1 in 5 teens has some form of hearing loss

**MP3 players can reach 120 decibels which can cause hearing loss after only an hour and fifteen minutes** – Dr. James E. Foy

If you can't hear anything going on around you while listening to earphones, then the decibel level is too high – Dr. Foy

- Do not exceed 60% of the maximum volume of earphones/earbuds

Once ears are damaged, they do not heal—just get worse over lifespan

- 5%-25% of people listen to their earphones at hazardous levels

The problem with an increase in hearing decline in young people seems to be due to the increased amount of time that people spend listening to MP3 players or other devices, not the decibel level they are listening to their music – William Clark (hearing specialist at Washington University in St. Louis)

~14 million of the 28 million Americans with hearing loss is due to overexposure short-term or chronic exposure to loud noises

1 in 8 children and teenagers between the ages of 6-19 have some level of hearing loss

- Children with impaired hearing are more likely to suffer from depression, isolation, a sense of exclusion, and a possible decrease in cognitive function

Hearing loss starts with the damaging of the hair cells in the Organ of Corti and then affects transmission of both high- and low-frequency noises to the brain

Very limited capabilities in finding early stages of hearing loss—most of the time it is found in later stages

National Institute of Occupational Safety and Health (NIOSH) defines hazardous sound as noise over 85 dB over an eight hour period

- This noise changes the structure of hair cells and causes irreversible hearing loss

Children age 1-16 slight experienced hearing loss and sensitivity to sound one year after a single intense sound event

Loud noises can cause a rise in blood pressure, changes in brain chemistry, loss of sleep

Playing with loud toys, games, and attending concerts or other venues are also linked to noise-induced hearing loss

Listening to loud music on a portable device at 100 dB for 15 minutes does the same damage as working in an industrial job that exposes workers to 85dB for eight hours

6%-12% of children have experienced noise-induced threshold shifts

According to a National Health and Nutrition study, boys are more likely to show early signs of
hearing loss due to their activities

- Genetics also play a role-
  - Blood type O tended to show higher levels of hearing loss
- Using hearing protection, making children turn down the volume, and removing them from loud noise sources are a means of preventing early hearing loss

SOURCE:

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- Increasing numbers of adolescents are showing symptoms related to music-induced hearing loss like ringing in the ears, distortion, threshold shifts, and hyperacusis.

**Table. Structure of the eight focus groups**

<table>
<thead>
<tr>
<th>Rural environment</th>
<th>Urban environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational preparatory Males/Females</td>
<td>University preparatory Males/Females</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
</tr>
<tr>
<td>12-14 years</td>
<td>Group 1</td>
</tr>
<tr>
<td>6 M, 4 F</td>
<td>5 M, 5 F</td>
</tr>
<tr>
<td>15-18 years</td>
<td>Group 5</td>
</tr>
<tr>
<td>9 M, 1 F</td>
<td>8 M, 1 F</td>
</tr>
</tbody>
</table>

*M*, males; *F*, females.

- All students admitted in discussions that they listen to their music at the max level for prolonged periods of time
- Participants were all aware that using earphones could cause hearing loss, but thought this could only occur if you listened at a very loud decibel for a long period of time.
- Most students admitted to experiencing ringing in their ears, but were not worried since it went away.
- Students in pre-vocational groups were more likely to listen to the music at a higher level than the pre-university groups.
- Even after being aware of the risks, they did not think that their behavior should be changed—they even said that if MP3 players reduced the listening level they would either try to remove the filter or not buy them at all

SOURCE:
• In a 2001 study conducted by Dalton et al. It was found that the number of participants that participated in leisure activities that exceeded 90 dB outnumbered those who did not and the risk of hearing loss increased by 6% over 5 years
• In a study with 1787(Taiwan) people 80.9% participated in 1 loud-noise activity and 90.9% used earphones regularly
  ○ Average duration was 1.6h and sound was 4.6 on a 1-10 scale
  ○ 11.9% of the participants did not pass the hearing test of any frequency for either ear.
  ○ Most of them perceived no significant difficulty in hearing
  ○ 13.5% of them complained of suffering from tinnitus (ringing in the ears)

SOURCE:

• Dr. Martine Hamman
  ○ Noise of over 110 dB can strip nerve cells of their myelin sheath that helps in the movement of electrical impulses – meaning the nerves cannot efficiently relay information from the ears to the brain
  ○ The sheath can repair itself which explains why hearing loss is temporary in some cases
  ○ Damage to the cells in the dorsal cochlear nucleus has been shown to cause tinnitus and phantom sounds
  ○ Hearing loss is a slow process—often the effects are not seen until the damage has already been done.