

Hearing Loss

DNA Health Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

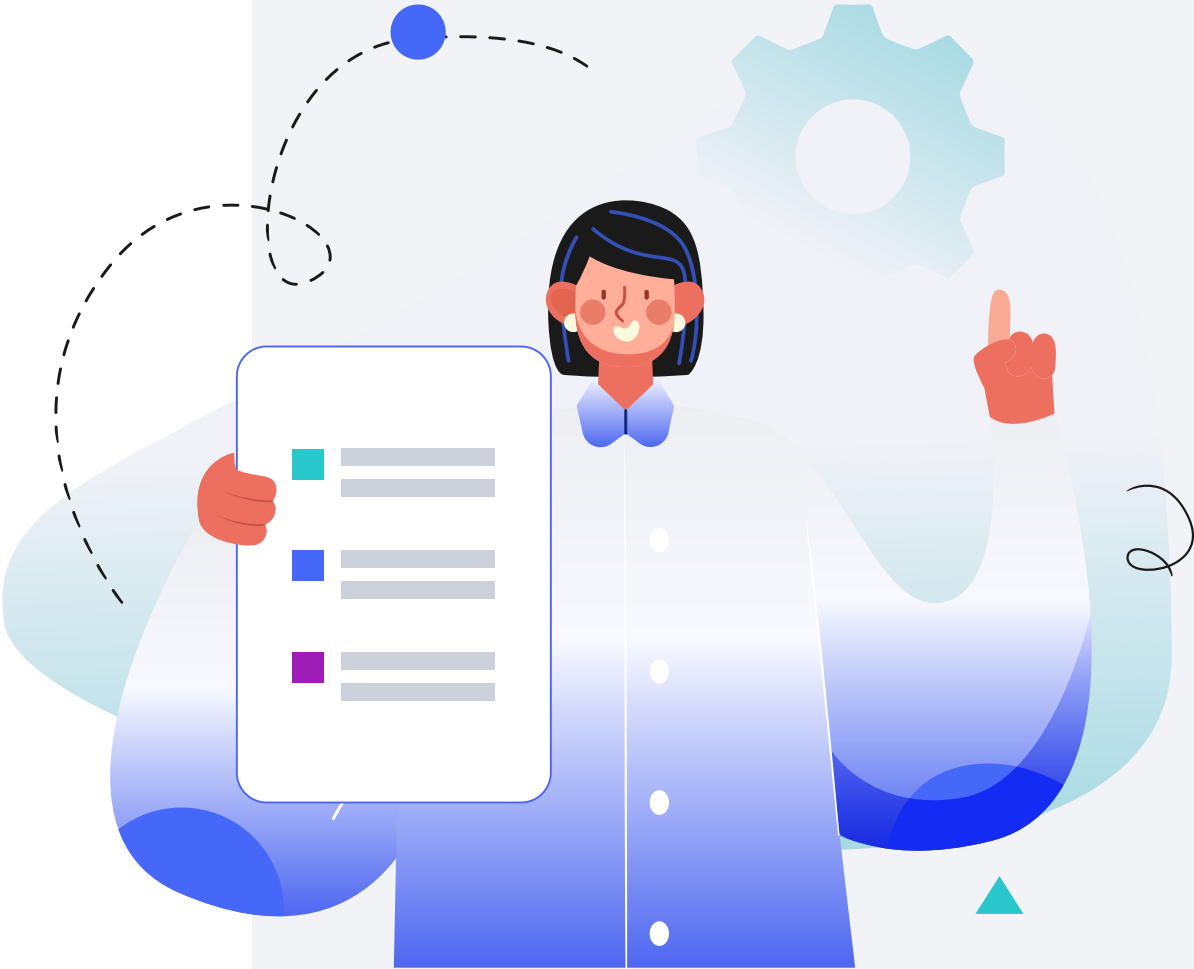
Male

HEIGHT

5ft 5" 165cm

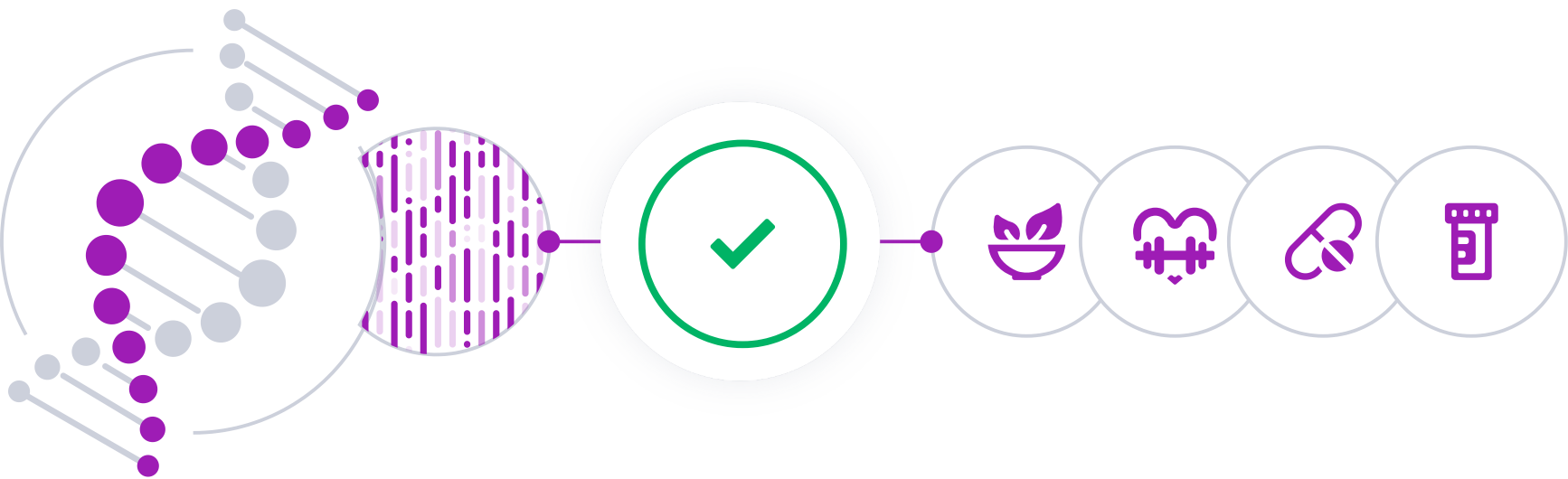
WEIGHT

137lb 62kg



How this works

Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.

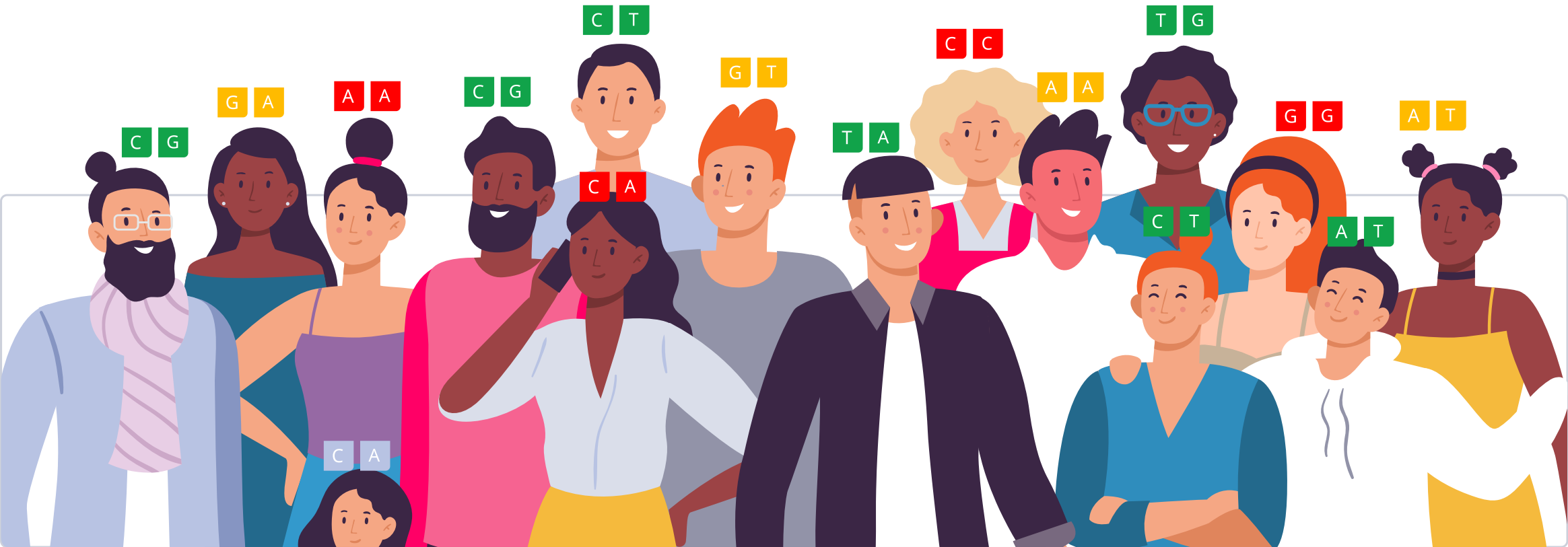


Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information.
We then summarize your results as a risk score or display it on a gauge.

