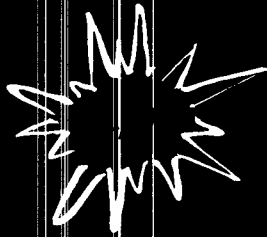
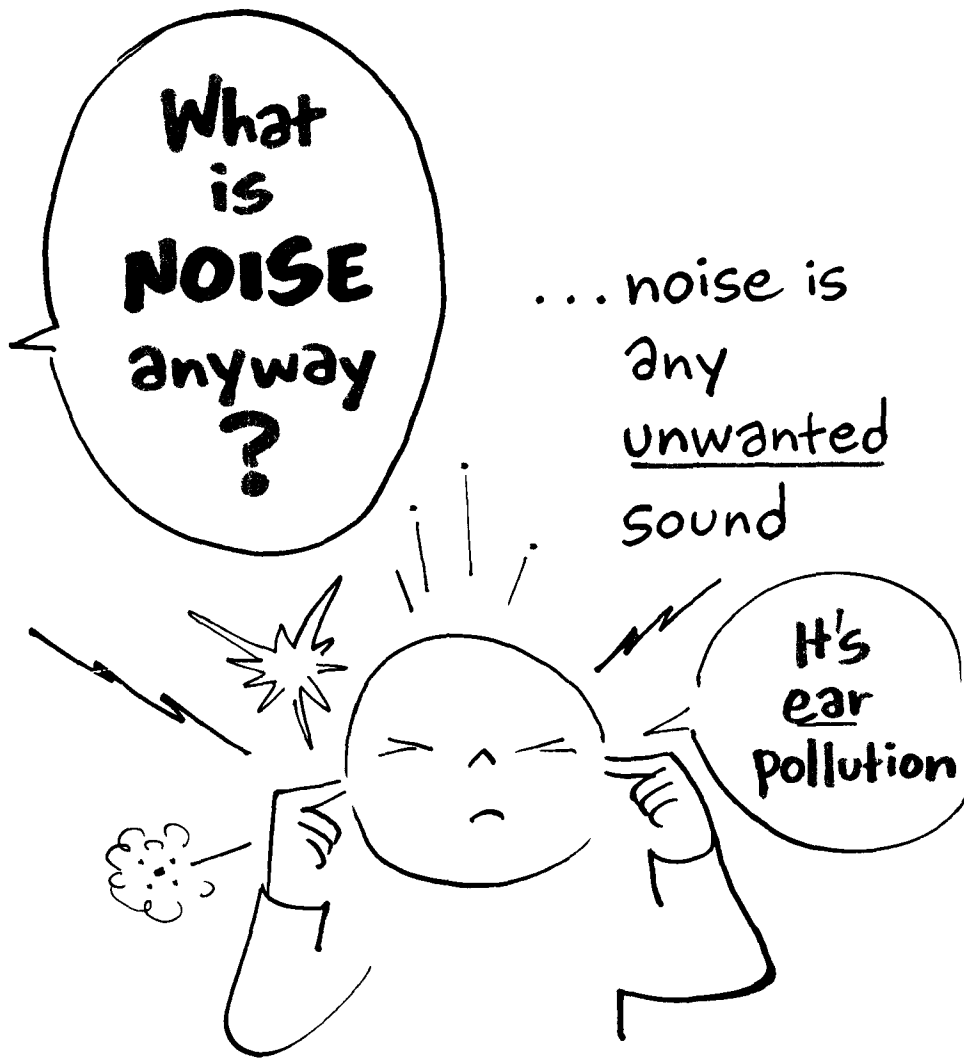


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# NOISE and YOU



001 K76100



Too much noise for long periods of time... or certain types of noise for even short periods of time... can cause **LOSS OF HEARING.**

...a little noise  
may be no harm  
at all -- **BUT**  
**DID YOU KNOW**  
that excessive noise is a  
**LEADING** cause of hearing loss.

(Disease, injury and age are others)

What  
harm is  
a little  
noise  
?

**TODAY--**

**20 MILLION AMERICANS HAVE  
MEASURABLE HEARING LOSSES**

(1/2 of these are severe hearing handicaps)

**AND--**

about **16 MILLION** more  
are exposed to on-the-job  
noise levels that may permanently  
damage their hearing.



