

A Two Minute Toolbox

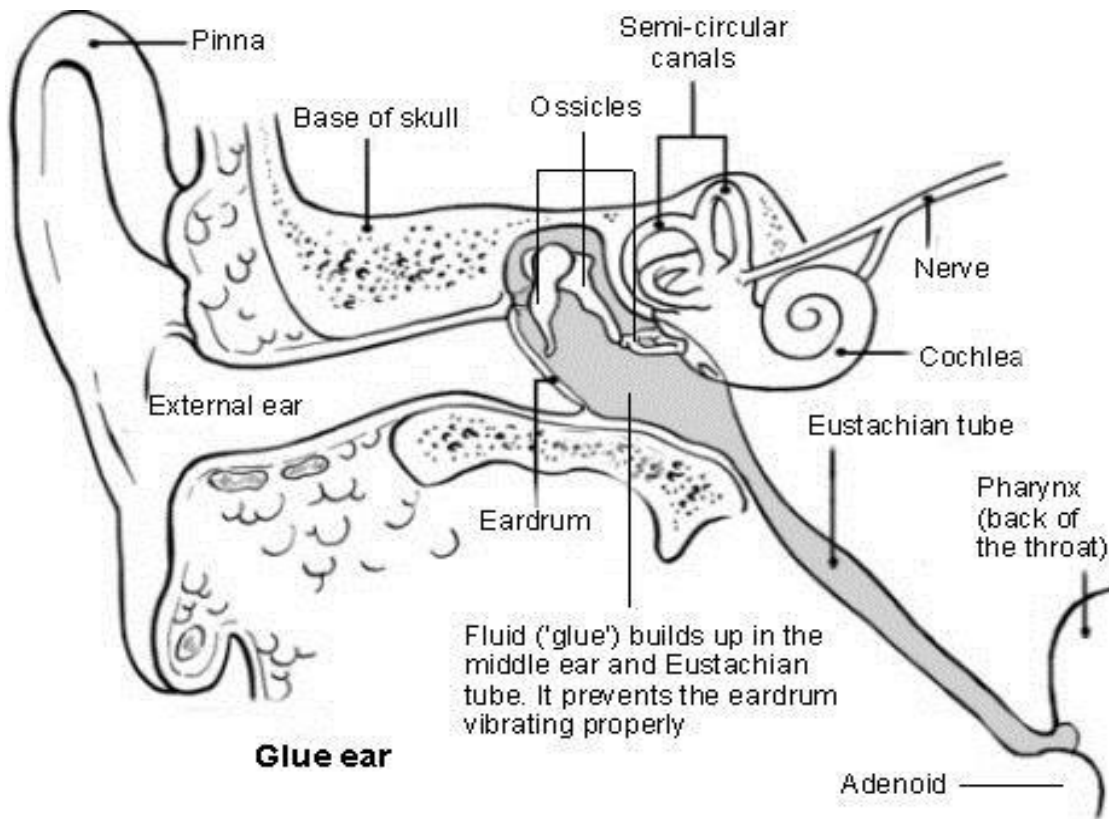


GLUE EAR

Prepared by Dr Karen Faulds: SENDCo

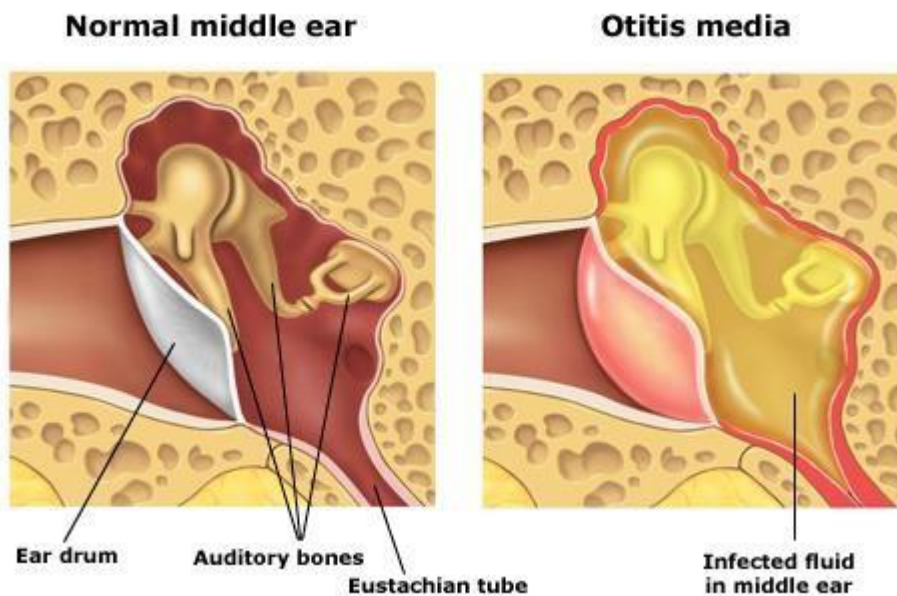
What is Glue Ear?

Glue ear is a very common childhood condition, when sticky fluid builds up behind the eardrum, usually following a middle ear or respiratory infection. It often clears up within a short time without any medical intervention.



T

The diagram below shows how the build-up of sticky fluid causes the eardrum to bulge, and restricts movement of the tiny bones inside the ear.



