

# Guide to Safe-Listening Earphones



The purpose of this guide is to help parents choose safe-listening earphones for children. The first step in preventing hearing damage is understanding the risks of various types of earphones, including stock earbuds that come with portable players.

## Noise is everywhere

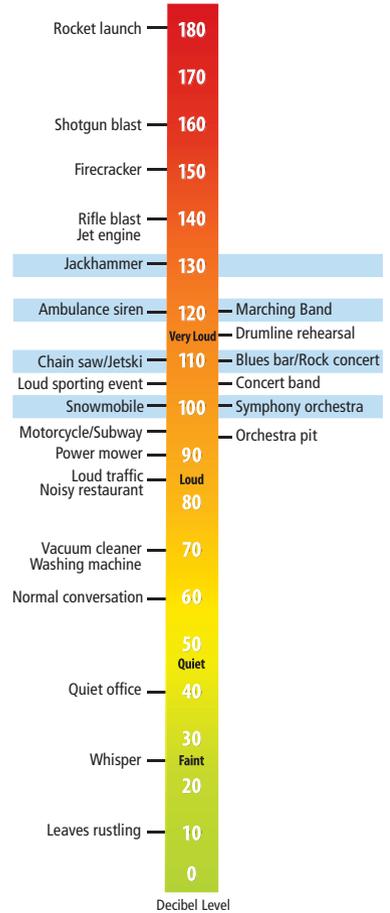
Today's tech-connected kids live in a high-def world. They experience Blu-ray, surround-sound, life-like computer graphics and 3-D movies. They are bombarded by sound from television, toys, game consoles, music players and in-vehicle entertainment systems. They play in garage bands, school bands and drumlines and they go to concerts and sporting events where sound often exceeds safe levels.

## What is important to kids?

Many kids follow trends and are influenced by their siblings, friends, advertising, rock stars and popular personalities. Certain brands can even be a fashion statement.

## How much is too much?

It depends on how loud the sound is and how long you listen. The louder the sound is, the less time you can safely listen to it. Sound levels of 85 dB are considered safe for 8 hours per day (40 hours per week). For every 3-dB increase in the sound level, the permissible listening time decreases by half: 88 dB is allowed for 4 hours per day (20 hours per week), 91 dB for 2 hours per day (10 hours per week) and so on. Many common sound exposures are so loud that safe listening time is very short: Drumline rehearsals (115 dB) are safe for less than 3 minutes per week without hearing protection; loud sporting events (105 dB) are safe for less than 23 minutes per week without hearing protection.



Type of headphones/earphones		Noise Reduction
Stock earbuds		
On-the ear		
Over-the-ear		
In-ear earphones (non-sealing)		
In-ear noise-isolating earphones (seal the ears)		

**Active noise-canceling headphones** have battery-powered circuitry that detects and cancels low-frequency noise by reversing the phase of the signal.

**Noise-isolating earphones** provide various amounts of hearing protection depending on their ability to block outside sound. In-ear earphones that seal the ears provide twice as much noise isolation as active noise-canceling headphones.

## The importance of in-ear noise-isolating earphones

The main reason listeners of all ages turn up the volume is to block out distracting background noise. In a research study conducted with different types of earphones, 100 college students were instructed to set the volume of music on a portable player to their preferred listening level. In quiet, most students chose safe levels, but as background noise increased, most raised the volume level to overcome the noise. When they wore in-ear earphones that sealed the ears, the majority chose safe levels regardless of background noise level.

 **Choose in-ear noise-isolating earphones that seal the ears.**

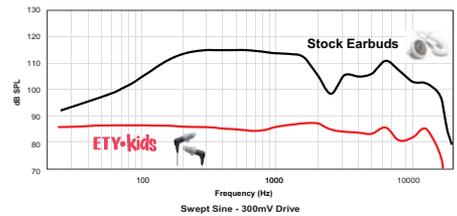
## What can parents do?

Parents choose gear for young children. Many parents understand the importance of limiting sound levels and exposure time, but most are unsure how to manage their kids' listening. While children are young, one thing parents can influence is the kind of earphones kids use with their portable players. Stock earbuds supplied with portable devices can produce damaging levels of sound.

If parents promote safe listening at an early age, there is a greater likelihood that good habits will be established, so that a pattern of listening at loud levels does not become their norm.

 **Choose earphones that are designed for safe listening.**

**ETY•Kids vs. Stock Earbuds**



## When earphones are unsafe

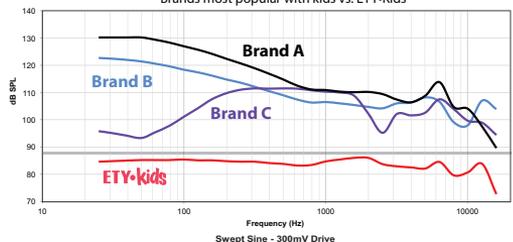
Children do not have a reference for "loud" and do not understand the long-term risks. Children's ears are too valuable to take any risks. If music only reaches high levels occasionally, the risk of hearing damage is low. But, earphones can cause hearing damage if sound remains constant at high levels for long periods. If parents can hear sound from a few feet away, they are potentially dangerous.

When buying safe-listening earphones, look for uniform output across the sound spectrum. The drivers used in many stock earbuds and earphones geared toward children have undesirable peaks that degrade sound quality and can produce harmful levels at certain frequencies. Claims stating that earphones are safe should be backed by science.

 **Choose earphones with safe sound output and smooth frequency response.**

**Earphone Response Comparison**

Brands most popular with kids vs. ETY-Kids



## Etymotic ETY•Kids earphones are the best choice for safe listening

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### No risk of hearing damage

ETY•Kids earphones, if used at maximum volume, are safe for up to four hours per day listening to the loudest rock recordings available. With most music, ETY•Kids are safe for 8 hours. Etymotic designed the ETY•Kids earphones to be safe for more than 4 hours per day using the current popular portable music players at maximum volume. This means parents don't have to monitor sound levels or the amount of time kids listen.

### High-definition sound quality

ETY•Kids earphones have an extremely smooth frequency response. They are reduced-sensitivity earphones, not electronic-limiting earphones (which typically degrade sound quality). This means kids can experience their music, games and movies as they were meant to be heard.

# ETY•kids™



[www.etykids.com](http://www.etykids.com)

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### About Etymotic Research

The word "Etymotic" means true-to-the-ear. With deep roots in the hearing industry, Etymotic has designed innovative products to measure, enhance and protect hearing for almost 30 years. Audio engineers, audiologists and musicians working together have generated over 100 patents issued and pending. We believe everyone deserves to hear for a lifetime.

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#### 2010 Safe-in-Sound Award for Innovation in Hearing Loss Prevention

Awarded jointly by the National Institute for Occupational Safety and Health (NIOSH) and the National Hearing Conservation Association.



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