In total, we analyze up to 83 million genetic variants.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

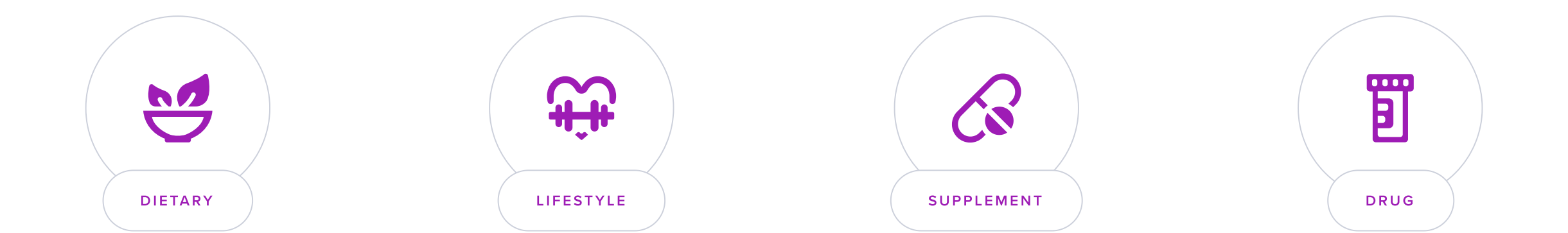
You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

Have you ever noticed that sounds are a little muffled the morning after you’ve been at a concert or in a nightclub?

This is because loud noises can cause temporary hearing loss.

At birth, the average person has around 16,000 tiny hairs inside their inner ear. Noise causes the hairs to bend, which sends ‘sound’ signals to our brain [R].

After a particularly loud noise, the hairs may become very bent but, like a blade of grass on a windy day, these hairs will typically straighten back out in a few hours or days [R].

While you can’t necessarily control the sound of music at a concert, you can in your headphones. To ensure you don’t damage your hearing, you should try and keep your music volume **between 60 and 85 decibels**.

But it can be tempting to crank up the volume of your favorite song, so if you do, make sure you don’t listen to music at 100 db for longer than 15 minutes [R].

On a side note, you should be able to access data about your sound exposure from headphones on your smartphone. For example, if you’re an iPhone user, you should be able to access this information in your health app [R].

While exposure to loud sounds puts us all at risk of hearing loss, some people may be more prone than others as a result of their genetics.

Several variants belonging to genes such as [GRHL2](#), [CDH23](#), [WHRN](#), [POLR1C](#), and [HSPA1L](#) may increase your risk of hearing loss after exposure to loud noises [R, R, R, R].

Read on to find out more about:

- **How your genetics play a role in hearing loss**
- **Your genetic risk score based on almost 500,000 genetic variants**
- **Personalized recommendations based on your genetics**

About Hearing Loss

Key Takeaways:

- Up to **35%** of differences in people's chances of losing their hearing may be due to genetics.
- Other risk factors include aging, loud noise exposure, and certain medications and health conditions.
- While being born with hearing loss is rare, about **50%** of people **aged 75** or older have disabling hearing loss.
- If your genetic risk is high, your overall risk may be lowered by protecting your hearing from excessive noise exposure.
- Click the **next steps** tab for relevant labs.

The ear is the organ that receives and starts to process sound waves. It is made up of the outer, middle, and inner ear [\[R\]](#).

The outer ear is the part you can see on the outside of your head. It also includes the **eardrum**. When sound waves reach it, the eardrum vibrates [\[R\]](#), [\[R\]](#), [\[R\]](#).

The middle ear transmits these vibrations to the inner ear. Specialized cells in the inner ear sense the vibrations and send signals to the brain [\[R\]](#), [\[R\]](#).

Hearing loss can happen because of [\[R\]](#), [\[R\]](#):

- Damage to the inner ear
- Buildup of earwax
- Blockage by infection or tumor
- Ruptured eardrum

Hearing loss is more common in older people. Less than 0.3% of children are born with measurable hearing loss. By contrast, about 50% of people aged 75 or older have disabling hearing loss [\[R\]](#).

Risk factors for hearing loss include [\[R\]](#):

- Aging
- Exposure to loud noises



MORE LIKELY

More likely to experience hearing loss based on **492,769** genetic variants we looked at



Your risk is greater than 85% of the population and lower than 15% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
STK17A	rs74963759	GG
CTBP2	rs10901863	CT
BTBD3	rs2144638	CG
/	rs749405486	AA
/	rs137960856	TT
TMPRSS3	rs727503493	TT
/	rs201291779	TT
IQCB1	rs2877561	AA
CCDC68	rs1344011	CT
ARHGEF28	rs6453022	AC
TYR	rs1126809	AG
ARHGEF28	rs2703636	CT
AHRR	rs190199516	TT
NCAPH2	rs200126237	GG
SLC26A5	rs141952919	AA
GTF2H5	rs138501510	CC
TRIOBP	rs200045032	GG
C10ORF90	rs139123090	GG
/	rs761934676	AA
MPZL2	rs74543584	TT
LOXHD1	rs118174674	CC
SH2D4B	rs12784122	GG
SYNJ2	rs146694394	CC
FSCN2	rs143796236	CC

- Some medications
- Some health conditions
- **Genetics**

People who are losing their hearing may have trouble understanding other people talking, especially in a crowd. They may also need to turn the music or the TV volume louder than in the past [\[R\]](#).

