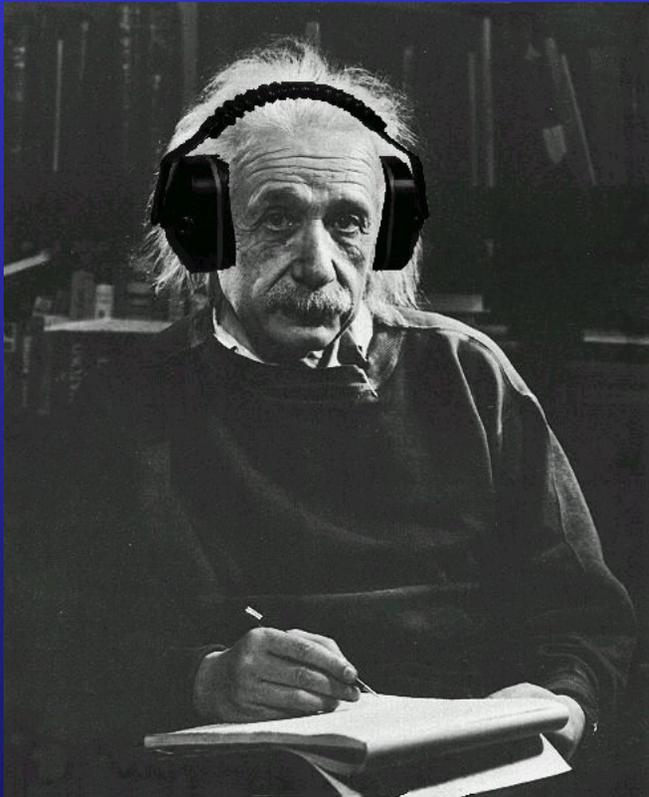


APPLICATION OF HEALTH COMMUNICATION THEORIES



Mark Stephenson, Ph.D.

Carol Merry Stephenson, Ph.D.

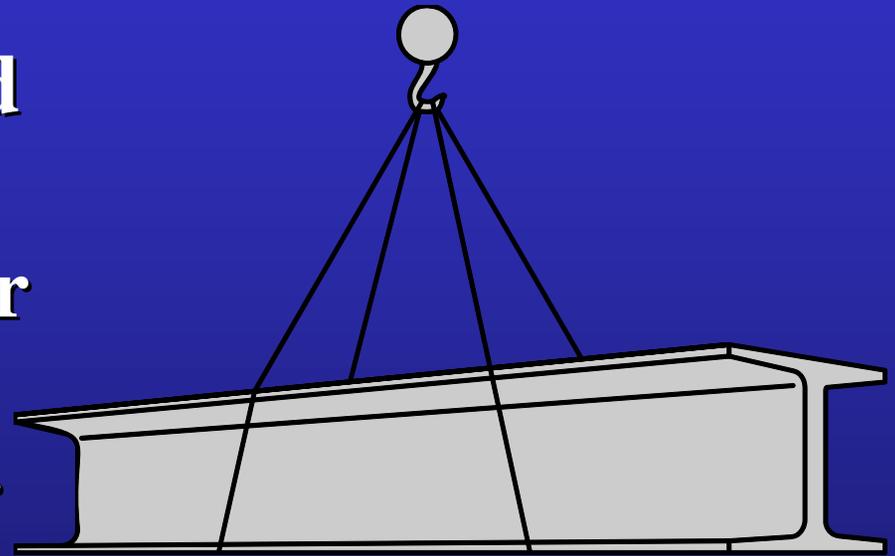
**National Institute
for Occupational Safety
and Health**

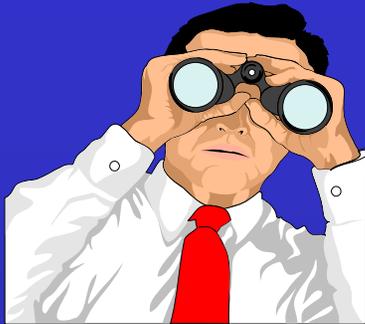
NIOSH HIERARCHY OF CONTROLS

Remove the hazard

Remove the worker

 Protect the worker





OVERVIEW

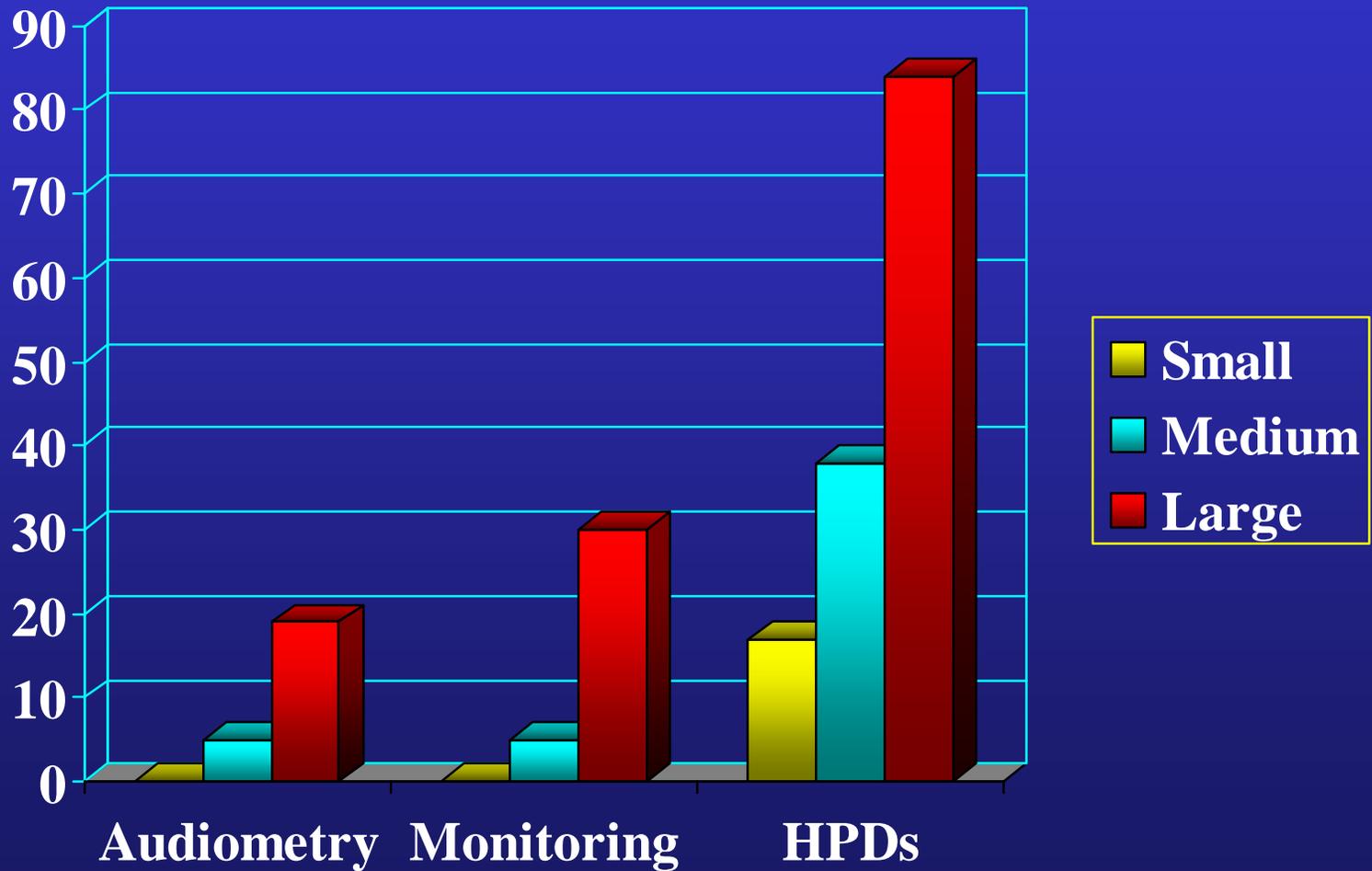
- **Overview of the problem**
- **Current issues associated with hearing protectors**
- **Health communication models**
- **Using health communication theory to positively influence hearing health behaviors**

THE PROBLEM:

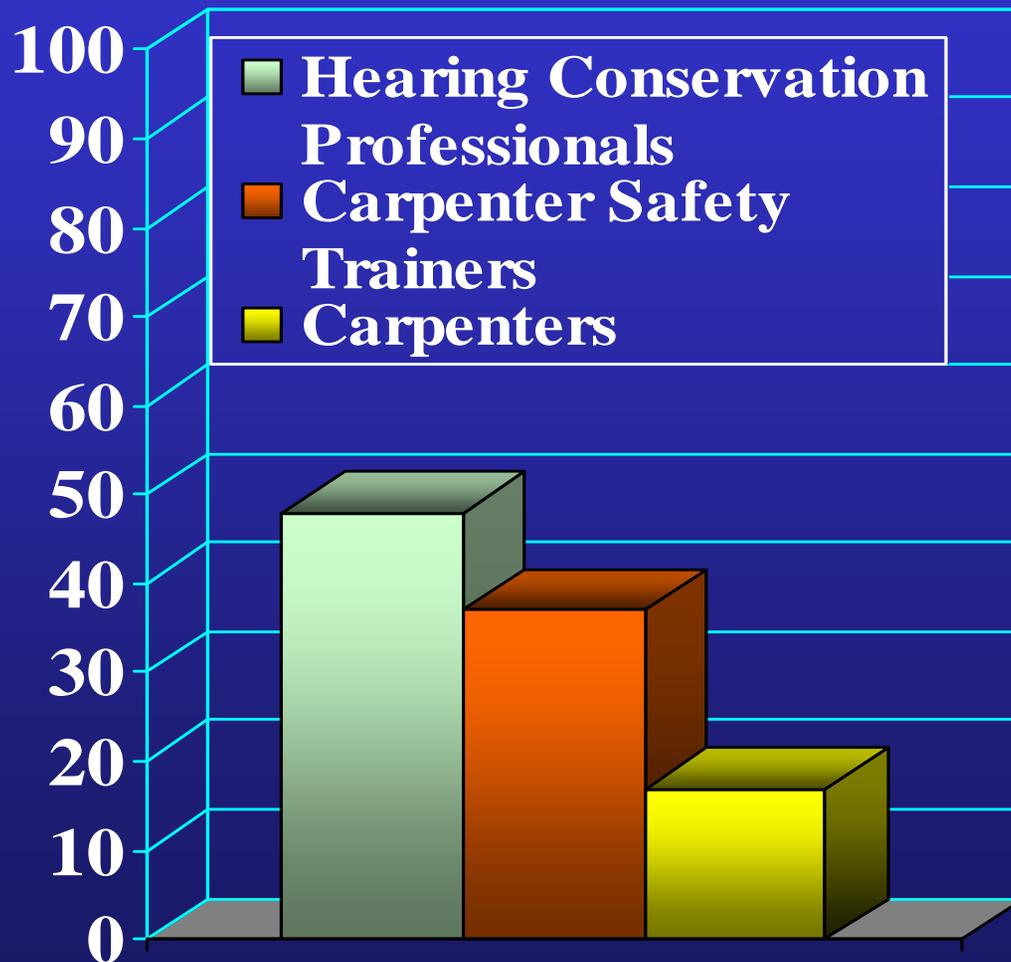


**I tell ya,
noise-induced hearing
loss don't get no
respect.**

PREVALENCE OF PROGRAM ASPECTS BY COMPANY SIZE



Percentage of Time Hearing Protectors are Worn “Most of the Time” When Working in Loud Noise



How much of a problem is there?

- 👉 **Hearing loss from noise is the most common occupational illness (NIDCD), and the 2nd-most self-reported occupational illness for American workers (NCHS).**
- 👉 **NIHL accounts for about 1 in 5 losses severe enough for a person to report trouble hearing (ASHA).**
- 👉 **Preventing NIHL would do more to reduce the societal burden of hearing loss than medical and surgical treatment of all other ear diseases combined (Dobie, 1993).**

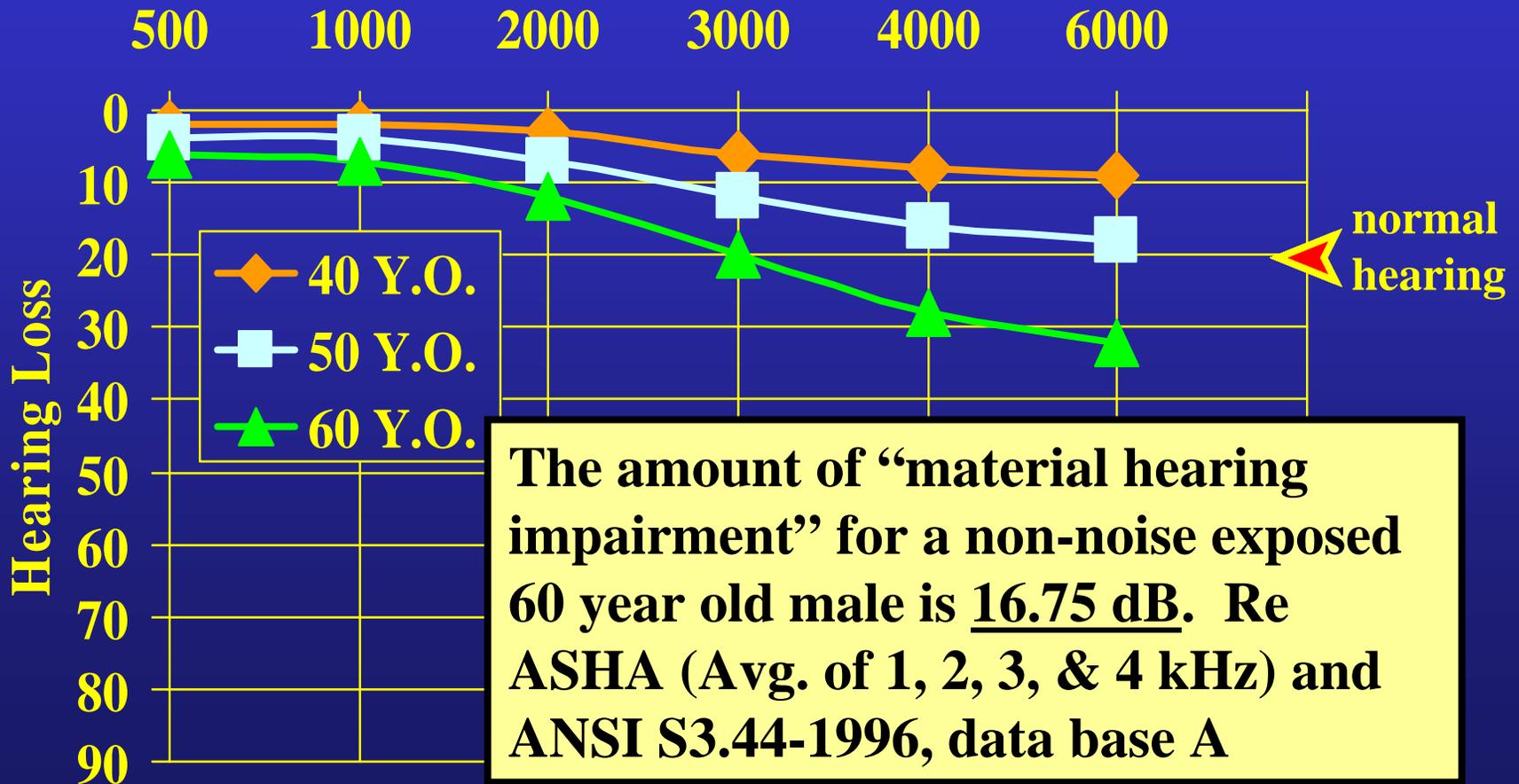
How many people are affected?