What's that  
you're saying?

The answer: **BETTER HEARING PROTECTION**



Your hearing is one of your most precious possessions for

**① LEARNING** --much of our information is gained from listening.

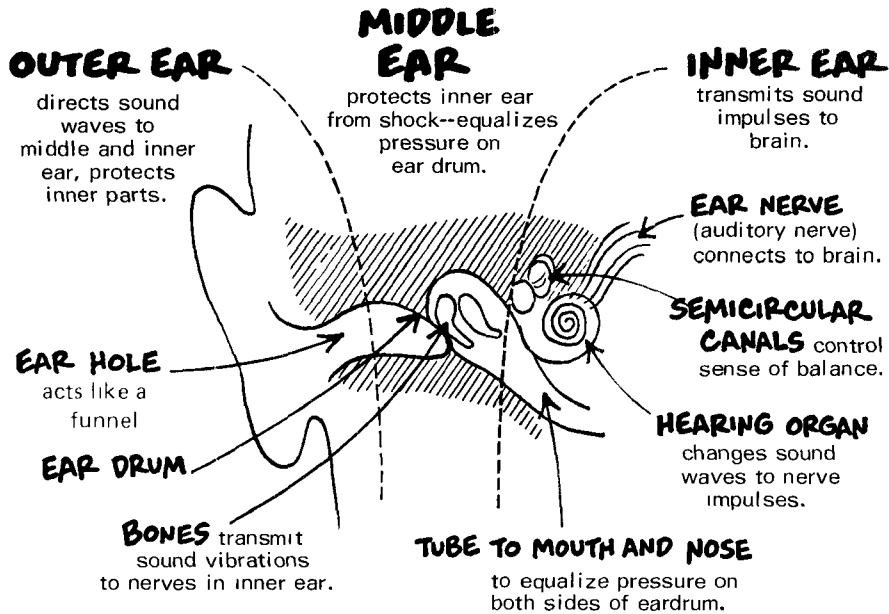
**② COMMUNICATIONS** --the most important way of getting along with others is by spoken words.

**③ SAFETY** --many warning systems depend on hearing.

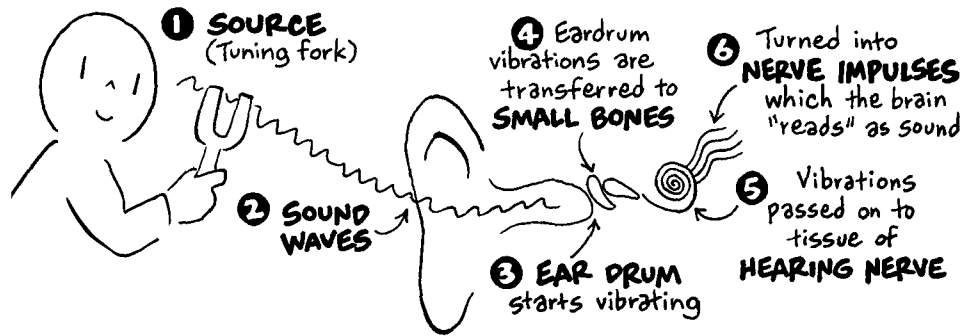
--and PLEASURE from music, hobbies and sports is "ear-relevant"



## PARTS OF AN EAR



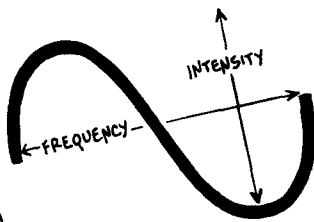
A source of **SOUND** sends out vibrations (sound waves) which stimulate the auditory nerve.



## SOUND IS MEASURED 2 WAYS

### ① FREQUENCY

The pitch--how high or low the sound is. Expressed in Cycles Per Second (CPS). Most people can hear pitches between 20 CPS and 20,000 CPS.



### ② INTENSITY

The loudness of sound. Expressed in units called Decibels (dB). The more dB's, the louder the sound. One decibel is the smallest unit of sound the average person can hear.