Hearing loss can change the way people interact with the world. Some people who lose their hearing may feel isolated and become depressed. Age-related hearing loss has also been linked to cognitive decline [\[R\]](#).

Treatment for hearing loss depends on its cause. For some, it may be as simple as removing a wax blockage. Other cases may need [\[R\]](#):

- Surgery
- Hearing aids
- Cochlear implants

Up to 35% of differences in people's chances of losing their hearing may be due to genetics. Genes involved in hearing loss may influence [\[R\]](#), [\[R\]](#):

- Cell survival in the inner ear
- Inner ear development
- Blood flow to the ear

GENE	SNP	GENOTYPE
KLHDC7B	rs36062310	GG
CDH23	rs143282422	GG
EYA4	rs9493627	GG
ABCC10	rs9394952	AA
CLRN2	rs13147559	CC
MPZL2	rs67307131	TT
TRIOBP	rs5756795	TT

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You'll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

DOSAGE		DOSAGE	
1	Avoid Loud Noises	2	Avoid Noise Pollution
3	Avoid Exposure To Toxic Chemicals	4	N-acetylcysteine (NAC)600 mg
5	Dietary B Vitamins	6	Ginkgo120 mg
7	Hyperbaric Oxygen Therapy90 minutes	8	Avoid Exposure to Heavy Metals
9	Avoid PCBs	10	Coenzyme Q10 (CoQ10)100 mg
11	Magnesium250 mg	12	Red Light Therapy20 minutes
13	Zinc15 mg	14	Vitamin B12100 mcg
15	Avoid Organochlorine Pesticide Exposure	16	Avoid PAHs Exposure
17	Avoid Perchlorate	18	Avoid Phthalate Exposure
19	Methionine200 mg	20	Astragalus500 mg
21	Avoid Exposure to Solvents	22	Hearing Aids
23	Auditory Training20 minutes	24	Sound Therapy30 minutes
25	Avoid Exposure To Organic Solvents	26	Methylfolate400 mcg
27	Avoid Lead Exposure		

1



Avoid Loud Noises

IMPACT

5 / 5

EVIDENCE

4 / 5

How to implement

Limit exposure to loud noises by keeping the volume down on personal audio devices, wearing earplugs at concerts or noisy work environments, and taking breaks in quiet areas when possible. Attempt to maintain noise levels below 85 decibels, especially for prolonged periods, to protect your hearing.

Description

Most sounds you’re exposed to daily are quiet. However, there are times when sounds can be uncomfortably loud. **Exposure to loud noise for long periods of time can damage the cells of the inner ear.** This may lead to hearing impairment and conditions like tinnitus.

Exposure to loud noises may damage the inner ear or the auditory nerve. This may lead to hearing impairment or conditions like tinnitus [\[R, R\]](#).

Potentially damaging noises can be anything at a volume **above 70 decibels** (dB). The louder the noise, the less time it takes to cause damage to your ear. For reference, some volume levels of common sounds include [\[R, R\]](#):

- Whispering (30 dB)
- Normal conversation (60-70 dB)
- Motorcycle (95 dB)
- Ambulance siren (110-129 dB)
- Fireworks, gunshots (140-165 dB)

How it helps

Exposure to loud noises may damage the inner ear and auditory nerve. This damage tends to make higher-pitched sounds, such as people’s voices, harder to hear. Common sources of loud noises include [\[R, R, R, R, R, R, R\]](#):

- Loud volumes on entertainment devices (e.g., phones, TVs, stereos, headphones)
- Certain recreational activities (e.g., hunting, rock concerts, riding snowmobiles)
- Workplace noise in certain jobs (e.g., construction, farming, and factory work)

Prevention is key to preserving hearing. By the time you notice hearing loss, many cells in your inner ear may be permanently damaged [\[R, R, R\]](#).

Tips for preventing hearing loss from loud noises include [\[R, R\]](#):

- Turning down the volume on TVs and headphones
- Taking regular breaks from loud noises
- Avoiding loud activities and places
- Using hearing protection when loud noises can’t be avoided

 PERSONALIZED TO YOUR GENES

People with your ***POLR1C*** gene variant may be more prone to hearing loss due to noise exposure [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
MAD2L1BP	rs11077	TG	

2

Avoid Noise Pollution

IMPACT4 / 5

EVIDENCE3 / 5

How to implement

Minimize exposure to loud environments by using noise-cancelling headphones or earplugs, especially in areas known for high noise levels such as construction sites, concerts, and busy urban streets. Aim to keep the volume of personal audio devices below 60% of their maximum. At home, use carpets, curtains, and wall fabrics to reduce indoor noise, and prefer quieter appliances. Try to dedicate at least one hour of quiet time before bed to aid in relaxation and improve sleep quality.