- ☞ **30 million people are occupationally exposed to hazardous noise.**
- ☞ **10 million people have NIHL - nearly all from occupational exposures.**
- ☞ **Hearing problems shot up 26% from 1971 to 1990 among those between 18 to 44 years old.**
- ☞ **Today, 15% of those between 6-19 show signs of HL.**

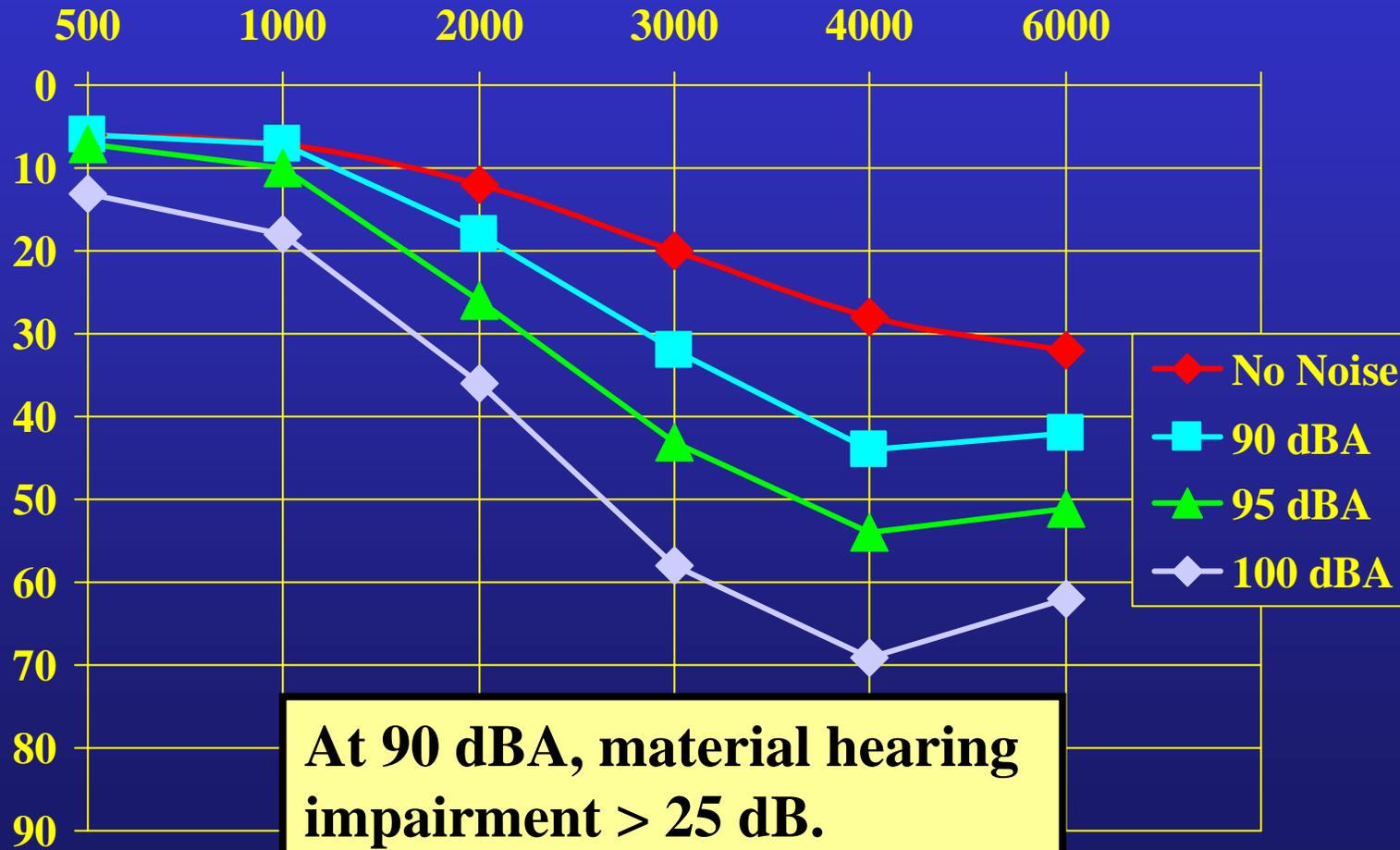
**So what...
People lose their hearing
anyway as they age.**



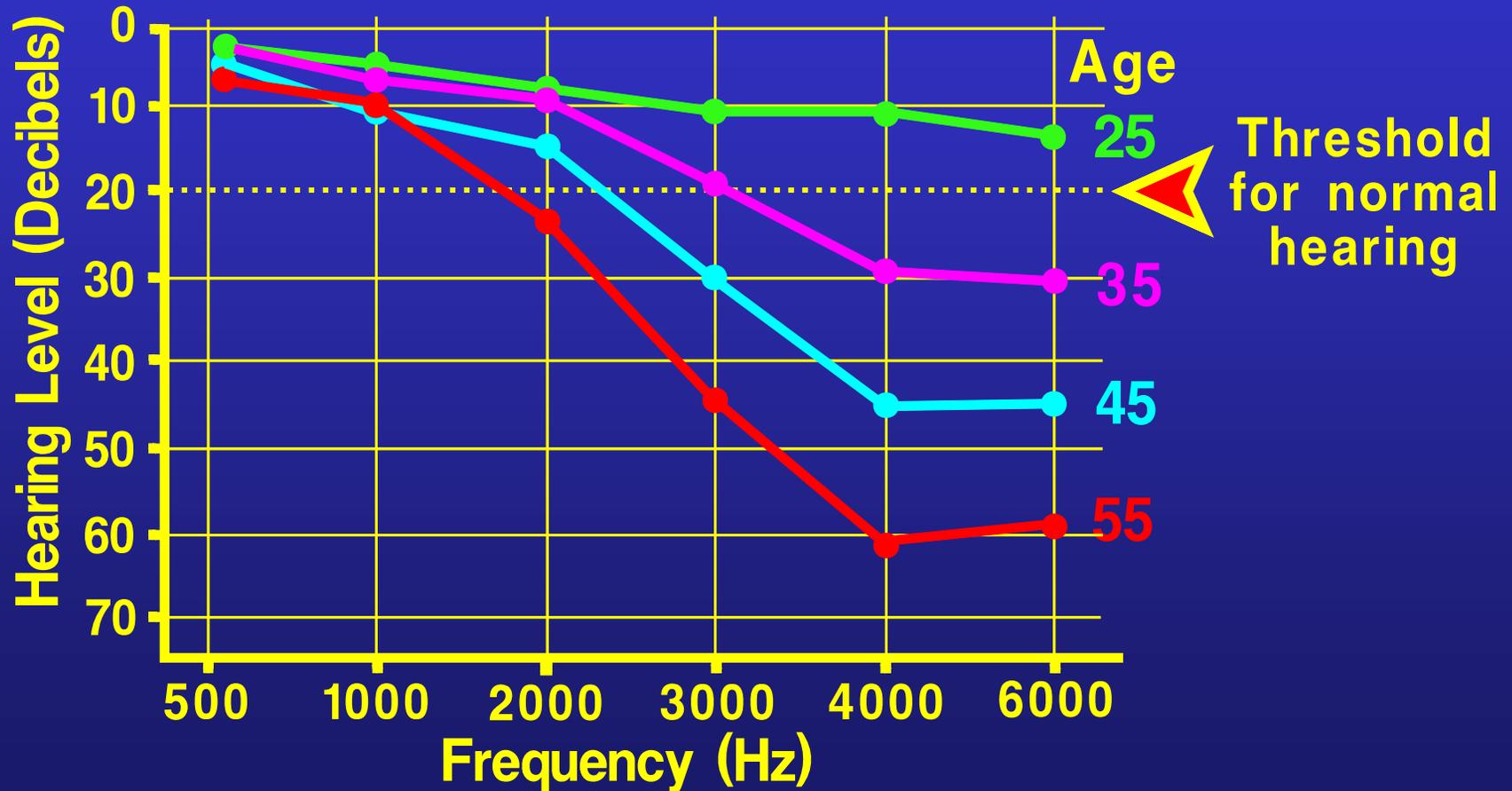
Even by age 60, the average healthy person does not have impaired hearing!!



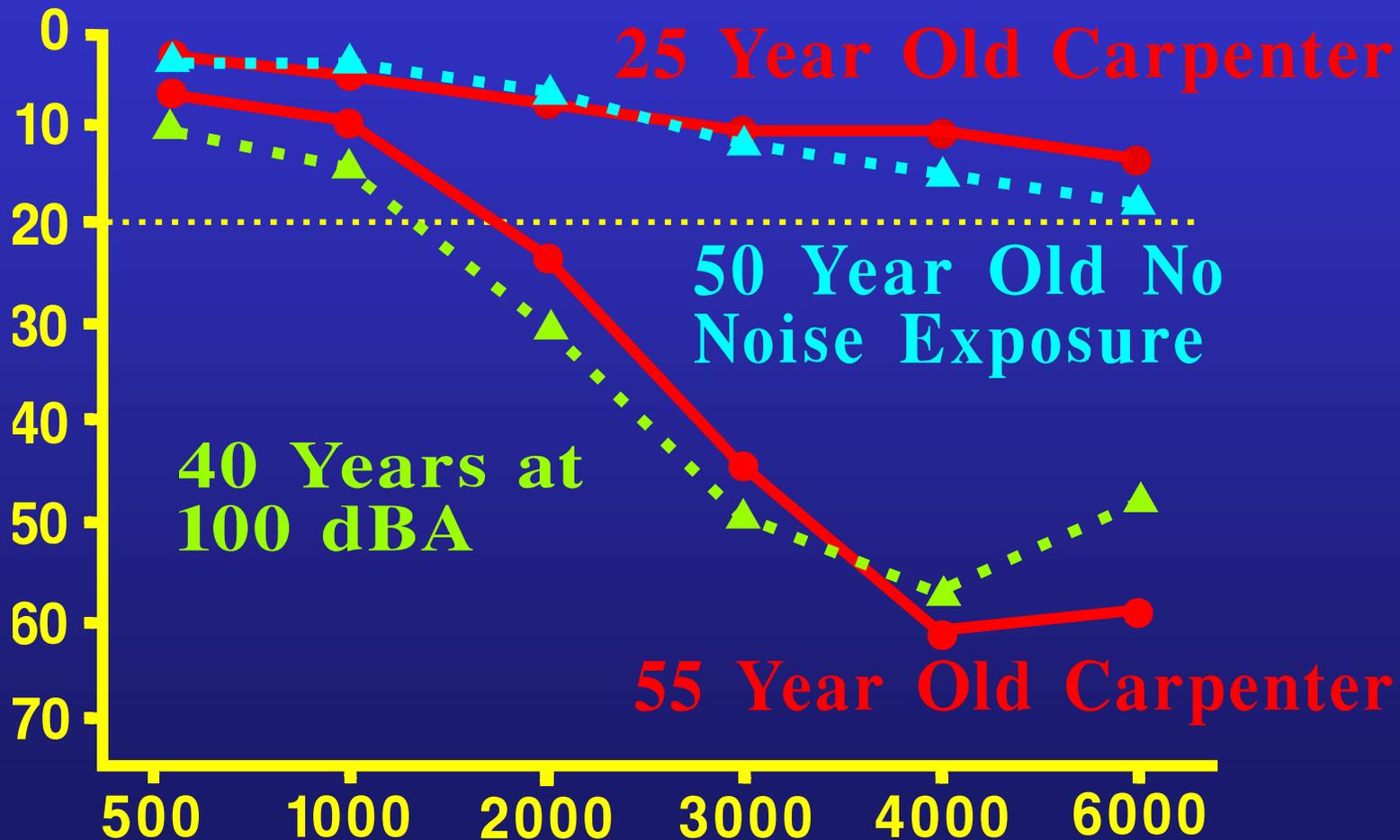
Hearing Levels in 60 Year Old Males as a Function of Noise Exposure