Some people are more sensitive to noise than others. Everyone is affected by excess noise to some degree --



**DEPENDING ON**

<p><b>LOUDNESS</b></p>	<p><b>PITCH</b></p>	<p><b>LENGTH OF EXPOSURE</b></p>	<p><b>SURROUNDINGS</b></p>
<p><b>AGE</b></p>	<p><b>PREVIOUS EAR TROUBLE</b></p>	<p><b>DISTANCE FROM SOURCE</b></p>	<p><b>POSITION OF SOURCE</b></p>

**AND...nobody's "immune" to the long-term effects of noise.**

# HOW MUCH NOISE IS TOO MUCH?

## DECIBELS

Rocket launching pad	180
Jet plane	140
Gunshot blast	140
Riveting steel tank	130
Automobile horn	120
Sandblasting	112
Woodworking shop	100
Punch press	100
Pneumatic drill	100
Boiler shop	100
Hydraulic press	100
Can manufacturing plant	100
Subway	90
Average factory	80-90
Computer card verifier	85
Noisy restaurant	80
Office tabulator	80
Busy traffic	75
Conversational speech	66
Average home	50
Quiet office	40
Soft whisper	30

Noises over  
140 dB  
may cause PAIN

### LONG EXPOSURE

to noises over  
70 dB may eventually  
harm hearing



Measuring noise exposure is  
a job for experts and requires  
the use of complex measur-  
ing instruments.

**IN FACT,** in today's  
mechanized, industrial  
world almost everybody  
may be exposed to excessive  
**NOISE** at home, at work,  
at play!




**NOISE-CAUSED** hearing loss raises your "hearing-threshold"-- the degree of loudness at which you first begin to hear.

## ① TEMPORARY THRESHOLD SHIFT


Industrial workers may **NOT HEAR** sound under 40dB at the end of day.



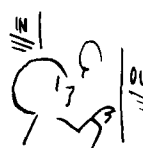
Most of the loss occurs in the first **2 HOURS** of noise exposure.



Hearing "**BOUNCES BACK**" within 2 hours after exposure to noise stops.




The loss can become **PERMANENT** if exposure continues for a long time.




## ② PERMANENT THRESHOLD SHIFT


Usually **NO PHYSICAL SIGNS**-- ears appear normal and there's no pain or dizziness.




**EARLY SIGNS** may be tinnitus, or ringing in the ears, and slight muffling of sound.



Hearing no longer "bounces back." Sounds have to be **LOUDER** in order to be heard.



Loss starts in **HIGH FREQUENCIES**. may spread to all frequencies if exposure continues.

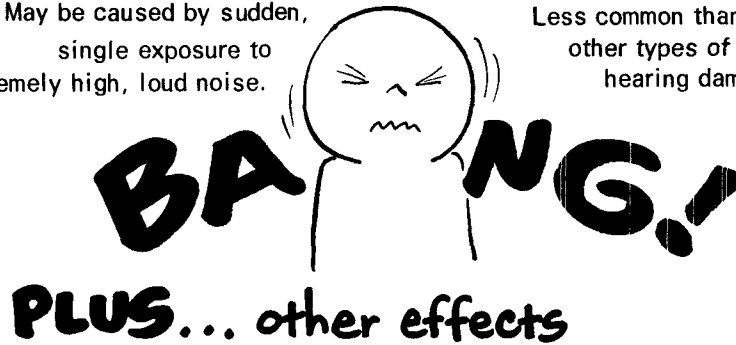




## ③ TRAUMATIC HEARING LOSS

May be caused by sudden, single exposure to extremely high, loud noise.

Less common than other types of hearing damage.



### SPEECH INTERFERENCE



In an extra-noisy environment it's hard to hear people talk -- and that's a safety hazard in itself.

### ANNOYANCE



Unpleasant sounds, particularly sudden and uneven ones, may cause fear, anger, "wear and tear."