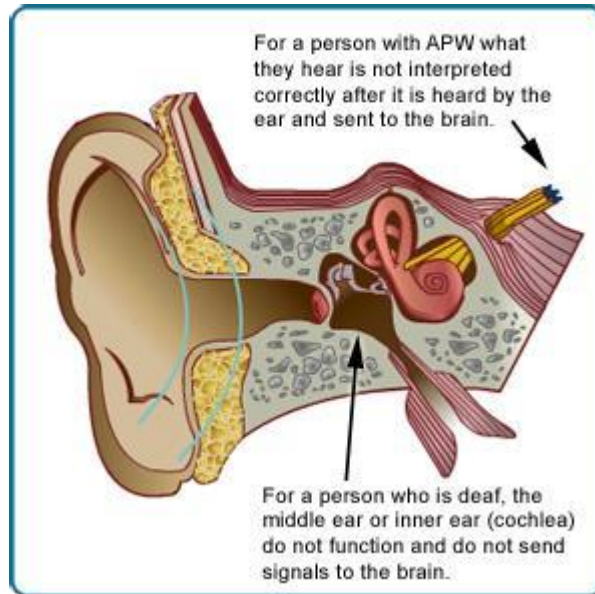
Problems Associated with Glue Ear

Your GP will only be concerned about health issues relating to glue ear and so will probably be inclined to be conservative when recommending referrals for this condition. However, some problems relating to glue ear are cognitive and educational, rather than health based. The problems which may affect your child's schooling are:

- phonological processing
- intermittent hearing loss
- working memory deficits

Phonological Processing

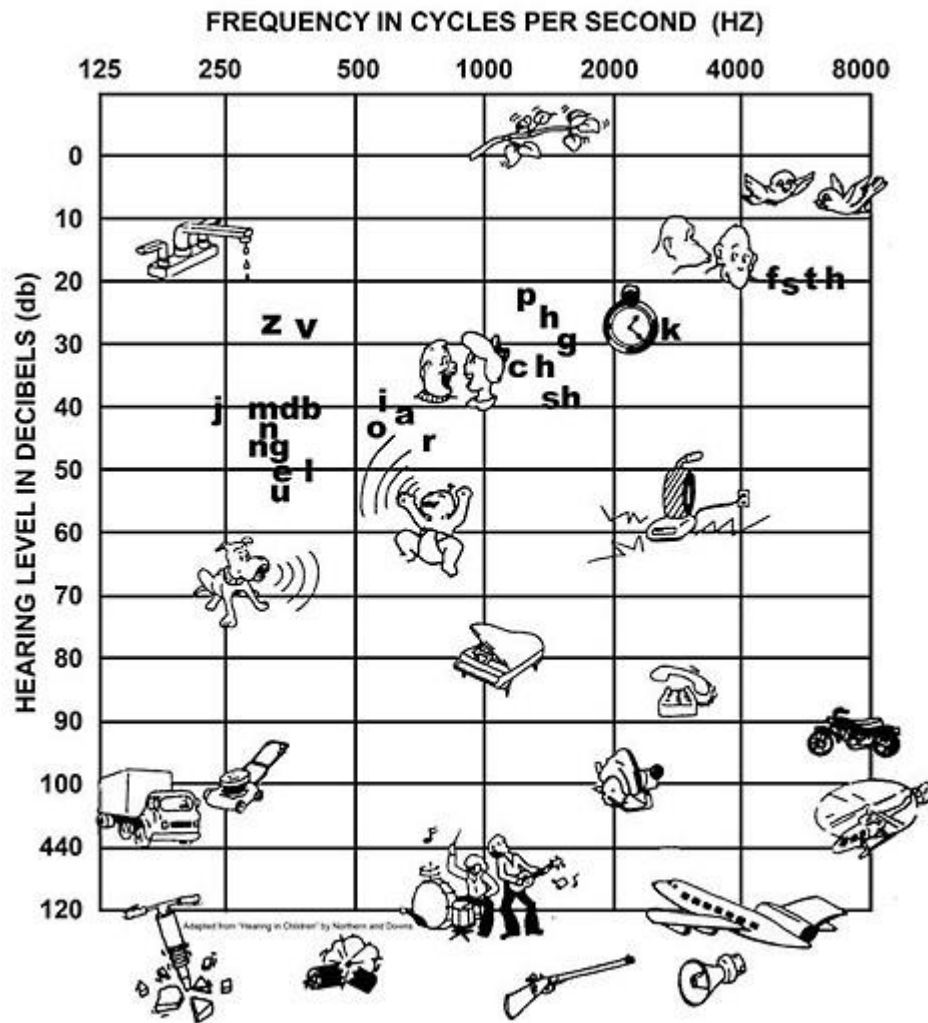
Just one episode of glue ear before the age of 12 months may cause Auditory Processing Weakness (APW), which may last until age four.



This weakness in processing means that your child's brain is not able to respond consistently to speech sounds, therefore sometimes the same speech sound will be perceived differently, or different speech sounds may be perceived as the same. When this happens, your child finds it hard to identify or discriminate between speech sounds. Sometimes the effects are very strong, so your child will have noticeable problems with speech and language, and will be referred to Speech and Language Therapy Services. Sometimes the effects are very subtle, so speech and language develop within normal parameters, but there may be problems at school when trying to map letters and letter patterns onto 'fuzzy' representations of sounds.

Intermittent Hearing Loss

The specimen audiogram shown below illustrates the loudness of everyday sounds as well as the decibel level and frequency for identification of speech sounds. You will need to obtain a referral to an audiologist to find out exactly how your child's hearing has been affected. Some audiology services offer drop-in clinics, so speak to your GP to find out what is available in your area. When you attend the audiology clinic, please request a report for your child's teacher.