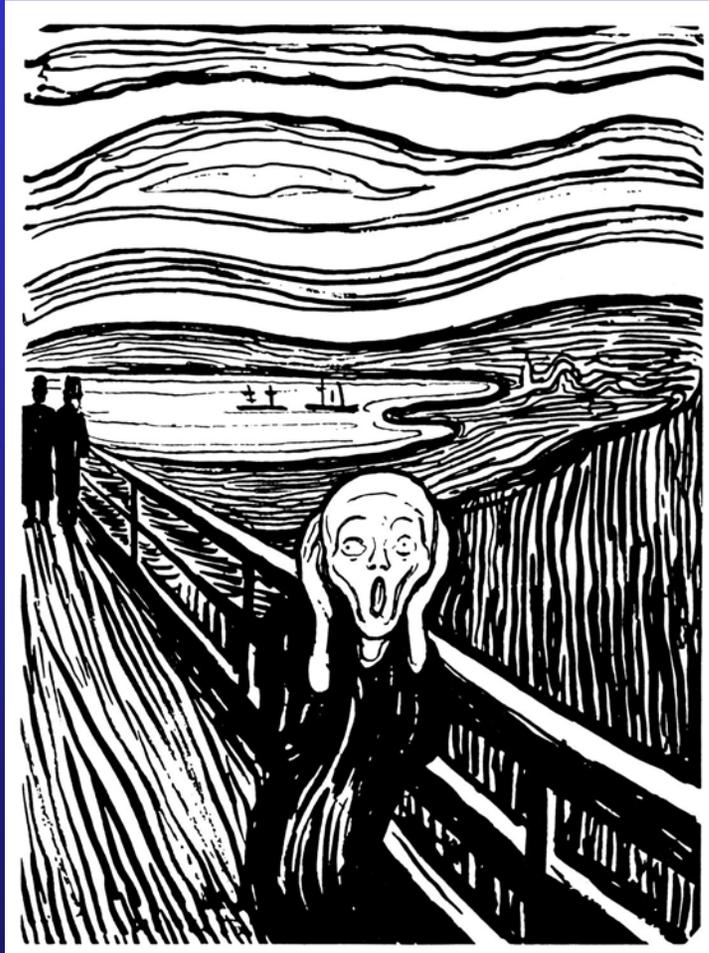
Hearing Loss Among Male Carpenters as a Function of Age



The Average 25 Year Old Carpenter Has 50 Year Old Ears!



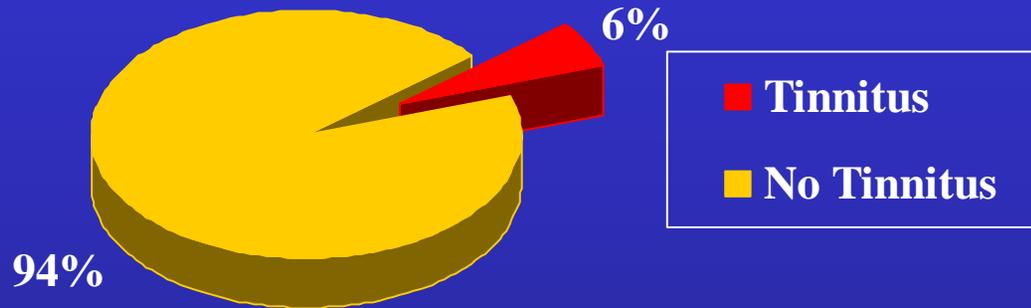
RESULTS OF FOCUS GROUPS



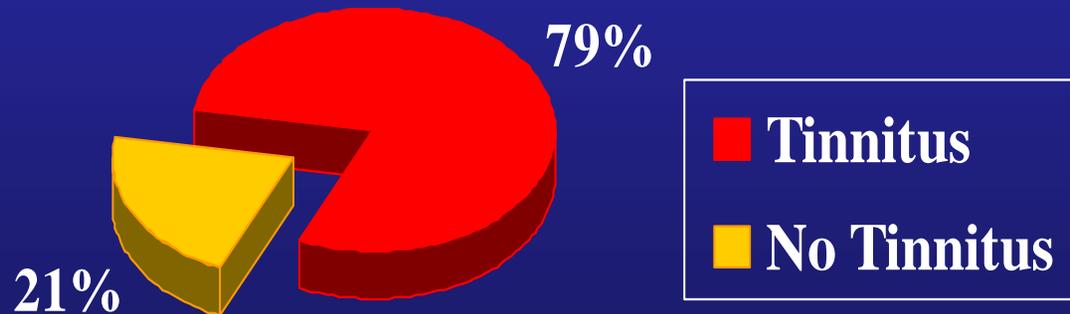
Workers may be less concerned about getting a hearing loss than about developing tinnitus.

“I expected to lose my hearing. But, I thought it would be quiet.”

Percent of People With Tinnitus



Non-Noise Exposed Worker



Noise Exposed Workers

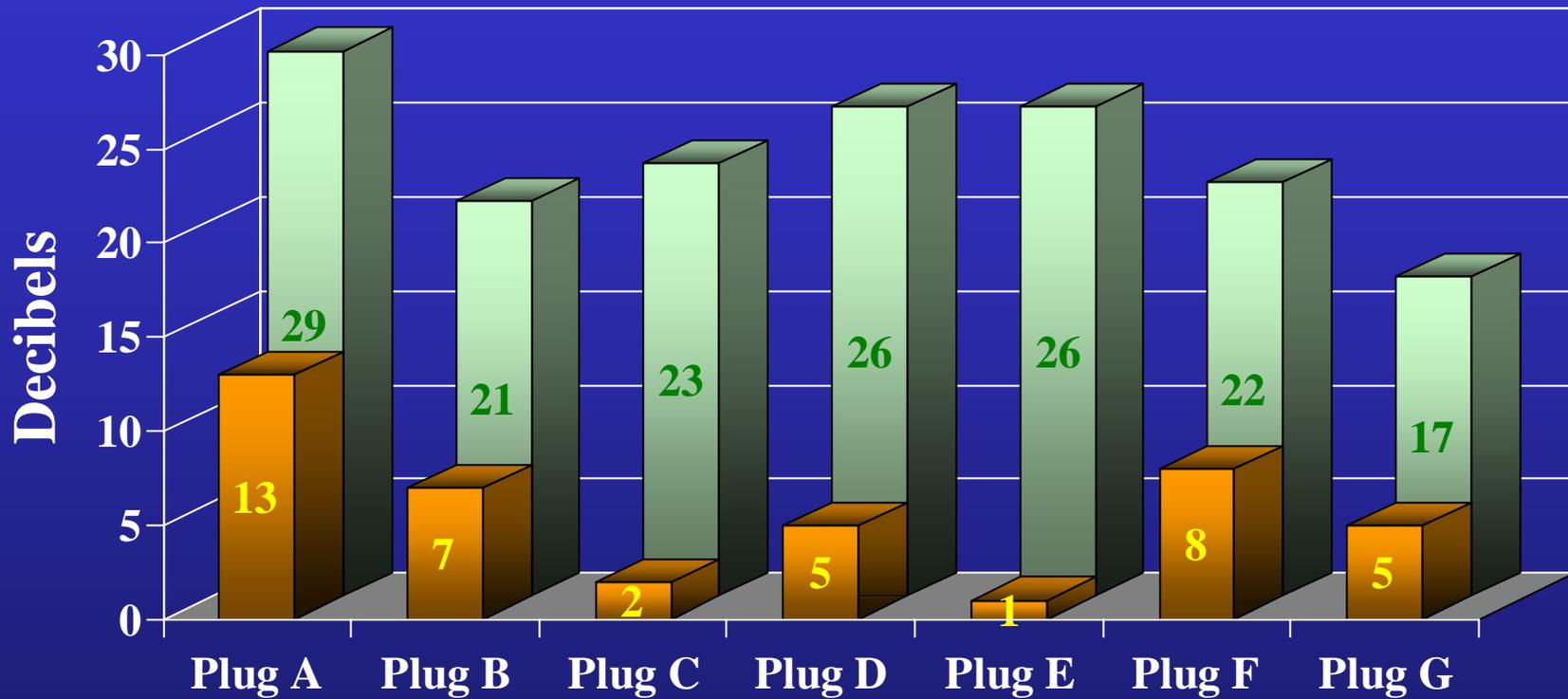
Even when noise hazards are clearly identified, you can't just set out boxes of hearing protectors and expect workers to use them.



Murphy was right!

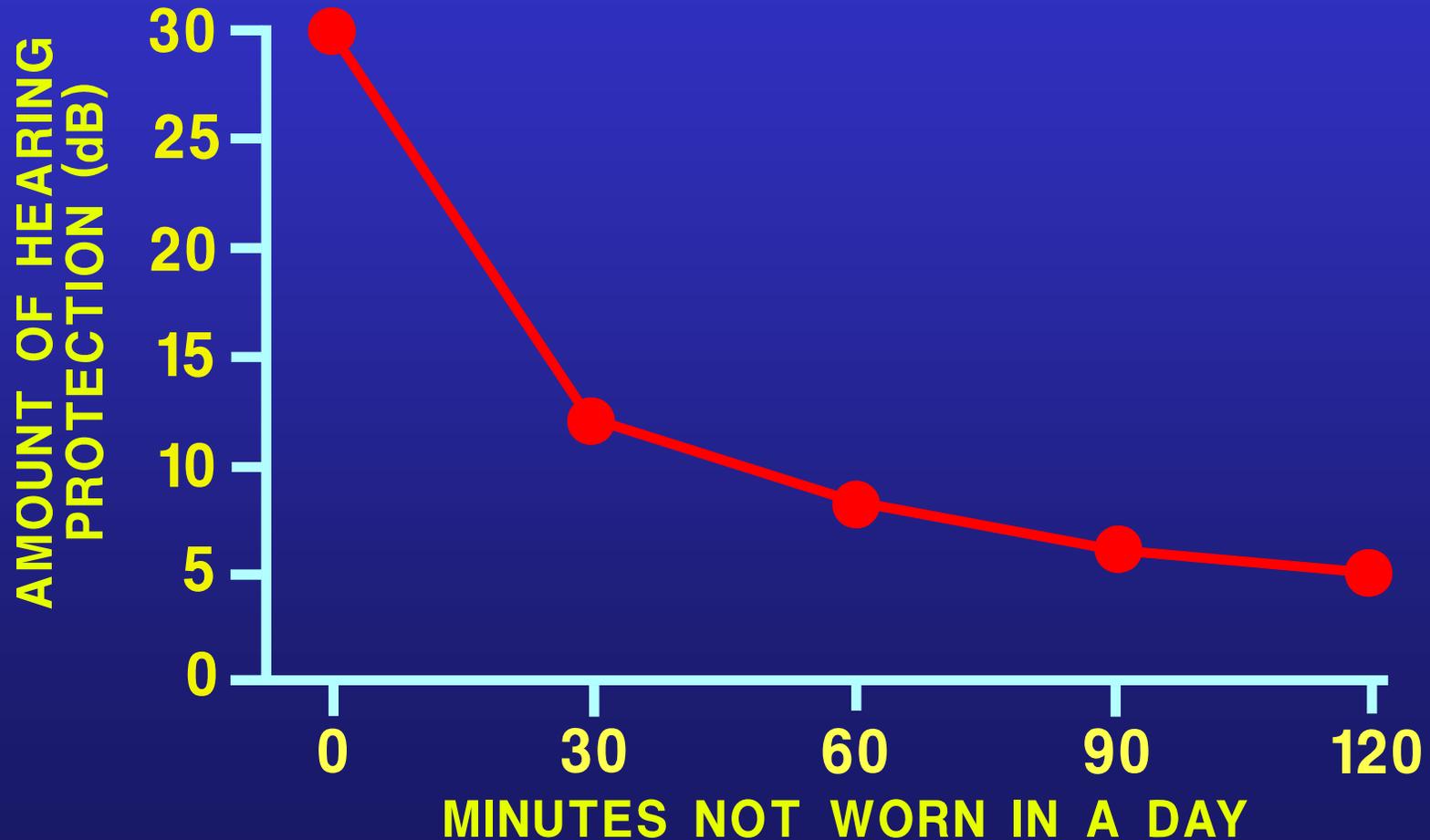
Without proper training, any hearing protector that can be worn wrong, will be worn wrong!

Available protection vs. the amount of protection obtained by untrained workers.



