

## Prevention of Hearing Loss

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### Introduction

Hearing loss is one of the few diseases with no FDA approved drug till date. Each year the number of new cases with hearing loss is increasing. It is estimated that 1 in 7 people will develop some form of hearing loss in their lifetime. Within US, around 30 million people were affected with hearing loss [1]. While a number of genetic mutations can cause hearing loss, about 50% of hearing loss is non-genetic in nature. While genetic mutations occur by chance and are generally unavoidable, the non-genetic causes can be controlled. The age old saying 'prevention is better than cure' applies in the hearing loss paradigm as well. This is because to date, the only available treatments for hearing loss in clinics are hearing aids and cochlear implants [2]. Unfortunately, both treatments have their limitations. While cochlear implants are very expensive and sometimes fail, hearing aids can only help patients with some residual hearing and correct volume adjustment of a hearing aid can sometimes be challenging.

Therefore, it is advisable to use measures to prevent hearing loss, an area generally ignored by people. The idea of preventing hearing loss uses measures to prevent infections that can cause hearing loss and prevent any injury to various inner ear structures required for hearing. Certain drugs like aminoglycosides and platinum based therapies can cause ototoxicity. In addition, bacteria, fungus and certain viruses like Cytomegalovirus (CMV), Rubella, Syphilis, etc., can also cause hearing loss in patients. Of these, CMV is the most common cause hearing loss. CMV infection is found in 1 out of 20 newborns worldwide [3]. Although 1 in 10 of these kids develop hearing loss, all are still able to spread the virus. Therefore, some precautions like personal hygiene must be maintained with children. The most common precaution is required from the body secretions of newborns which contains shedding virus capable of infecting a healthy adult. Although adults infected with CMV do not develop hearing loss normally, they can transmit it to their offspring who are more likely to develop hearing loss [4].

Apart from infection, mechanical injury can also cause hearing loss. The most common cause for that is Noise. With the recent revolution in technology, this aspect of hearing loss has hugely increased. Prolonged use of headphones has increased and a new form of hearing loss i.e., "headphone-induced hearing loss" has developed [5]. People should use certain precautions like not exceeding the volume more than 60% and avoid use of headphones for more than 60 minutes. People working in military, mining and construction sites must use ear plugs to prevent entry of loud noises from outside to the ear. Noise blocking earmuffs can reduce the outside noise entering ears by 30dB. Sleeping in a quiet environment is also considered beneficial for the repair of damaged cells prevention of hearing loss. Lastly, being cautious while buying and using gadgets that emit noise upon usage must be carefully checked. Devices that produce noise above the recommended OSHA levels must be avoided. Noise ratings on the equipment must be checked before purchasing.

Medical professionals rely on patient history and birth information to identify the various forms of hearing loss. Non-genetic hearing loss if can't be completely prevented, can be controlled with proper precautions and care.

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