

Sensory effects of acquired brain injury

Meningitis and septicaemia can be a cause of acquired brain injury (ABI). This is an injury to the brain that has happened after birth.

This fact sheet includes information about difficulties with hearing, sight, taste, smell and touch.

Acquired brain injury (ABI) can disrupt any part of the sensory system that transmits and processes sensory information; hearing, sight, smell, taste and touch. By combining and interpreting information from the different senses, the brain is able to provide the body with a multisensory experience. The sensory systems are interrelated with many parts of the brain and this explains why it is relatively common to have some sensory disturbance after ABI. Some difficulties are temporary, whilst others will be permanent.

Hearing loss

Hearing difficulties are the most common sensory after effect of meningitis. The vast majority of hearing loss caused by meningitis is due to damage to the inner ear and this can also cause balance changes and tinnitus. You can find more information in the '[Hearing loss and tinnitus](#)', and '[Difficulties with balance](#)' fact sheets.

Sight loss and visual disturbances

ABI can affect both vision (the ability to see) and visual perception (the ability to understand what is seen). The visual system is extensive and spreads from the eyes along visual pathways through the brain to the occipital lobes. ABI can cause difficulties with some, or all, of the following:

- Focus change – looking quickly from near to distance without blurring
- Tracking – the ability of the eye to move smoothly across a page of print, or to follow a moving object
- Binocularity – using information from both eyes in a co-ordinated way
- Fixation – locating and focusing on a series of stationary objects quickly and accurately – this is very important when reading
- Visual fields – the total area that can be seen without moving the eyes or head
- Visual acuity – the ability to see at varying distances
- Visual perception – how visual information is interpreted in the brain
- Visual neglect – neglect of visual information located on one side of the body
- Diplopia – double vision

It is easy for visual difficulties to go undetected and common for children who experience them to be unaware of the extent of their visual limitations, or to try and ignore them. Some, but not all, visual changes can be corrected by spectacles. If you notice that your child has any of these difficulties it is important to report them to your GP and ask to be referred to an eye specialist.

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Taste and smell

The ability to smell and taste are interconnected and both may be affected by ABI. Usually, the severity of the brain injury will influence whether any changes are temporary or permanent. Children may develop different eating habits after having meningitis; this could be explained by changes to these senses.

Touch

After ABI, children may experience difficulties with touch, such as identifying objects by feeling. They may also have altered sensation for temperature or pain, which can have an impact on a child's safety.

Sources of information

[https://www.thechildrenstrust.org.uk/brain-injury information](https://www.thechildrenstrust.org.uk/brain-injury-information)

<https://www.headway.org.uk/about-brain-injury/individuals/effects-of-brain-injury/physical-effects/>

Walker S & Wicks B, 2005, Educating children with acquired brain injury, David Fulton Publishers, Abingdon, UK