Description

Noise pollution refers to the presence of excessive, disruptive, or unwanted sound in the environment. It often includes sounds from traffic, industrial machinery, construction, loud music, and other sources that exceed acceptable or comfortable noise levels. Noise pollution disrupts normal activities and can have detrimental effects on human health, well-being, and the natural world.

Prolonged exposure to high noise levels can lead to a range of health issues, including:

- Stress
- Anxiety,
- Sleep disturbances
- High blood pressure
- Heart disease
- Impaired cognitive function

How it helps

Four studies of 455 participants associated exposure to metropolitan noise with hearing loss [\[R, R, R, R\]](#).

Similarly, occupational noise exposure was associated with hearing loss in 14 studies of 68,192 participants. Occupations linked to hearing loss included:

- Industrial workers (in cement plants, flour factories, gas-fired electric plants, bottling lines, textile plants, sawmills, and handlooms) [\[R, R, R, R, R, R, R, R\]](#)
- Traffic policemen and other outdoor urban workers [\[R, R\]](#)
- Bus and truck drivers [\[R, R\]](#)
- Auto body workshop workers [\[R\]](#)
- Airport workers [\[R\]](#)

3



Avoid Exposure To Toxic Chemicals

IMPACT

4 / 5

EVIDENCE

3 / 5

How to implement

To implement this recommendation, avoid using plastic containers for heating food in microwaves, choose personal care products that are free from parabens and phthalates, and use natural cleaning products whenever possible. When handling or being near chemicals such as pesticides or heavy-duty cleaners, wear protective gear such as gloves and masks. Try to reduce the use of products with strong chemical scents or aerosols. Aim to make these changes as a permanent part of your lifestyle to minimize toxic chemical exposure.

Description

Avoiding exposure to toxic chemicals, whether in household products or environmental contaminants, is crucial to prevent potential health issues, including respiratory problems, neurological effects, and long-term health risks.

Toxic chemicals are found everywhere. Short- and long-term exposure to them can be harmful to your health [\[R, R, R\]](#).

Short-term exposure may cause [\[R\]](#):

- Skin irritation
- Breathing problems
- Allergic reactions

Long-term exposure may contribute to [\[R, R\]](#):

- Liver problems
- Reproductive issues
- Hearing loss
- Cancer

Examples of common toxic chemicals include [\[R, R\]](#):

- Building materials (asbestos, formaldehyde)
- Heavy metals (lead, mercury, cadmium)
- Pesticides and herbicides (organochlorines)
- Industrial chemicals (nitriles, solvents, cleaners)

How it helps

Long-term exposure to **solvents** is linked to hearing loss. The risk may be even higher if solvent exposure is combined with loud noise exposure. This combined exposure is common in printing and aviation industries [\[R, R, R\]](#).

Exposure to **heavy metals like lead and cadmium** may also be linked to hearing loss [\[R, R, R, R, R, R, R\]](#).

Toxic chemicals may contribute to hearing loss by damaging [\[R, R\]](#):

- Structures in the inner ear
- Nerves that transmit sound



PERSONALIZED TO YOUR GENES

Lead exposure may have a stronger impact on hearing loss in people with your [VDR](#) gene variant [\[R\]](#).
People with your [VDR](#) gene variant may be more likely to experience hearing loss from lead exposure [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
VDR	rs1544410	CT	
GENE	SNP	GENOTYPE	EVIDENCE
VDR	rs2228570	GA	

4



N-acetylcysteine (NAC)

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE
600 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

[N-acetylcysteine](#) (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [\[R\]](#).

People take NAC to potentially support [\[R\]](#), [\[R\]](#):

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

N-acetylcysteine (NAC) may help with hearing loss from:

- Noise exposure [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Some medications [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Unknown causes (sudden hearing loss) [\[R\]](#)

However, NAC did not protect hearing in some studies [\[R\]](#), [\[R\]](#).

NAC may help by reducing oxidative stress [\[R\]](#).

In this study, 35 sudden deafness patients were treated with N-acetylcysteine (NAC) in Group A, while another 35 patients received corticosteroids and plasma expander in Group B. Both groups had similar baseline characteristics and the severity of sudden deafness. However, Group A showed significantly greater mean hearing improvement (43 dB vs. 21 dB) and a higher rate of hearing improvement (91% vs. 57%) compared to Group B. [\[R\]](#)

This double-blinded, placebo-controlled study investigated N-acetylcysteine (NAC) to prevent hearing loss in military personnel after weapons training. Of 566 participants, 277 received NAC, 289 received a placebo. While the primary outcome (threshold shifts) didn't differ significantly, a trend was observed in the right ear (p = 0.0562). Adverse events were similar. The secondary outcome for hearing loss in the trigger hand ear favored NAC, supported by post-hoc analysis. [\[R\]](#)

In a double-blind, placebo-controlled design with 31 participants, no significant differences were found between NAC and placebo groups in pure-tone thresholds and distortion product otoacoustic emissions (DPOAEs). The most notable threshold shift occurred at 4 kHz. DPOAE reductions were more common at 3 kHz, while pure-tone shifts were prevalent at 4 kHz. Overall, NAC didn't significantly prevent music-induced hearing changes in this study. [\[R\]](#)

5



Dietary B Vitamins

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Incorporate foods rich in B vitamins like whole grains, meat, eggs, dairy products, leafy green vegetables, beans, peas, and nuts into your daily meals. For a balanced intake, aim to include at least one serving of a B vitamin-rich food in each meal throughout the day.