- Likely protection as worn by untrained worker
- Amount of protection listed on the box

Effect of inconsistent use of hearing protection on the amount of effective noise reduction



Hearing Protector Issues: Methods for Estimating Actual Performance



FIT-TEST METHOD

- Fit-test system feasible for field use
- Using fit-test enabled workers to learn to correctly fit a new plug
- Knowledge gained and consciousness raised

**Can we take what we
have learned in the laboratory
out to the field?**

**Can we influence hearing loss
prevention behaviors among
noise exposed workers?**



Factors Affecting Behavioral Change:

Individual Level

- Knowledge/beliefs
- Attitudes/values
- Stage of change
- Decisional balance
- Self-efficacy

Organizational Level

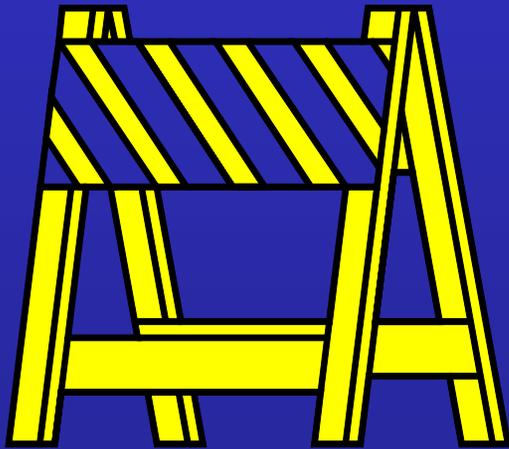
- Norms- safety culture
- Union and management priorities
- Modeling by trainers
- OSH curricula in the apprentice centers
- Environmental support

Health Promotion Can Learn From Marketing



INFLUENCING HEARING HEALTH BEHAVIOR AMONG WORKERS

Studies utilizing a health communication/ promotion approach indicate that your education and training must address two concepts:

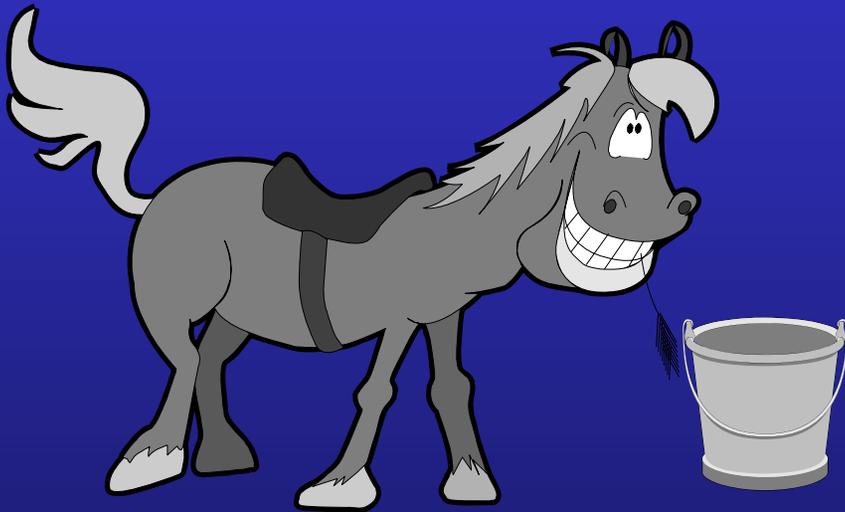


Remove Barriers



Develop Self-Efficacy

People have **MANY** reasons for not using hearing protectors. (*AKA: You can lead a person to hearing protectors, but you can't get him/her to wear them.*)

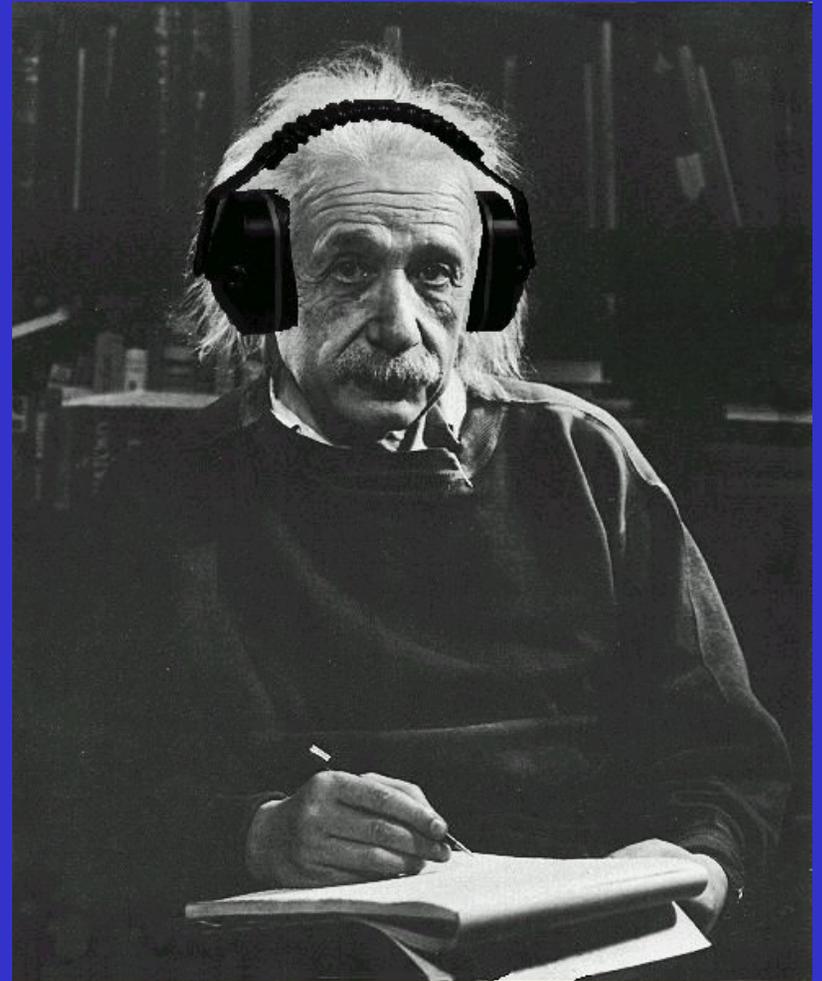


THE FOUR C's

- **Comfort**
- **Convenience**
- **Cost**
- **Communications / hear important sounds**

**THERE ARE OVER 200 DIFFERENT HEARING PROTECTORS.
EVERYONE CAN FIND A PROTECTOR THAT MEETS THEIR NEEDS.
THE BEST HEARING PROTECTOR IS THE ONE THAT'S WORN!**

To effectively influence workers' hearing health behaviors, you need to apply health communication theory as you develop and use training and educational materials.



“One way to cut confusion surrounding the selection of a theory...is to combine elements of successful and well-tested theories into a single framework. A framework pools the best available knowledge...”

-- Witte (1995)

HEALTH PROMOTION AND HEALTH COMMUNICATION MODELS



Theory of Reasoned Action



Health Belief Model

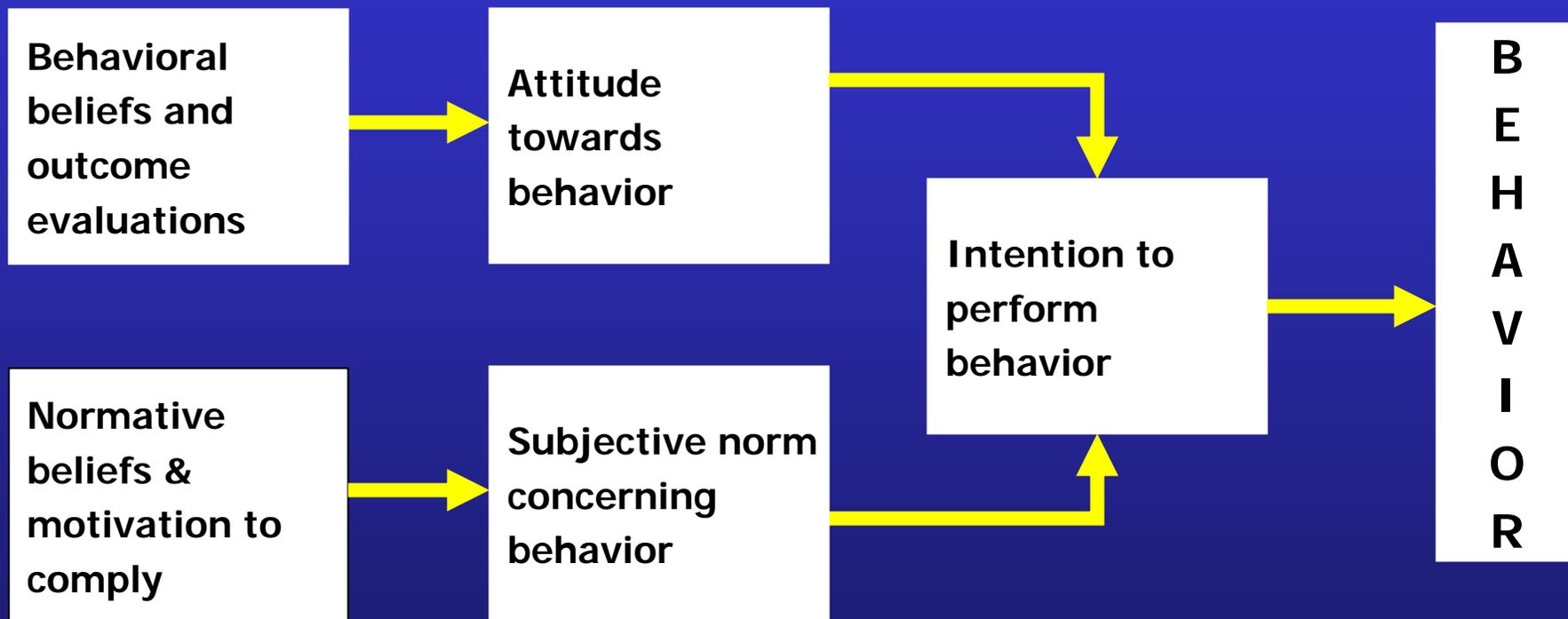


Stages of Change Model

Applying these and similar models can effectively help shape workers' attitudes, beliefs, and behaviors.

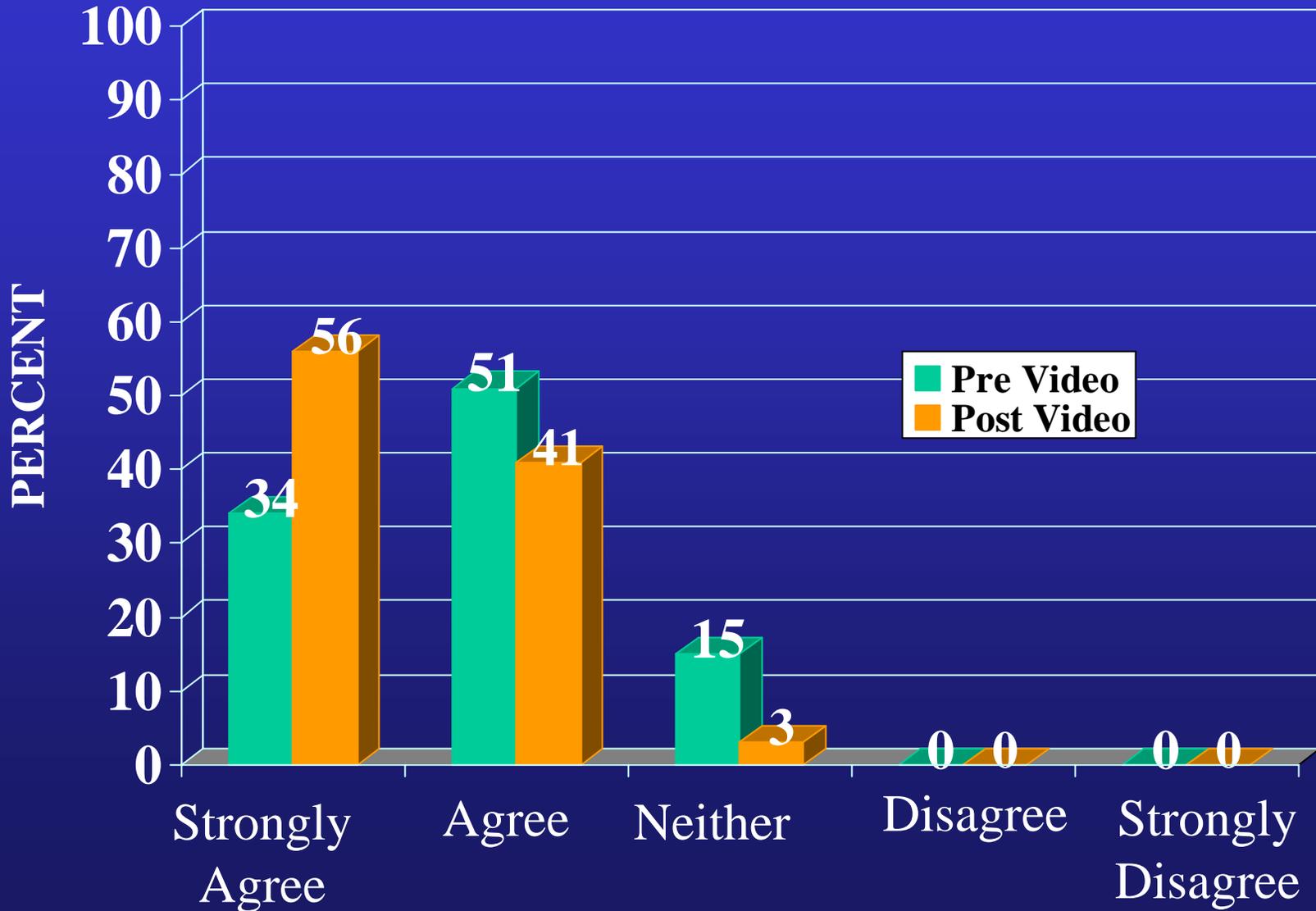


Health Promotion Models Help Identify Variables That Predict Behaviors



THEORY OF REASONED ACTION

I plan to wear hearing protectors when I work around loud noise.