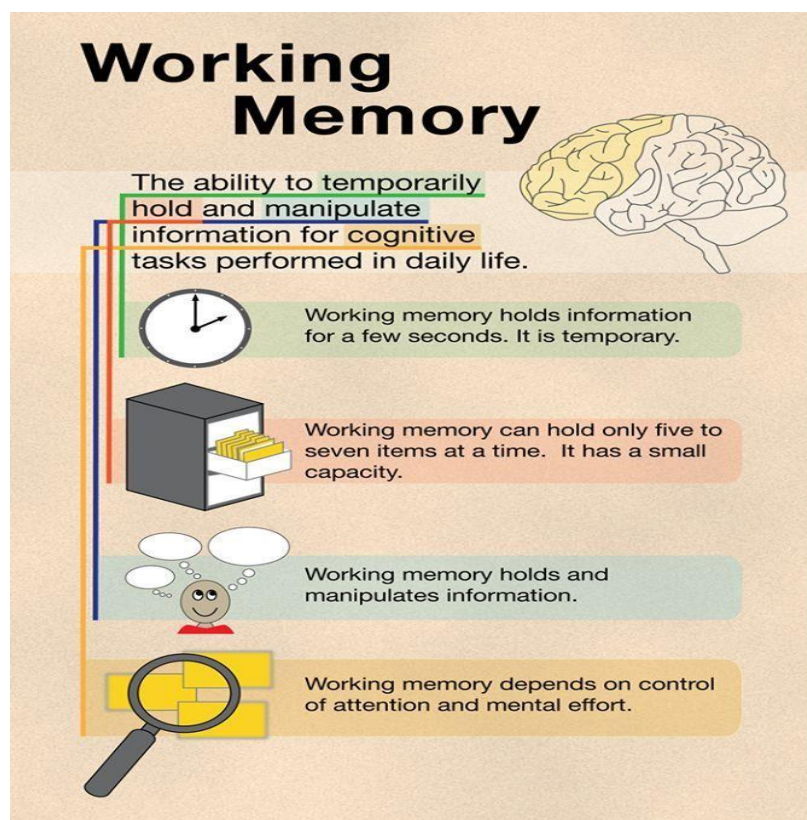


Sound levels are measured in decibels. This is a logarithmic scale, which means that the sound level doubles in volume for every 10 decibel increase. When children have glue ear, their hearing varies, sometimes from day to day. As a general rule, comparing children with glue ear to children with normal hearing, a child with glue ear in one ear needs speech signals 5 decibels louder, and a child with glue ear in both ears needs the signal to be up to 15 decibels louder, in order to clearly identify speech. This is very important, because if the background noise level swamps the speech signal, your child will not be able to follow everyday speech or classroom discussions. Problems can be minimised by considering seating arrangements in class.

Other Potential Problems

Glue Ear may sometimes interrupt the normal development of the proprioceptive and vestibular systems. This means that your child may have some problems with balance, motor planning, and writing. If this is the case, referral to an Occupational Therapist may help.