Description

B-vitamins are a group of water-soluble vitamins that play essential roles in metabolism, energy production, and overall health. They include B1 (thiamine), B2 (riboflavin), B3 (niacin), B5 (pantothenic acid), B6 (pyridoxine), B7 (biotin), B9 (folate), and B12 (cobalamin).

B vitamins help the body function properly. Three examples are [vitamin B9 \(folate\)](#), [vitamin B12](#), and [vitamin B6](#). They play essential roles in heart, brain, and kidney health [\[R, R, R, R\]](#).

You can get these vitamins from [\[R, R, R\]](#):

- Animal products
- Green leafy vegetables
- Fortified foods
- Supplements

Every day, adults should be getting [\[R\]](#):

- **Folate:** 400 mcg
- **Vitamin B12:** 2.4 mcg
- **Vitamin B6:** 1.7 mg

Folic acid is a form of folate found in most supplements [\[R\]](#).

Folate deficiency is rare but can happen in people that don’t eat enough fruits and vegetables. Alcoholics and lactating mothers may also be at an increased risk [\[R\]](#).

Vitamin B12 deficiency often takes years to develop, as the body is able to store large amounts in the liver. Groups that may be at an increased risk include [\[R, R\]](#):

- Vegans
- Pregnant women
- Older people
- People with gut issues

People with kidney problems or gut issues may be at increased risk of vitamin B6 deficiency [\[R\]](#).

How it helps

Low levels of folate (vitamin B9) and vitamin B12 may be linked to an increased risk of hearing loss [\[R, R, R, R, R\]](#).

Getting enough folate and vitamin B12 may help reduce the risk of hearing loss [\[R, R\]](#).

B vitamins may help by [\[R, R, R\]](#):

- Reducing oxidative stress
- Supporting inner ear function



PERSONALIZED TO YOUR GENES

Your **MTHFR** gene variant is linked to hearing loss. People with this variant may have slightly lower folate levels. Getting enough folate may help reduce the risk of hearing loss [R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
MTHFR	rs1801133	AA	



Ginkgo



How to implement

Take 120 mg of Ginkgo supplement daily, preferably with meals to aid absorption. This dosage is typically split into two 60 mg doses taken in the morning and evening for best results.

TYPICAL STARTING DOSE

120 mg

Description

[Ginkgo](#) (*Ginkgo biloba*) is an ancient tree used in traditional Chinese medicine [R, R].

According to limited evidence, ginkgo leaf extract may help with [R, R, R, R]:

- Anxiety
- Dementia
- Eye problems
- Blood vessel problems
- Vitiligo

How it helps

Ginkgo extract (24-320 mg/day for up to 3 months, oral or intravenous) may help with sudden hearing loss, as part of an overall treatment plan [R, R, R, R].

Ginkgo may help by increasing blood flow in the ear. It may also protect the inner ear from oxidative stress [R, R].

However, ginkgo extract may not help with age-related hearing loss [R].

Please note: Do not consume ginkgo seeds or unprocessed ginkgo leaves. They are poisonous. Ginkgo may also interact with blood thinners. Consult your doctor before taking ginkgo supplements [R, R, R, R].

7



Hyperbaric Oxygen Therapy

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Schedule and attend sessions in a hyperbaric oxygen therapy chamber as your doctor prescribes, typically for about 60 to 90 minutes per session. The exact number of sessions required can vary based on the condition being treated, but it often ranges from 20 to 40 sessions, which may be conducted daily or a few times a week.

TYPICAL STARTING DOSE

90 minutes

Description

Hyperbaric oxygen therapy increases the amount of oxygen in the blood and tissues, which can help to improve circulation, reduce inflammation, and promote healing.

How it helps

Hyperbaric oxygen therapy may slightly improve hearing in people with idiopathic sudden hearing loss. When used as an add-on to conventional therapy, it may enhance its effectiveness [\[R\]](#), [\[R\]](#), [\[R\]](#).

Hyperbaric oxygen therapy may be as effective as intratympanic steroid injections [\[R\]](#), [\[R\]](#).