### INEFFICIENCY



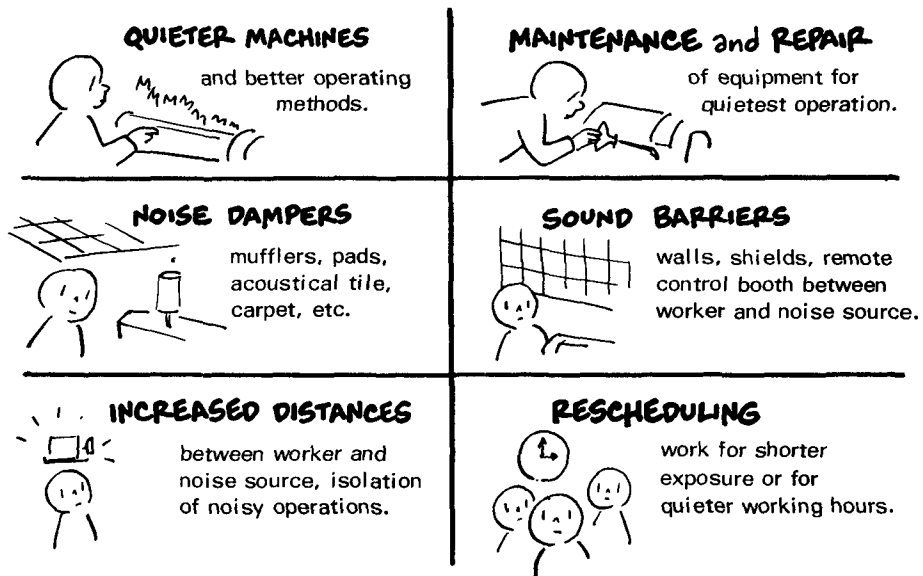
Noise may cause fatigue or distract attention from demanding or difficult tasks.

These all add up to good reasons for practicing hearing conservation



The 16 MILLION workers who are exposed to excessive on-the-job noise levels can be protected.

## INDUSTRY IS CONSTANTLY WORKING TO LOWER NOISE LEVELS VIA--



**AND--WHEN IT'S IMPOSSIBLE TO REDUCE NOISE OUTPUT--PERSONAL PROTECTION IS NECESSARY**

## PERSONAL PROTECTION IS YOUR BEST HEARING INSURANCE

**"MAKE-SHIFTS"**



most do-it-yourself protectors, such as cotton, don't really dampen noise. They fit badly and aren't hygienic.

**EAR PLUGS**



are very effective for most sound levels. Must be carefully fitted and periodically checked.

**EARMUFFS**



protect all parts of the ear and offer widest range of sound protection -- don't require frequent adjustment.

**LIKE HARD HATS or SAFETY GLASSES -- hearing protectors must be put to work by you to be effective.**



# FEDERAL LAW CONTROLS NOISE

Federal  
NOISE  
Control and  
Abatement  
Act of 1972

This law is designed to eliminate noise at its source and to stimulate the use of noise-control technology.

The law requires that the  
**U.S. ENVIRONMENTAL PROTECTION  
AGENCY (EPA)**

- ① **DEVELOP and PUBLISH** information on limits of noise that will protect public health and welfare.
- ② **IDENTIFY** products that are major sources of noise and provide information on how to control noise from such products.
- ③ **SET STANDARDS** for noise emissions for construction equipment, transportation equipment, and all motors and engines and electrical and electronic equipment.



For the first time, Federal regulation is provided for nearly all the major new sources of noise.

To control

## NOISE FROM AIRCRAFT



EPA will work with the Federal Aviation Administration. EPA will propose noise standards; FAA will consider the proposals, set the standards and enforce them.

and

The law directs all Federal agencies to buy and to operate products that meet noise control **STANDARDS**

**YOU**  
**CAN HELP**  
**TOO!**



- ① Be **ALERT** to excessive noise producers in your neighborhood.
- ② **REDUCE** the amount of noise you and your family make around your home.

**IT'S WORTH YOUR WHILE  
TO BOTHER ABOUT  
HEARING CONSERVATION--**

---

- to continue to **COMMUNICATE** with your family and friends
- to feel **LESS TIRED** and **LESS IRRITABLE** at the end of the day
- to **APPRECIATE** the sounds of the birds -- your stereo -- your TV -- your children's voices.

# So What?



**Sooo**--take care of your hearing; it can't be replaced!

- 1 Have regular professional care and hearing examinations.
- 2 Wear the protective equipment required on your job --and make sure it's in good shape.
- 3 In case of accident or infection-- get medical attention.



TUNE IN ON  
HEARING CONSERVATION--  
that's "sound" advice!

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460**

LITHO IN U.S.A.