Gunfire Noise Level Reference Chart

Picture of custom 3D printed silicone sleeves that enclose in-ear devices like AirPods so they can protect your hearing from loud sounds like shooting.

In-ear devices like AirPods and headphones aren't meant to protect your hearing

Read more:

An Urgent Word of Caution Regarding Use of Earphones for Hearing Protection While Shooting

Using Earphones For Hearing Protection? Read This

Click to View Products that Protect Hearing for Hunting and Shooting

Below we have listed critical data describing peak sound pressure levels produced by firearms used in shooting and hunting sports.

A serious byproduct of this exposure is sensory-neural hearing loss, which cannot be restored to normal. With the introduction of MUZZLE BRAKES and PORTING, the risks of hearing loss dramatically increase.

Use this chart as a reference guide for promoting the need of using adequate hearing protection.

Notations

Keep in mind that *conversational speech* is approximately **60-65 dB**, and the *threshold of pain* is considered to be **140 dB**.

According to Dr. William Clark, Ph.D. senior research scientist in charge of the NOISE LABORATORY at the Central Institute for the Deaf in St. Louis, ***the damage caused by one shot from a .357 magnum pistol, which can expose a shooter to 165 dB for 2msec, is equivalent to over 40 hours in a noisy workplace.***

Dr. Krammer, Ph.D., Ball State University, Muncie, Indiana has documented the following pressure levels.

Table-1-SHOTGUN-NOISE-DATA-DECIBEL-AVERAGES

.410 Bore	28" barrel	150dB
	26" barrel	150.25dB
	18 1/2" barrel	156.30dB
20 Gauge	28" barrel	152.50dB
	22" barrel	154.75dB
12 Gauge	28" barrel	151.50dB
	26" barrel	156.10dB
	18 1/2" barrel	161.50dB

Dr. Krammer continues to say that shotgun noise averaged slightly more that 150dB. This is approximately 14dB beyond the threshold of pain, and more than sufficient to cause acoustic trauma.

Table-2-CENTERFIRE-RIFLE-DATA

.223, 55GR. Commercial load 18 1/2" barrel	155.5dB
.243 in 22" barrel	155.9dB
.30-30 in 20" barrel	156.0dB
7mm Magnum in 20" barrel	157.5dB
.308 in 24" barrel	156.2dB
.30-06 in 24" barrel	158.5dB
.30-06 in 18 1/2" barrel	163.2dB

Krammer adds that sound pressure levels for the various pistols and ammunition tested yielded an average mean of 157.5 dB, which is greater than those previously shown for shotgun and rifle noise levels.

There was also a greater range, from 152.4dB to 164.5dB, representing 12 dB difference, or more than 10 time as much acoustic energy for the top end of the pistol spectrum. It should be noticed that this figure of 164.5 dB approaches the practical limit of impulse noise measurement capability inherent in most modern sound level meters.

Table-3-CENTERFIRE-PISTOL-DATA-2019-10-29.csv

.25 ACP	155.0 dB
.32 LONG	152.4 dB
.32 ACP	153.5 dB
.380	157.7 dB
9mm	159.8 dB
.38 S&W	153.5 dB
.38 Spl	156.3 dB
.357 Magnum	164.3 dB
.41 Magnum	163.2 dB
.44 Spl	155.9 dB
.45 ACP	157.0 dB
.45 COLT	154.7 dB

The above averages are for all types of ammunition used in these firearms, and should be considered fairly representative. No wonder we hear numerous reports about hearing loss as a result of firearms including acoustic traumas that take hearing completely as a result of one shot. Imagine what the noise levels must be when we incorporate muzzle brakes or porting into firearms, or have a gun explode near the ear due to malfunction.

OUR WARNING IS SIMPLE AND IS IN THE BEST INTERESTS OF EACH SHOOTER. AS THE SOUND PRESSURES INCREASE, SO DOES THE RISK OF PERMANENT HEARING LOSS.

IF YOU INCORPORATE A PROCEDURE INTO YOUR SHOOTING THAT INCREASES THE SOUND LEVEL, YOU ALSO INCREASE THE RISK OF HEARING LOSS TO YOURSELF AND POSSIBLY THOSE WHO STAND NEAR YOU. BE SURE TO USE ADEQUATE EAR PROTECTION WHEN USING A FIREARM AND BE CAREFUL OF THOSE NEARBY.

LAWSUITS HAVE ALREADY BEEN RECOGNIZED FOR GUNFIRE NOISE THAT HAS RESULTED IN HEARING LOSS.

ALWAYS CONSULT A PROFESSIONAL AUDIOLOGIST, OTOLOGIST, OR OTOLARYNGOLOGIST WITH YOUR HEARING PROBLEMS.

Hearing loss is not fun and can be prevented.

Download Gunfire Noise Level Flyer--PDF (154k).

Products That Protect your Ears While You Shoot and Hunt

Here are some products that protect your hearing from shooting sound

Chameleon Ears™ PRO Earphone Sleeves

$165.00

Tags: Airpods, earbuds, Earphones

SoundGear Phantom

$1,600.00

Print Order Form

Soundgear Platinum Model

$1,200.00

Print Order Form

Multifunctional QuickFit MF Pro-Hearing Aid AND Earplug Combo

$3,500.00

Select options

Soundgear Silver Model

$1,000.00

Print Order Form

Soundgear Digital In-The-Canal

$399.95

Print Order Form

Chameleon Ear™ PRO MHS™ Sleeves

$165.00

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