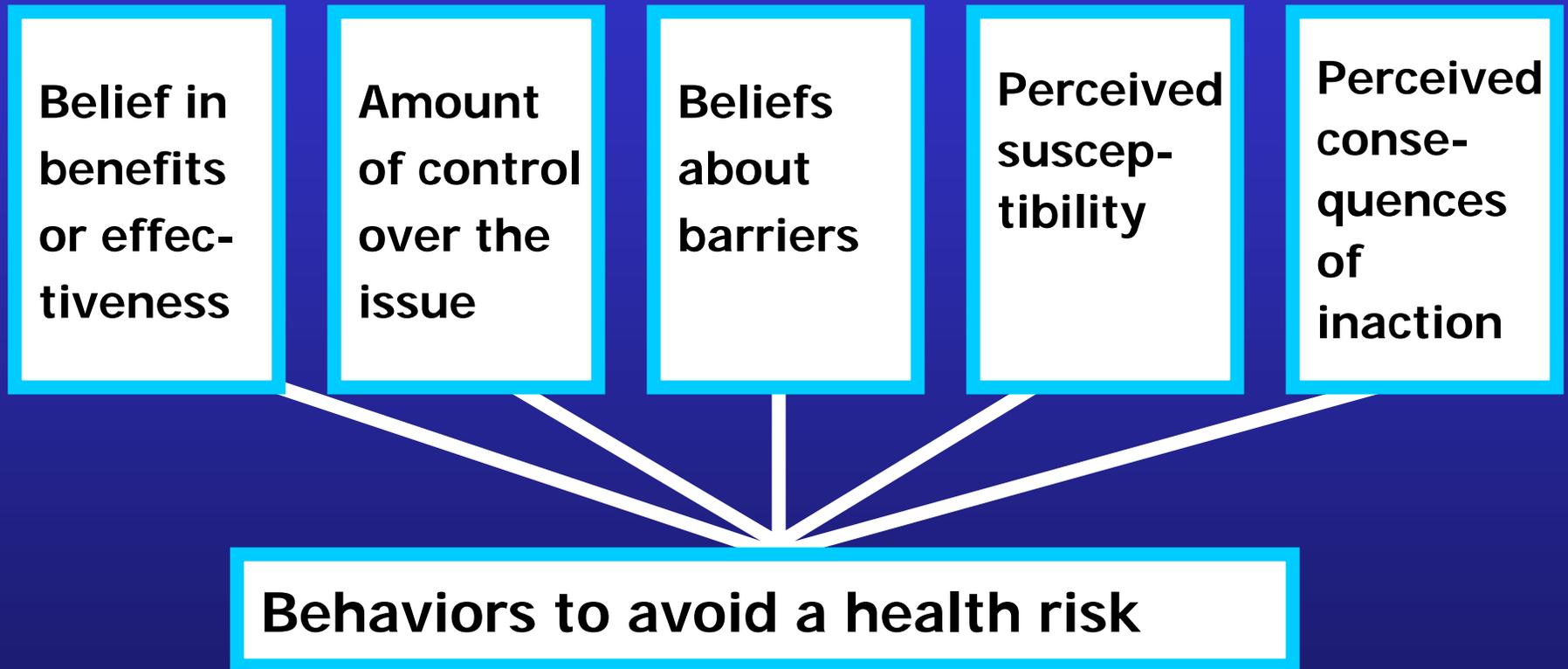


Health Belief Model: Attitudes, Beliefs, Social Norms

- **Susceptibility**
- **Seriousness**
- **Benefits**
- **Barriers**
- **Self-efficacy**



Health Belief Models Help Identify Cognitive Variables That Predict Behaviors



HEALTH BELIEF MODEL

How do you know what the workers' concerns and beliefs are?

Just ask me.
I'll tell you
what I need.

Barriers cited by coal miners
for not wearing HPDs:

Comfort

Poke Out Eardrum

Communication

Cords Get Caught

Convenience

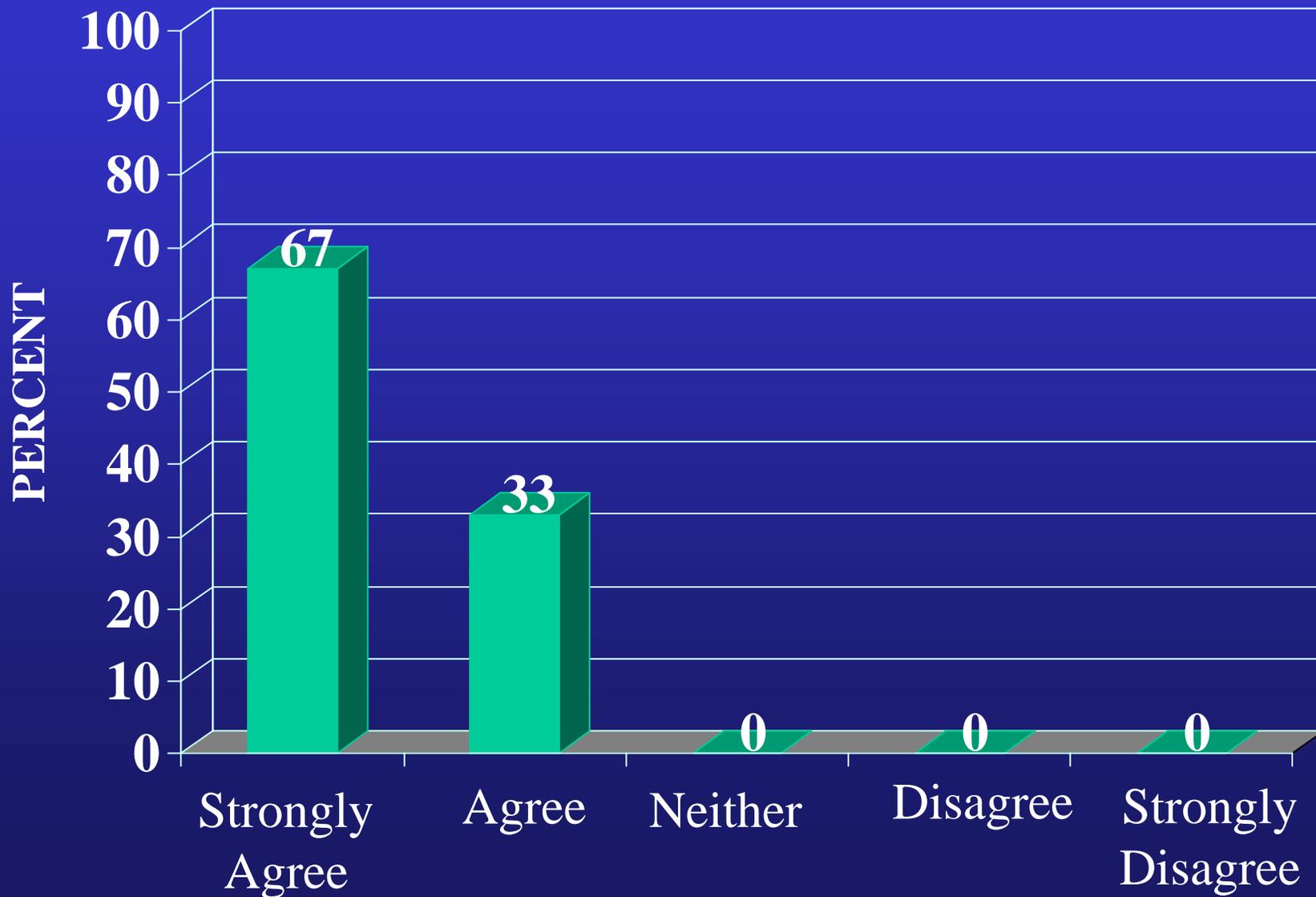
Earcup Too Big

Roof "Talk"

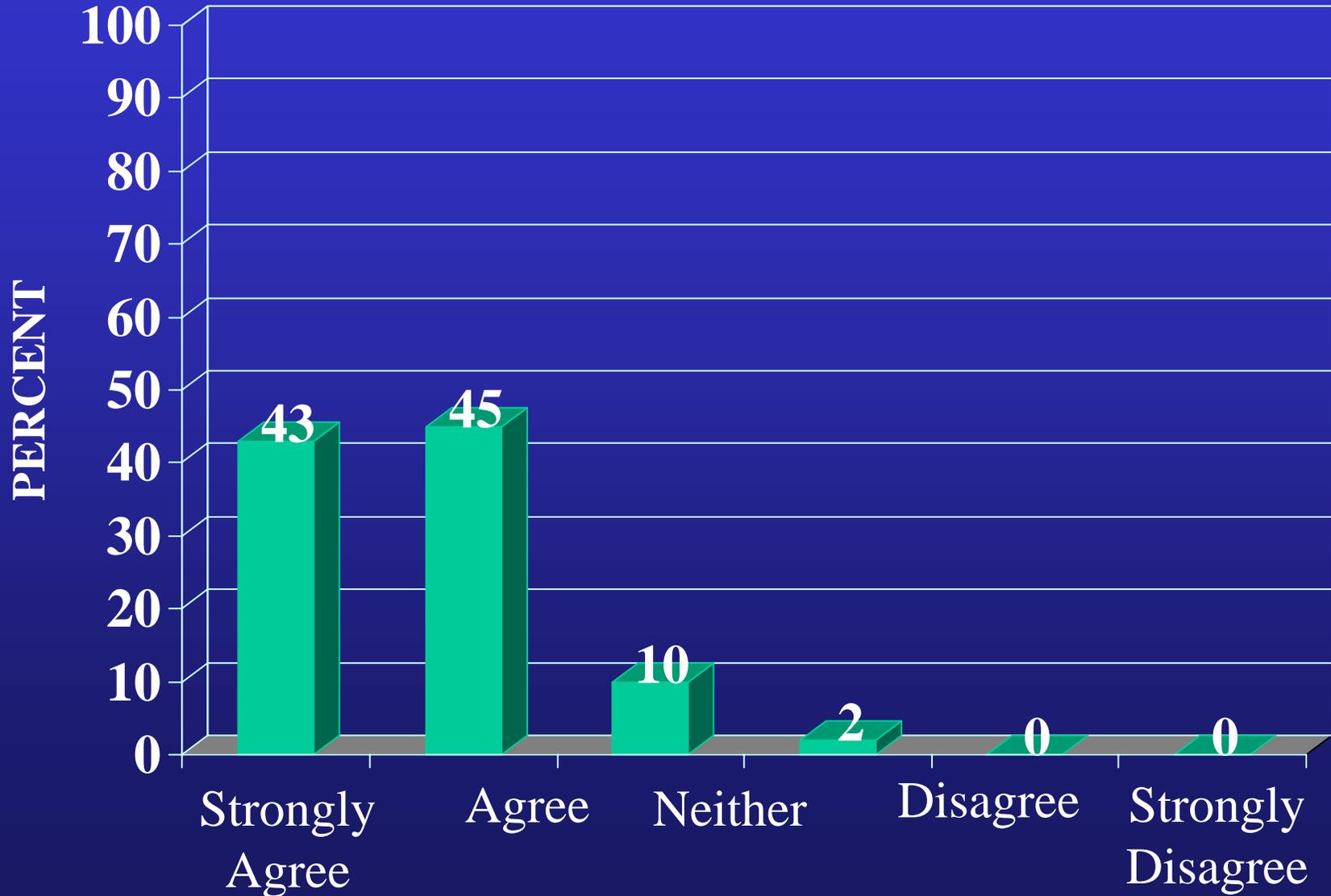
Warning Sounds



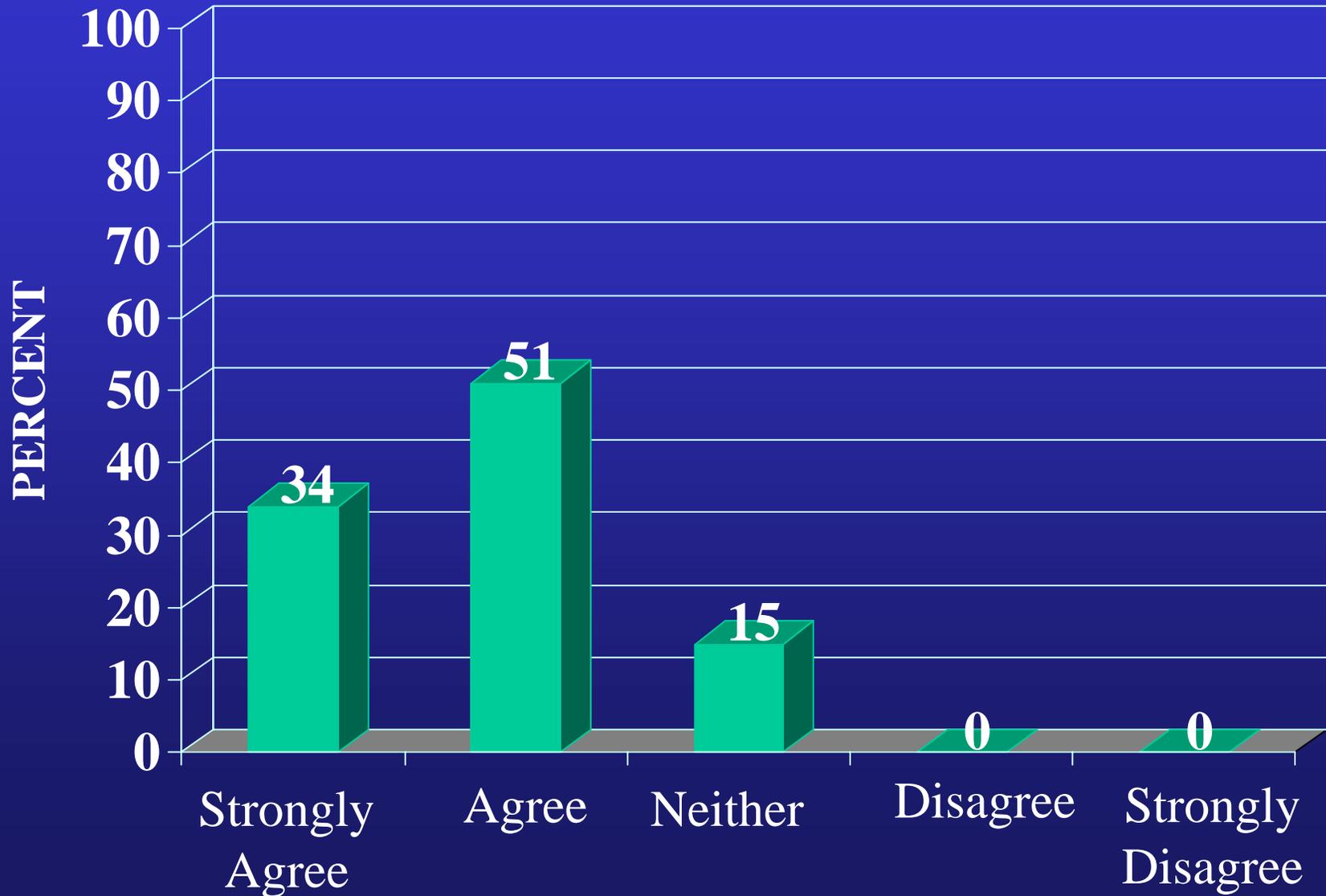
I believe exposure to loud noise can hurt my hearing.



