

Decibel (Loudness) Comparison Chart

Relative volume levels and how they affect hearing.

Environmental Noise	
Weakest sound heard	0dB
Whisper Quiet Library	30dB
Normal conversation (3-5')	60-70dB
Telephone dial tone	80dB
City Traffic (inside car)	85dB
Train whistle at 500', Truck Traffic	90dB
Subway train at 200'	95dB
Level at which sustained exposure may result in hearing loss	90 - 95dB
Power mower at 3'	107dB
Snowmobile, Motorcycle	100dB
Power saw at 3'	110dB
Sandblasting, Loud Rock Concert	115dB
Pain begins	125dB
Pneumatic riveter at 4'	125dB
Even short-term exposure can cause permanent damage Loudest recommended exposure <u>WITH</u> hearing protection	140dB
Jet engine at 100', Gun Blast	140dB
Death of hearing tissue	180dB
Loudest sound possible	194dB

OSHA Daily Permissible Noise Level Exposure

Hours per day	Sound level
8	90dB
6	92dB
4	95dB
3	97dB
2	100dB
1.5	102dB
1	105dB
.5	110dB
.25 or less	115dB

Perceptions of Increases in Decibel Level

Imperceptible Change	1dB
Barely Perceptible Change	3dB
Clearly Noticeable Change	5dB
About Twice as Loud	10dB
About Four Times as Loud	20dB

Sound Levels of Music

Normal piano practice	60 -70dB
Fortissimo Singer, 3'	70dB
Chamber music, small auditorium	75 - 85dB
Piano Fortissimo	84 - 103dB
Violin	82 - 92dB
Cello	85 -111dB
Oboe	95-112dB
Flute	92 -103dB
Piccolo	90 -106dB
Clarinet	85 - 114dB
French horn	90 - 106dB
Trombone	85 - 114dB
Tympani & bass drum	106dB
Walkman on 5/10	94dB
Symphonic music peak	120 - 137dB
Amplifier rock, 4-6'	120dB
Rock music peak	150dB

NOTES:

- One-third of the total power of a 75-piece orchestra comes from the bass drum.
- High frequency sounds of 2-4,000 Hz are the most damaging.
- Aging causes gradual hearing loss, mostly in the high frequencies.
- Speech reception is not seriously impaired until there is about 30 dB loss; by that time severe damage may occur.
- Hypertension and various psychological difficulties can be related to noise exposure.
- The incidence of hearing loss in classical musicians has been estimated at 4-43%, in rock musicians 13-30%.

Statistics for the Decibel (Loudness) Comparison Chart were taken from a study by Marshall Chasin, M.Sc., Aud(C), FAAA, Centre for Human Performance & Health, Ontario, Canada. There were some conflicting readings and, in many cases, authors did not specify at what distance the readings were taken or what the musician was actually playing. In general, when there were several readings, the higher one was chosen.