

The auditory canal essay sample



**ASSIGN
BUSTER**

4. Examine the consequences to sound perception if the tympanic membrane increased twofold in surface area. What would happen if the oval window had increased surface area? Would sounds be perceived if the round window became rigid? The tympanic membrane is also known as the eardrum. If the tympanic membrane increased twofold, then it would be able to receive more vibrations thus increasing the sound pressure. This sends stronger vibrations all throughout the middle ear and then the inner ear. Therefore sound perception would be amplified. If the oval window had an increased surface area, then the sound waves would pass directly into the middle air, therefore the sound pressure which causes the tympanic membrane to vibrate would be reduced.

Therefore it would reduce sound perception. Basically, sound is created when vibrations in the air or sound waves in the air causes the tympanic membrane in the air to move back and forth. Therefore if the oval window becomes rigid, it would no longer be flexible enough to move back and forth when it is impacted by the sound waves. When this happens the ossicles cannot be moved and no sound can be perceived.

5. How successful are cochlear implants? What surgical techniques are employed? A cochlear implant is a surgically implanted device which helps to bypass problems of the inner ear and the cochlea. Almost everyone who had received cochlear implants is able to hear some amount of sound. Children who have received the implants are able to hear normal speech levels at 30 or 40 decibels according to a research done by Dr. Bruce Gantz of the University of Iowa Hospitals and Clinics. It is more successful among

individuals with complete hearing loss and has not benefitted from hearing aids.

Cochlear implants bypass damaged hair cells and convert sounds into electrical signals and send these signals to the hearing nerve. The internal component of the device is surgically implanted under the skin behind the ear and connected to electrodes that are inserted inside the cochlea. The external component which is usually worn behind the ear, consists of a sound processor, microphone and a battery component. The microphone captures sound, allowing the speech processor to translate it into distinctive electrical signals.