumstances. There is little evidence to show that memory weaknesses themselves will show functional improvement through training, whether through games or computer programmes. It is more likely that children's memory difficulties could be compensated for using external cues or alternative methods of presenting and manipulating information to be learned (Rankin & Hood, 2005). The availability and use of these strategies is still limited. This is likely to improve over coming years, as specific memory disorders are increasingly recognised in the child population.

## References

**Bristow J, Cowley P and Daines B** (1999) *Memory and Learning: A practical guide for teachers*. London: David Fulton Publishers

**Gathercole S E** (1998) The development of memory. *Journal of Child Psychology and Psychiatry*. 39:3-27

**Hood J and Rankin P** (2005) How do specific memory disorders present in the school classroom? *Pediatric Rehabilitation*

**Rankin P and Hood J** (2005) Designing clinical interventions for children with specific memory disorders. *Pediatric Rehabilitation*

**Temple C M and Richardson P** (2004) Developmental amnesia: a new pattern of dissociation with intact episodic memory. *Neuropsychologia*. 42: 764-781

**Vargha-Khadem F, Gadian D G and Mishkin M** (2001) Dissociations in cognitive memory: the syndrome of developmental amnesia. *Philosophical Transactions of the Royal Society London. B Biol Sci*. 29; 356 (1413):1435-40

**Gathercole S E and Alloway T P** (2009) *Working memory and Learning: A Practical Guide for Teachers*. Sage Publications Ltd

**Please note: Afasic does not hold copies of any referenced material. These publications should be available at academic libraries.**

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