Please note: Hyperbaric oxygen therapy is a potentially dangerous procedure that should only be performed under medical supervision. People with pneumothorax or congestive heart failure are at especially high risk of adverse effects. Because highly concentrated oxygen can easily catch on fire, avoid potential fire sources around hyperbaric oxygen chambers, oxygen gas cylinders, tanks, and concentrators [\[R\]](#), [\[R\]](#).

8



Avoid Exposure to Heavy Metals

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

To avoid exposure to heavy metals, ensure you're not using cosmetic products with heavy metals, opt for organic foods to minimize pesticide exposure, and use filters for drinking water to remove possible contaminants. Check for lead-based paints in older homes and avoid cooking or storing food in uncoated metal containers. When possible, choose glass or BPA-free plastics instead.

Description

Heavy metals are elements naturally found in the environment. They are also used for agricultural, industrial, and medicinal purposes. Some can even be found in small amounts in your body [\[R\]](#), [\[R\]](#).

Long-term exposure to high amounts of heavy metals can be harmful to your health [\[R\]](#), [\[R\]](#).

Heavy metals that are most often linked to health problems include [\[R\]](#), [\[R\]](#):

- Lead
- Cadmium
- Arsenic
- Chromium
- Mercury

How it helps

A meta-analysis of 49 studies found that exposure to cadmium, lead, and mixtures of heavy metals induce auditory dysfunction [\[R\]](#).

A study of 466 people found that those with hearing difficulties had higher levels of urinary cobalt, molybdenum, and strontium [\[R\]](#).

A study of 30,072 workers found that hearing loss increments with occupational noise were 1.64-fold higher in individuals exposed to heavy metals [\[R\]](#).

Heavy metals may damage the auditory system.

9



Avoid PCBs

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

To avoid PCBs (Polychlorinated Biphenyls), do not use old electrical equipment manufactured before 1977, avoid consuming fish from contaminated waters, especially larger species such as shark and swordfish which are higher in the food chain, and check for and properly dispose of any old fluorescent lighting fixtures that may contain PCBs. Pay attention to local advisories regarding the safety of locally caught fish and wildlife.

Description

PCBs are toxic chemicals that can cause cancer, reproductive problems, and developmental problems. Avoiding exposure to PCBs is important for protecting your health.

Polychlorinated biphenyls (PCBs) are man-made chemicals. They were used in the industry until their **ban in 1979**. PCBs are considered **persistent organic pollutants** (POPS) due to their slow degradation in the environment. They may also **accumulate** in the food chain and the human body [\[R\]](#), [\[R\]](#).

We may be exposed to PCBs through contaminated [\[R\]](#), [\[R\]](#):

- **Food** (e.g., fish, meat, rice)
- Soil
- Air

PCBs may have toxic effects on [\[R\]](#), [\[R\]](#):

- Immunity
- Nervous system
- Reproductive system
- Hormone levels

They may also increase the risk of cancer and reduce lifespan [\[R\]](#), [\[R\]](#).

How it helps

Avoiding PCBs (polychlorinated biphenyls) can benefit individuals with hearing loss as these chemicals may aggravate the condition. PCBs can potentially damage the auditory nerve leading to worsening of hearing, particularly in individuals already experiencing hearing loss.

A [study of 1946 participants](#) associated high levels of **PCB-170, PCB-180, PCB-187, PCB-194, and PCB-196** with respectively **5.83-, 7.79-, 7.46-, 8.59-, and 11.62-fold higher risk of hearing impairment** [\[R\]](#).

10



Coenzyme Q10 (CoQ10)

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take a 100 mg Coenzyme Q10 (CoQ10) supplement once daily with a meal that contains fat for better absorption.

TYPICAL STARTING DOSE

100 mg

Description

Coenzyme Q10 (CoQ10) is a naturally occurring antioxidant that plays a crucial role in cellular energy production. It is often taken as a supplement to support heart health, improve energy levels, and provide antioxidant protection, especially for individuals with certain medical conditions or as they age.

[Coenzyme Q10](#) (CoQ10) is a compound that helps enzymes work better. By doing so, CoQ10 helps improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Energy levels
- Antioxidant protection
- Heart health
- Muscle strength
- Blood sugar control

The amount of CoQ10 made by your body decreases as you get older. Luckily, you can also get it from food or supplements. Good sources of CoQ10 include [\[R\]](#), [\[R\]](#):

- Organ meats
- Fatty fish
- Whole grains

How it helps

Coenzyme Q10 (160-200 mg/day for 7-30 days) may support hearing. It may help with hearing loss from noise exposure and aging [\[R\]](#), [\[R\]](#), [\[R\]](#).

CoQ10 may also have some beneficial effects for sudden hearing loss when combined with medication [\[R\]](#).

It may help by reducing oxidative stress [\[R\]](#).

Please note: *CoQ10 may reduce the effectiveness of blood thinners such as warfarin. Talk to your doctor before taking CoQ10* [\[R\]](#).