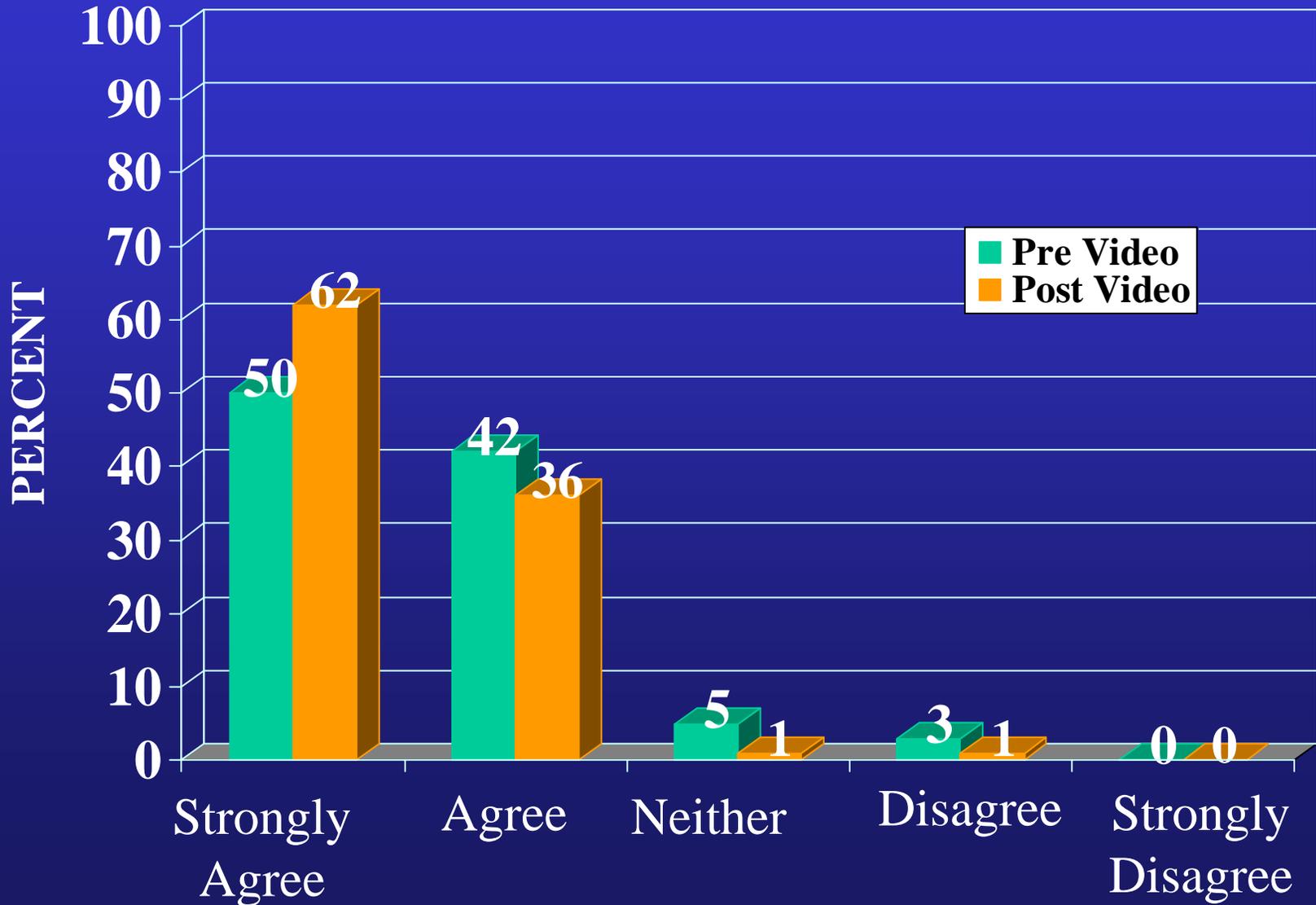
I think my hearing is being hurt by exposure to loud noise.



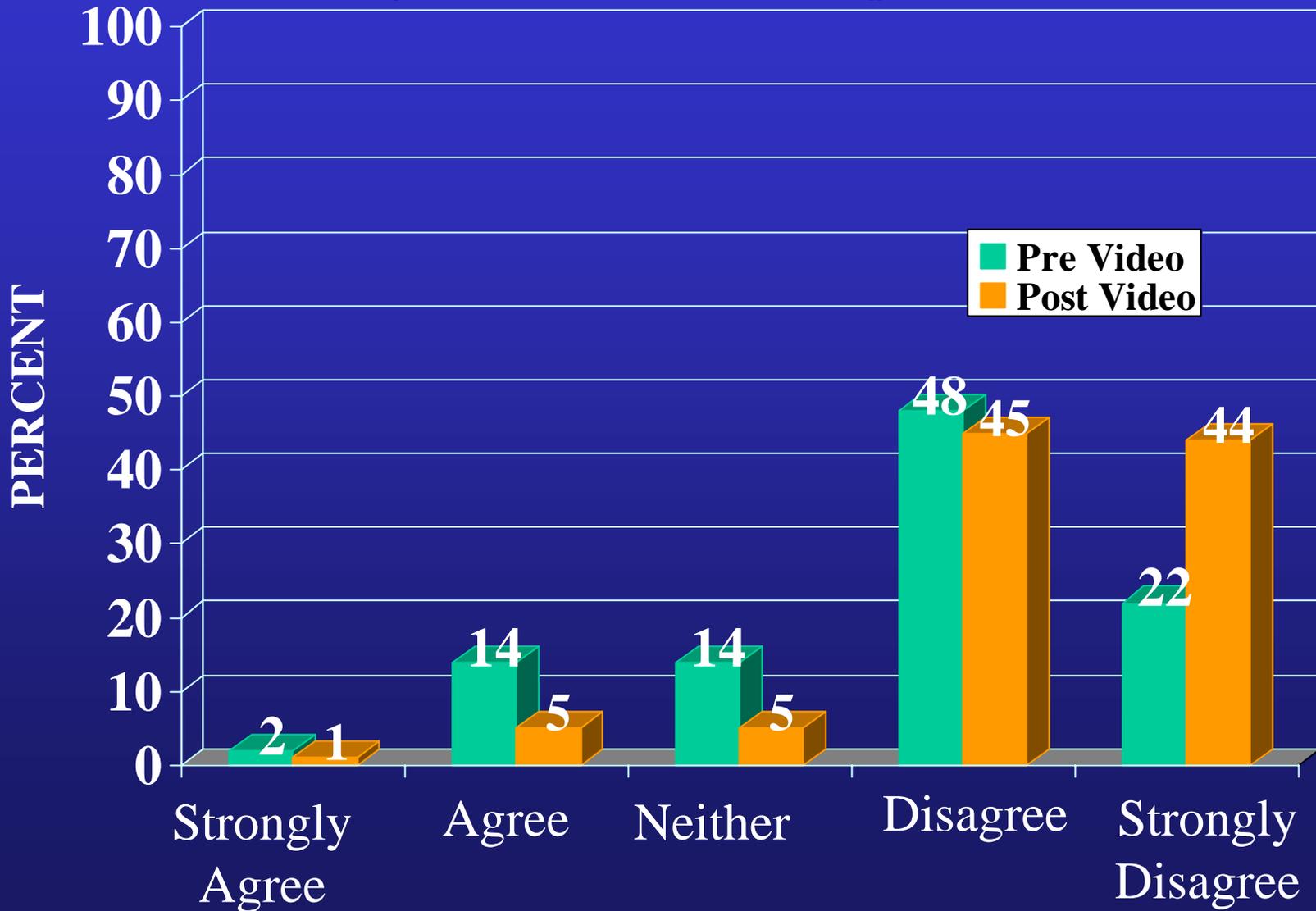
I think it would be a big problem if I lost my hearing.



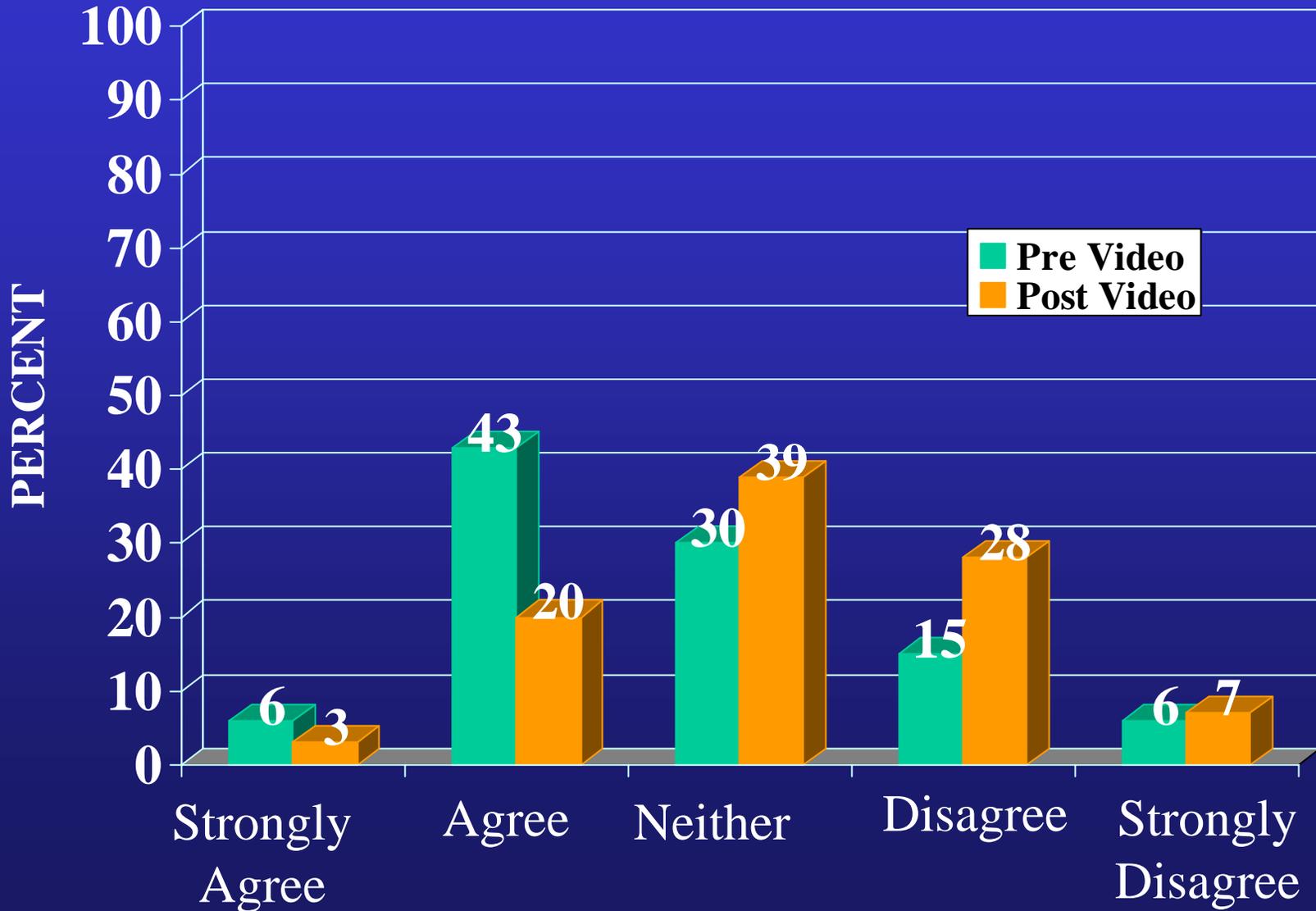
I am convinced I can prevent hearing loss by wearing hearing protectors whenever I'm in loud noise.



