**Frequently Asked Questions:**

**Q** What’s wrong with conventional earplugs?

**A** They muffle speech and music. Conventional earplugs reduce sound more in the high frequencies than in the low and mid frequencies, which makes music and voices unclear and unnatural. Deeply-inserted foam earplugs can provide 30-40 dB of sound reduction, but only a small amount is typically needed.

**Q** How much protection do people need?

**A** Hearing loss is a function of exposure time, the average sound level, and the peak level of very loud sounds. Some persons are more susceptible to hearing loss from high-level sound than others. Most musicians do not need maximum protection, and many industrial workers can be adequately protected with as little as 10 dB of sound reduction. The majority of eight-hour-equivalent noise exposure in industry falls between 85 and 95 dB.

**Q** Is there a non-custom high fidelity earplug?

**A** Yes. Etymotic Research designed and patented ETY•Plugs™ which are high fidelity ready-fit earplugs that reduce sound evenly by 20 dB at all frequencies, so that music and speech are heard clearly. Available in two sizes, for regular and small ear canals.

**Q** Why are deep earmolds required for Musicians Earplugs?

**A** Earmolds need to seal deeply in the bony portion of the ear canal or the wearer will hear a hollow or boomy sound in their own voice when speaking, singing or playing a brass or wind instrument. This unpleasant or distracting sound is called the occlusion effect. Deep earmolds (past the second bend of the ear canal) will eliminate this problem.

**Q** What is the noise reduction rating (NRR)?

**A** The U.S. Environmental Protection Agency requires manufacturers to print a noise reduction rating (NRR) on all non-custom earplugs. The formula used to determine NRR includes an adjustment for test variability, individual variability, and for those persons who do not wear ear protection as instructed. When worn properly, Etymotic earplugs provide more sound reduction than the assigned NRR value. Laboratory data on subjects wearing properly sealed ETY•Plugs™ shows between 18-22 dB average sound reduction over the 250-8000 Hz frequency range, but the NRR calculated from the same data is 12 dB.

**Who uses Musicians Earplugs?**

**Aircraft**
- crew
- flight instructors
- passengers
- pilots

**Athletics**
- athletes
- coaches
- sporting events

**Construction**
- carpenters
- equipment operators
- road builders
- steel workers

**Emergency Vehicles**
- EMS
- highway patrol
- firefighters

**Industrial**
- factory workers
- shop foremen
- students
- supervisors

**Leisure**
- concerts
- night clubs
- noisy restaurants

**Medical-Dental**
- dentists
- dental hygienists
- dental technicians
- surgeons

**Motor Sports**
- motorcyclists
- pit crews
- race car drivers
- spectators

**Music**
- concerts
- marching bands
- musicians
- night clubs

**Others**
- delivery drivers
- market traders
- night club staff
- truck drivers

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**Permissible Sound Exposure Guidelines**

Hearing loss is a function of exposure time, the average noise level and the peak level of very loud sounds.


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**Musicians Earplugs™**

- Custom high-fidelity hearing protection
- Sound quality is clear and natural, not muffled
- Noise fatigue and ear overload distortion are reduced
What Makes Musicians Earplugs High Fidelity?

Musicians Earplugs™ replicate the natural response of the ear canal so that sound heard with these earplugs has the same quality as the original, just quieter.

Musicians Earplugs™ provide 15 dB sound reduction at each frequency.

Average sound reduction of Musicians Earplugs and foam earplugs.

About Musician Earplugs

Musicians Earplugs were designed to protect hearing while preserving all the subtleties and richness of music. Other earplugs, particularly foam, muffle sound so music and speech are not heard distinctly. Musicians Earplugs are made from custom ear impressions and tested to ensure that sound heard with them is accurate and true—the definition of high fidelity. Music and speech reproduced through these earplugs sounds exactly as it would in an ear without an earplug, but at a lower (safer) loudness level.

Musicians practice and perform in a variety of different settings and they are exposed to high levels of sound, sometimes for long periods. They require different amounts of hearing protection depending on the sound levels they encounter during rehearsals and performances. See the table to the right.

Permissible Sound Exposure Guidelines

<table>
<thead>
<tr>
<th>Continuous Sound dBA</th>
<th>Unprotected Permissible Exposure Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>8 hours</td>
</tr>
<tr>
<td>88</td>
<td>4 hours</td>
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<tr>
<td>91</td>
<td>2 hours</td>
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<td>94</td>
<td>1 hour</td>
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<td>97</td>
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<td>103</td>
<td>7.5 minutes</td>
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<td>106</td>
<td>&lt; 4 minutes</td>
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<td>109</td>
<td>&lt; 2 minutes</td>
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<tr>
<td>112</td>
<td>~1 minutes</td>
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<tr>
<td>115</td>
<td>~30 seconds</td>
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