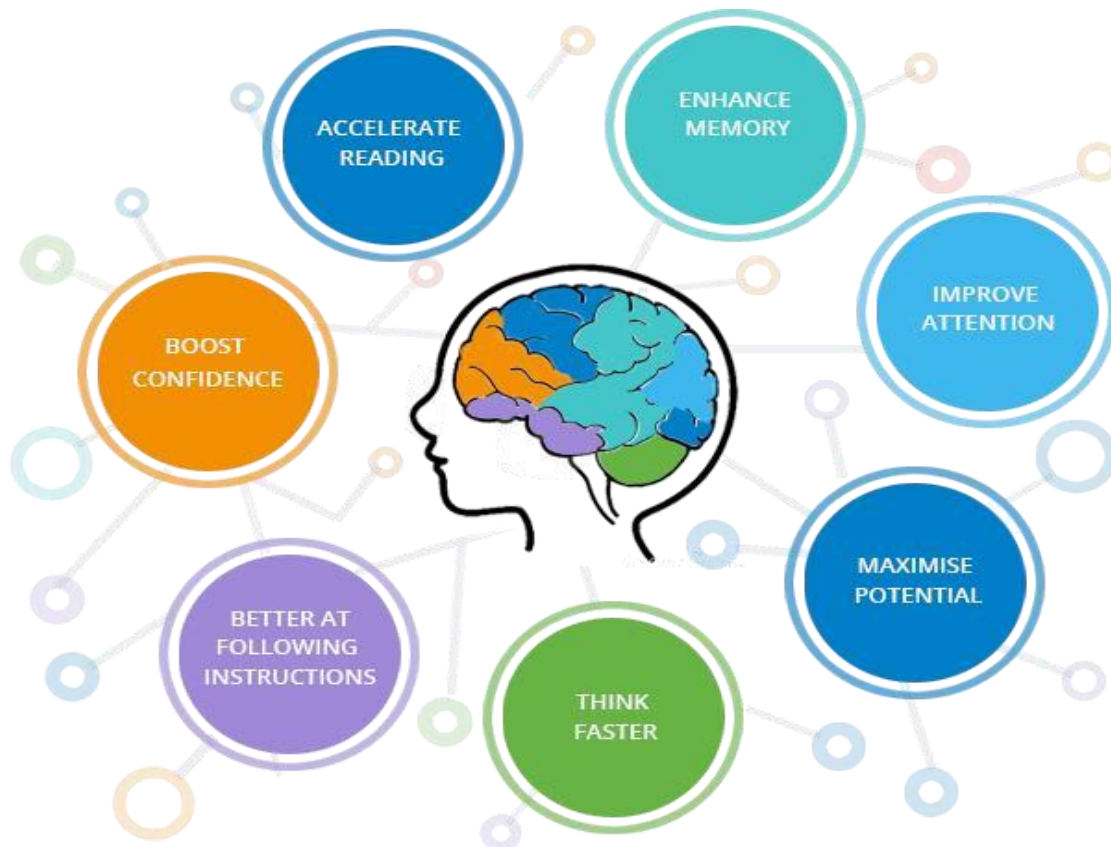
Working Memory Deficits



The brain is a multi-sensory information processor, and any problems with sensory input in one area have a knock-on effect elsewhere. When auditory input is degraded, the processing systems which depend on this input develop abnormally, and one of these systems is Working Memory. Research evidence tells us that children with glue ear have less well-developed working memory skills than their typically developing peers. Although these less well-developed skills may not amount to deficits, stronger working memory skills are advantageous for learning, therefore conditions which may lead to depressed working memory skills should be avoided.

Remedies for Glue Ear Associated Problems

Phonological processing problems can be remedied by providing good models of speech sounds in quiet learning environments. Therefore cutting down background noise and competing speech signals is the first step. Your child needs to hear clear speech sound models, and one of the best ways to do this is by sharing familiar books. Always tell the teacher if your child has had glue ear, and ask for regular updates about their concentration and attention in class, as this should alert you to any recurrence of the problem. If an intervention is required, speech therapy by a qualified therapist is always the best option, but this is not always available when you need it. An alternative is computer-based learning, for example, the Fast ForWord suite of modules, which provides intensive phonological processing training, as well as other benefits



For intermittent hearing loss, the teacher must be informed so that changes to seating arrangements can be made so that your child is in the best position to hear the teacher clearly.



It is not always possible to tell whether an individual child's working memory has been affected by glue ear, but we do know that as a group, children who have had glue ear achieve lower scores on working memory assessments than their typically developing peers. A full working memory assessment will show whether working memory skills are within an acceptable range, and if it appears that there is room for improvement, the teacher may recommend Cogmed Working Memory Training. This training is available in school as has been shown to improve children's working memory, and ability to attend to and follow instructions.

Cogmed Programs

Cogmed Working Memory Training is built around three easy-to-use and age-specific program applications.

Cogmed JM

Pre-school

Younger children use their working memory for a number of things, such as focusing on and following instructions, and remaining seated to complete independent activities.



Cogmed RM

School age

Working memory is crucial for children and adolescents in school and socially. Reading, solving math problems, planning, and following a conversation all rely on working memory.



Cogmed QM

Adult

Working memory in adult and professional life is critical for challenges such as planning, focusing, resisting distraction, and meeting deadlines.



To learn more about our programs and about working memory, visit www.cogmed.com.