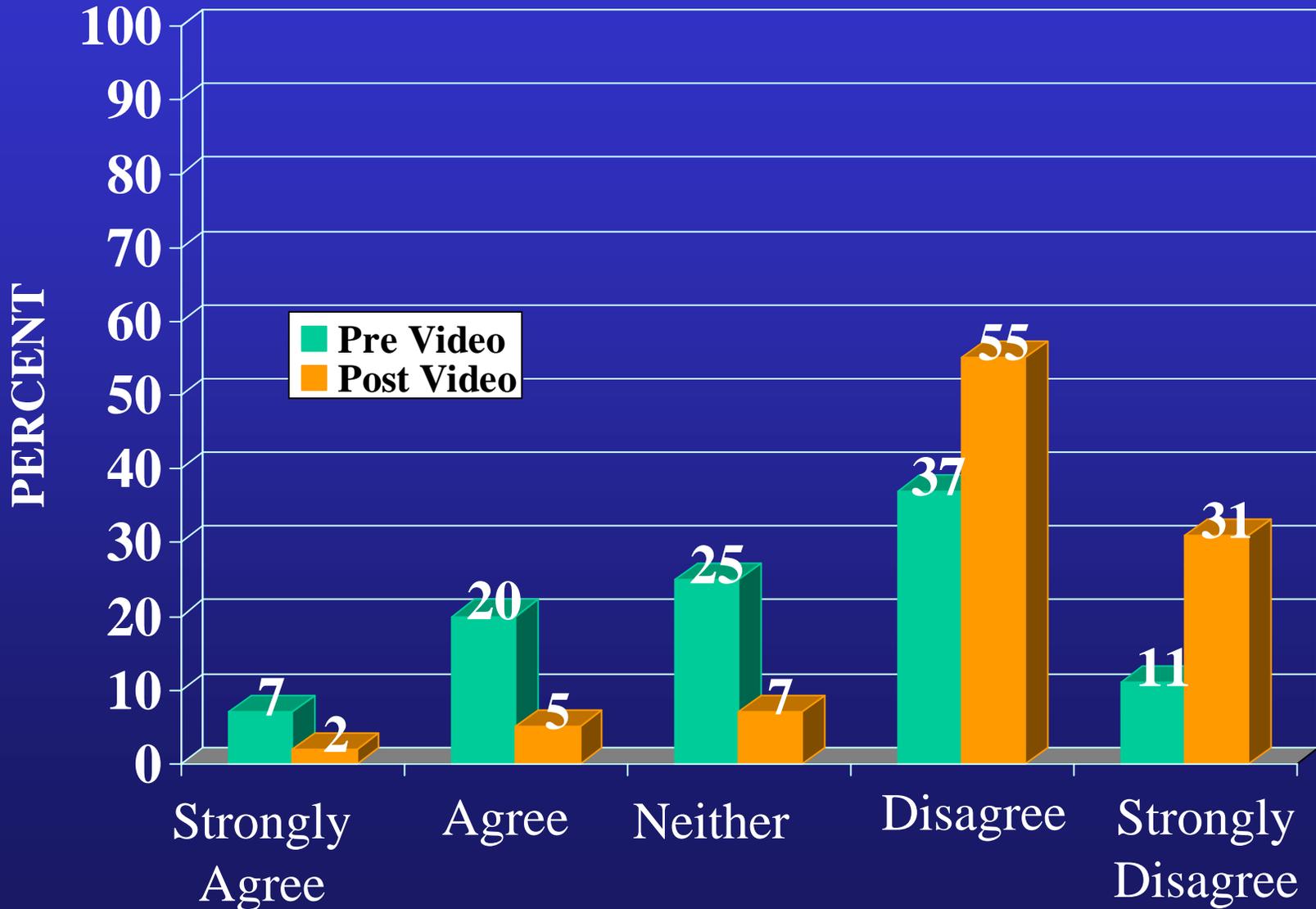
I don't think I have to wear hearing protectors every time I'm working in loud noise.



Wearing hearing protectors is annoying.



I think it will be hard to hear warning signals (like back-up beeps) if I am wearing hearing protectors.



Stages of Change Model Predicts When Behavioral Change Will Occur

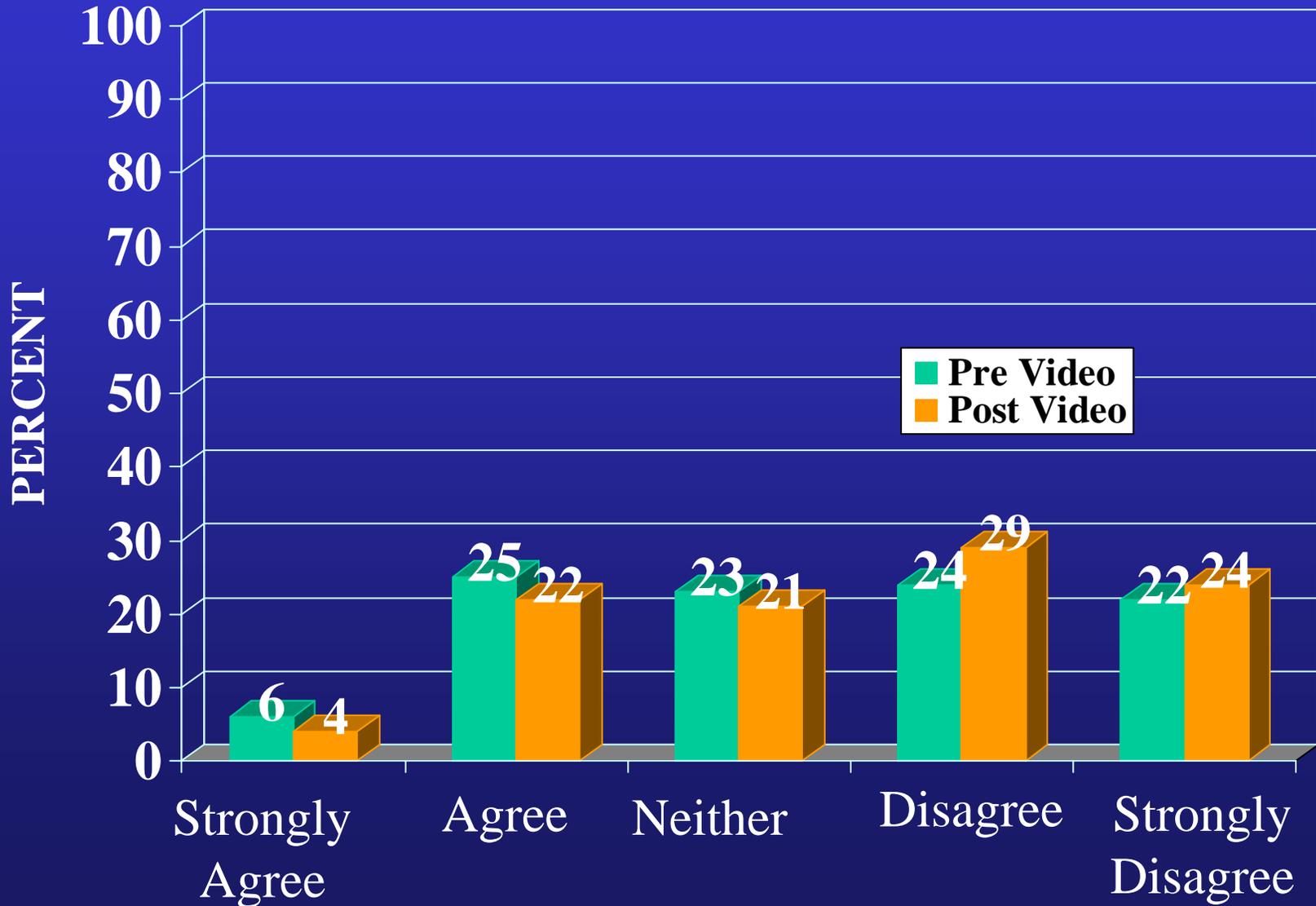
- Precontemplation- typically 40 % of workforce for a new behavioral request
- Contemplation- may do in next 6 months
- Preparation- may do in next 30 days
- Action- trying out the behavior now
- Maintenance- have been doing behavior for 6 months+

Identify and Target A Desired Behavior

- Carpenters will use hearing protectors consistently and correctly whenever they are exposed to hazardous noise



On my current job, I seldom wear hearing protectors when I work around loud noise.



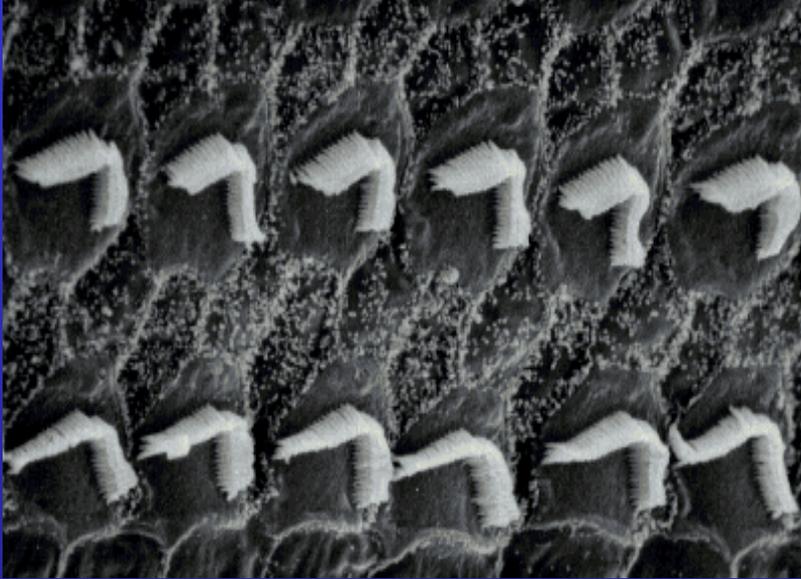
What are precontemplators like?

- Sometimes lack knowledge about issue
- Have no interest in changing their behavior or beliefs
- Have no intention of changing even in a future time frame

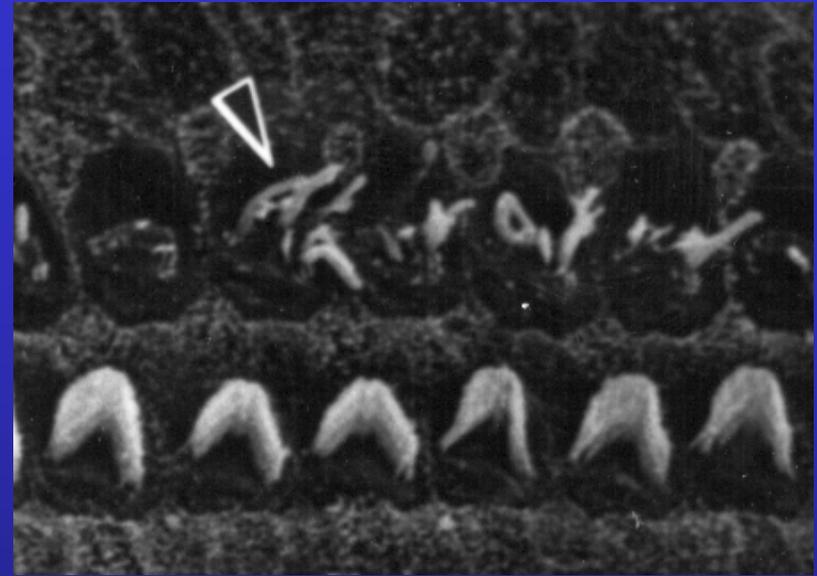


How to move precontemplators to contemplation

- **Get their attention**
- **Raise their consciousness**
- **Create environments to help people do the right thing**



This is your ear.



This is your ear on noise.

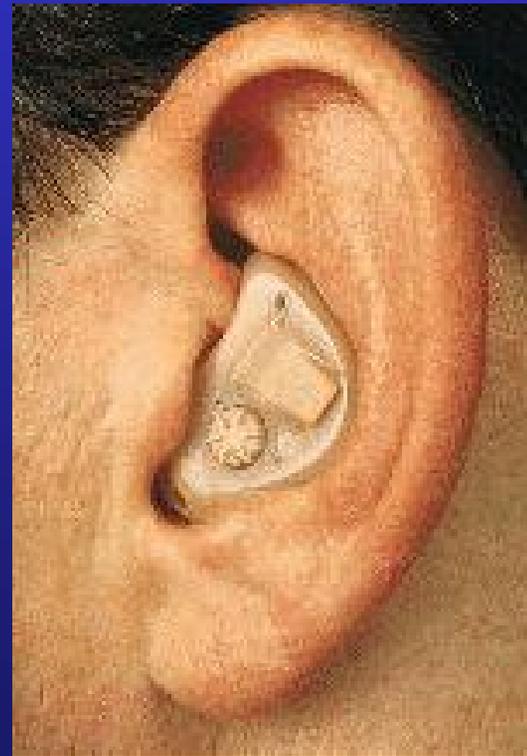
Any questions?

What moves Contemplators to the Preparation stage?

- **Emotional arousal helps here too!**
- **Direct Consequences for Self & others**
 1. **Imagery- “imagine your life if...”**
 2. **Consequences to family and friends**
 3. **Thinking actively about solutions**
 4. **Case studies & testimonials**

It's Really Pretty Simple.....

- Wear this now...
- Or wear this later!



What are Preparers Like?

- **Increasing belief in “pro’s”**
- **Decreasing concern about “con’s”**
- **Start taking small steps toward new behavior (do a sound survey, read up on HPDs)**
- **Increased confidence about making changes**
- **Make a plan or “intend” to adopt new, safer behavior**

What Moves Preparers to Action?

- **Setting reasonable goals**
- **Making specific plans to overcome specific barriers**
- **Making public pledges**
- **Continuing to believe there are more pro's than con's for the new behaviors**

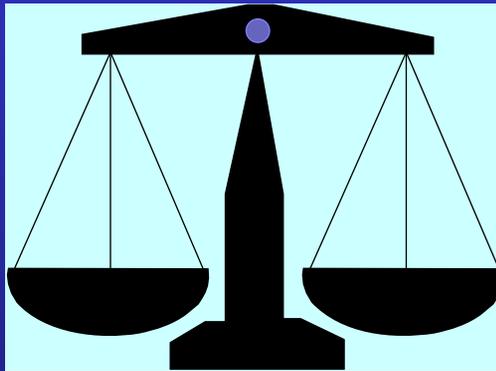


What Are People in the Action Stage Like?

- **Firmly believe benefits of new, safer behavior**
- **Have a consistent plan for action and have been following it for several months**
- **“Intend” to maintain the behavior**
- **Recognize success of small steps**



Prospect Theory: How you
frame the message does count!



Loss versus Gain

Prevention versus Detection

Gain Framing

1) If you take action A, 200 workers will keep their hearing.

2) If you take action B, there is a $1/3$ probability that 600 will keep their hearing, and a $2/3$ probability that no one will keep their hearing.

Loss Framing

- 3) If you choose action C, 400 workers will lose their hearing.
- 4) If you choose action D, there is a $1/3$ probability that no one will lose their hearing, and a $2/3$ probability that 600 will lose their hearing.

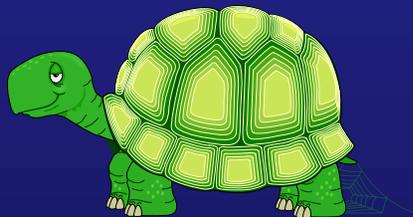
**Does this touchy-feely stuff work?
You bet it does!**



Positively influencing beliefs about using hearing protectors -



Comfort

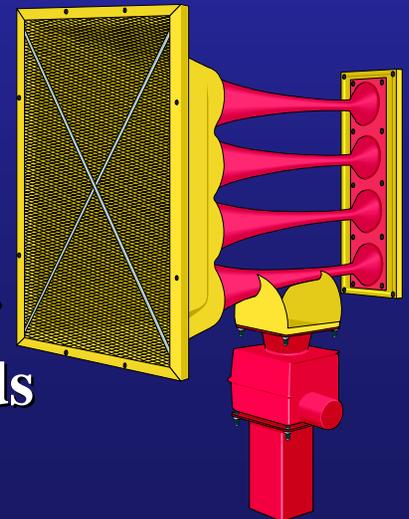


Consistent use

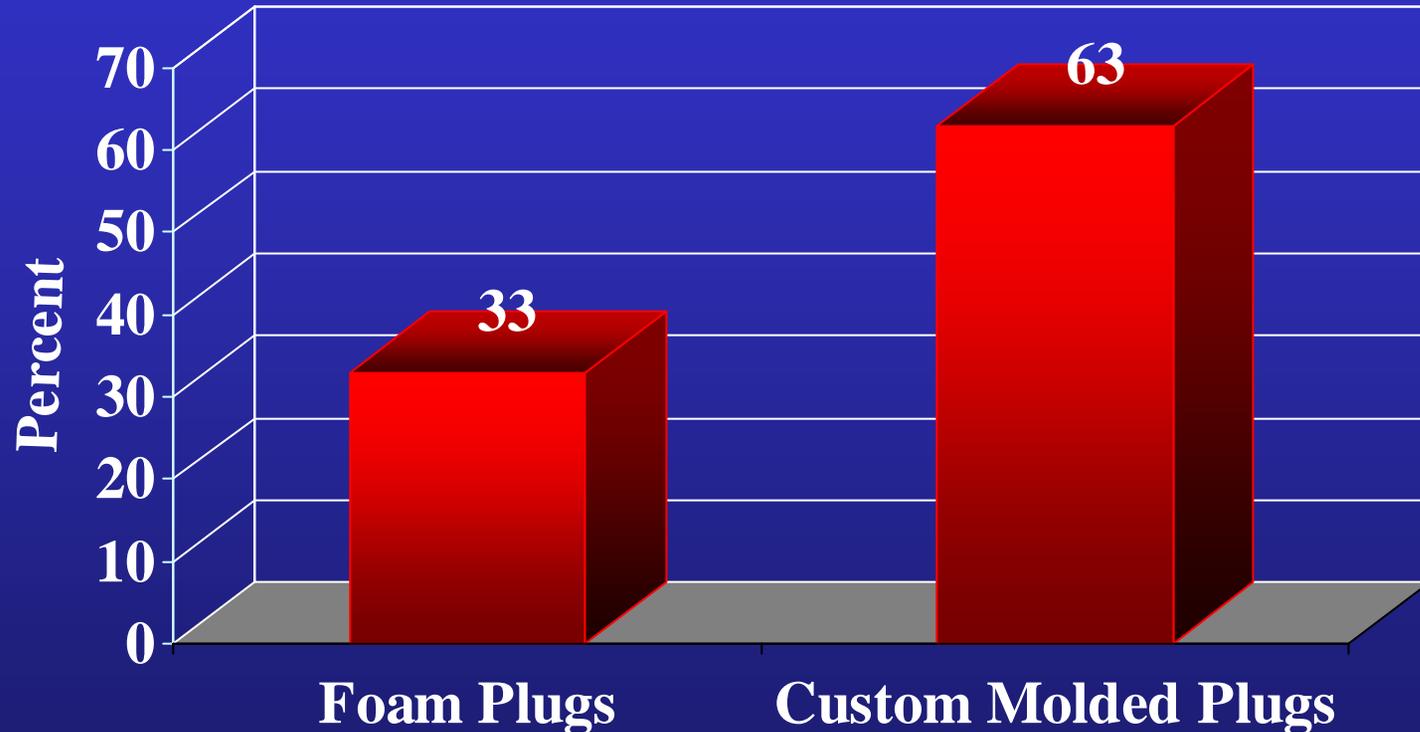


Behavioral intentions

Ability to hear warning sounds



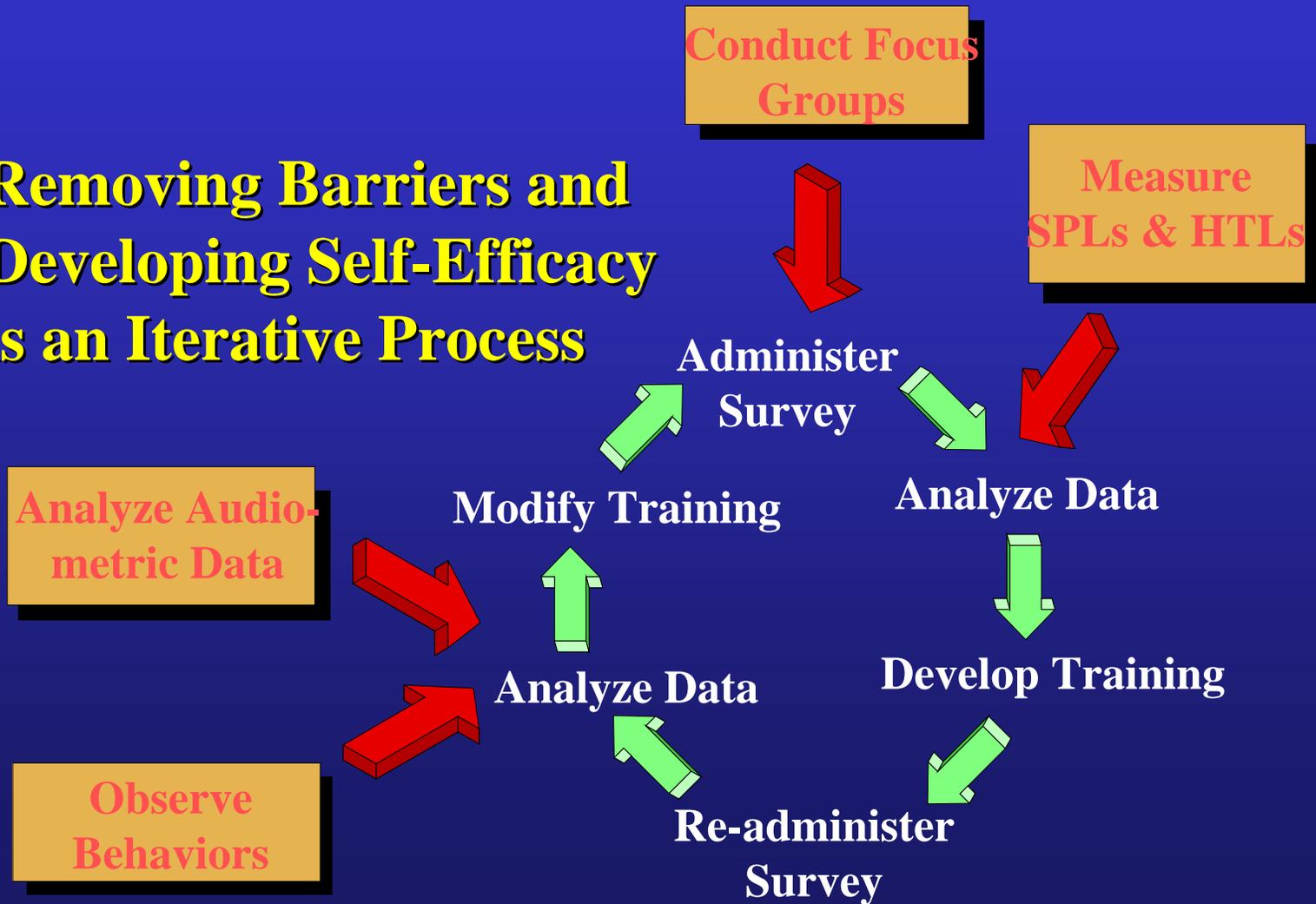
The Effect of Removing Barriers (Comfort and Convenience) Which Workers Stated Prevented Them From Wearing Plugs



Replacing foam ear plugs with custom-molded ear plugs nearly doubled the rate of use

How Do You Remove Barriers & Develop Workers' Self-Efficacy?

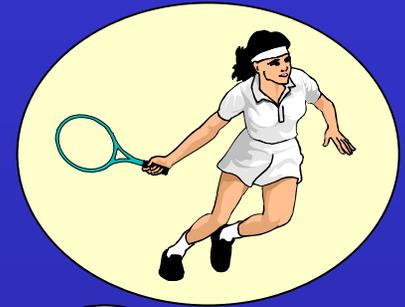
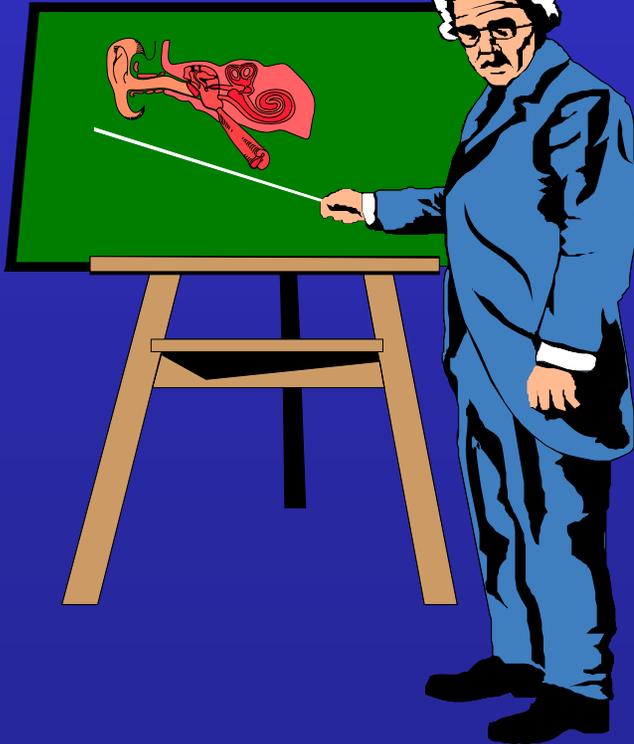
Removing Barriers and Developing Self-Efficacy is an Iterative Process





Education and Training Must NOT Just Fill a Square

Blah, blah, blah...
Blah, blah, blah...





Wise-Ears Web Links

www.nih.gov/nidcd/health/wise/



www.cdc.gov/niosh/noise



www.aearo.com



www.3m.com



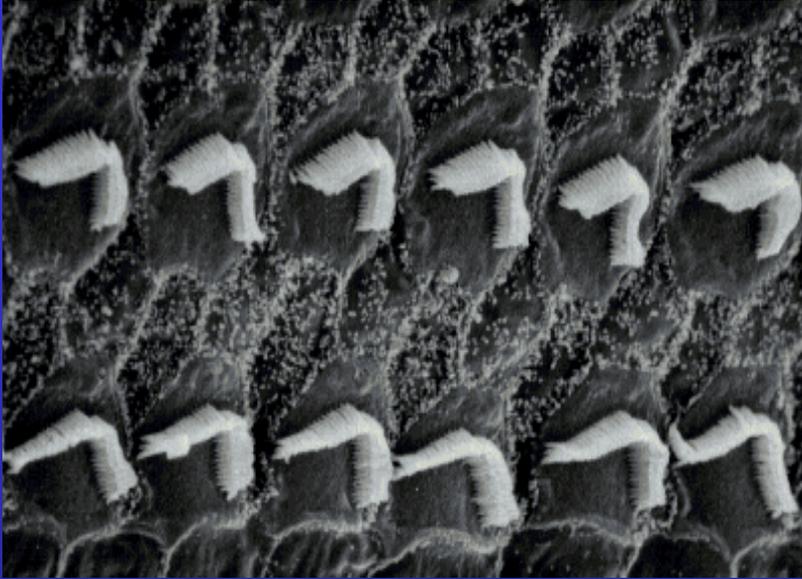
www.howardleight.com



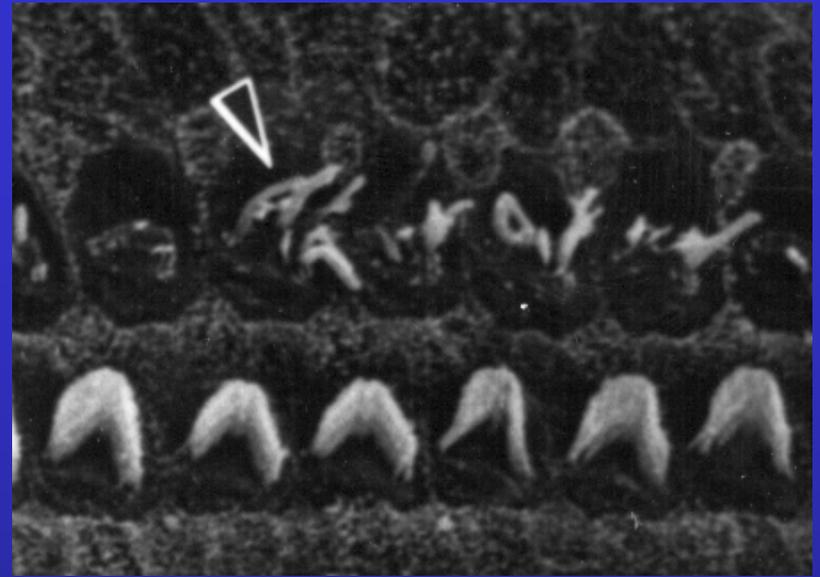
www.hearnet.com



www.hearingconservation.org



This is your ear.



This is your ear on noise.

ANY QUESTIONS?

NIOSH Toll-Free Number: (800) 35-NIOSH

<http://www.cdc.gov/niosh/homepage.html>

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