11



Magnesium

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take up to 350 mg of magnesium daily as a supplement, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

250 mg

Description

Magnesium is an essential mineral involved in various bodily functions, including muscle contractions, nerve signaling, and bone health. Maintaining adequate magnesium levels through diet or supplements can support overall well-being and reduce the risk of magnesium deficiency-related health issues.

[Magnesium](#) is an essential mineral. Your body needs it for [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Muscle, nerve, and bone function
- Blood sugar and blood pressure control
- DNA and protein production
- Strong immunity

Women need **310-320 mg** of magnesium per day, while men need **400-420 mg** [\[R\]](#).

Foods rich in magnesium include **nuts, seeds, and leafy greens**. Magnesium is also available as a supplement [\[R\]](#).

How it helps

Magnesium (167 mg/day for up to 2 months) may protect hearing after exposure to loud noise. It may also improve hearing in people with sudden hearing loss [\[R\]](#), [\[R\]](#), [\[R\]](#).

Magnesium may help by supporting [\[R\]](#):

- Blood flow in the ear
- Inner ear cell function

12



Red Light Therapy

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Position yourself or the specific area of your body that needs treatment about 6 inches away from a red light therapy device. Use the device for 10 to 20 minutes daily. It is recommended to continue this daily regimen for at least several weeks to notice benefits.

TYPICAL STARTING DOSE

20 minutes

Description

Red light therapy involves exposure to low-level red or near-infrared light, which may promote skin rejuvenation, reduce inflammation, and improve circulation when used for therapeutic purposes in skin care and wellness treatments.

How it helps

A systematic review of 1 human study (30 participants) and 16 animal studies concluded that photobiomodulation improves hearing loss. Photobiomodulation may be most effective when using wavelengths of 800-830 nm and when increasing exposure time [\[R\]](#).

13



Zinc

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Take a 15 mg zinc supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

15 mg

Description

Zinc is an essential mineral found in various foods, including meat, dairy, and nuts. It is crucial for immune function, wound healing, DNA synthesis, and maintaining healthy skin and nails. Zinc supplements are sometimes used to support immune health and manage zinc deficiencies.

[Zinc](#) is an essential mineral. Your body needs it to [\[R\]](#), [\[R\]](#):

- Defend against disease
- Protect DNA from damage
- Heal wounds
- Control blood sugar

Some of the best sources of zinc include **shellfish, pork, beef, and beans**. It is also available as a supplement [\[R\]](#).

Adults should get **8-11 mg of zinc** per day [\[R\]](#).

How it helps

In a placebo-controlled trial of 66 patients with sudden hearing loss, supplementation with zinc enhanced hearing recovery. However, zinc had no added benefit over standard treatment alone in another trial [\[R\]](#), [\[R\]](#).

How to implement

TYPICAL STARTING DOSE
100 mcg

Description

- Building DNA
- Nervous system function
- Energy production

- Animal products (meat, fish, eggs, and dairy)
- Fortified foods
- Supplements

How it helps

Vitamin B12 may help by protecting the nerves in the inner ear.

15

Avoid Organochlorine Pesticide Exposure

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Minimize exposure by choosing organic fruits and vegetables, thoroughly washing produce before consumption, and avoiding areas where organochlorine pesticides are applied. Consider using air purifiers in homes close to agricultural areas to reduce indoor pesticide levels.

Description

Reducing organochlorine pesticide exposure involves minimizing contact with pesticides like DDT, which can accumulate in the body and potentially lead to adverse health effects, including disruption of hormonal functions and carcinogenicity.

How it helps

Reducing exposure to organochlorine pesticides could prevent potential damage to the nerves in your ears. These chemicals have been associated with neurotoxic effects, which can lead to hearing impairment by damaging the neurons that transmit sound signals.

A [study of 366 participants](#) associated high **HCB with a 4.38-fold higher risk of hearing loss, while p,p'-DDE increased it by 16.6-fold** [\[R\]](#).

16

Avoid PAHs Exposure

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Minimize your exposure to Polycyclic Aromatic Hydrocarbons (PAHs) by avoiding or reducing consumption of charred, grilled, or smoked foods, not smoking or avoiding secondhand smoke, and limiting time spent in areas with heavy traffic or industrial fumes. Use exhaust fans in kitchens and ensure proper ventilation when cooking at high temperatures to reduce indoor levels of PAHs.

Description

PAHs or Polycyclic Aromatic Hydrocarbons are harmful substances found in smoke and grilled foods. Try to limit exposure to them for better health. For example, avoid inhaling smoke from cigarettes or barbeques and choose alternative cooking techniques over grilling. Minimizing PAHs can reduce the risk of several health issues, particularly lung and skin diseases.

How it helps

A study of 4200 adults and 1337 adolescents associated PAH exposure with hearing loss in both populations [\[R\]](#).

PAHs may damage the auditory nerve, causing or exacerbating hearing impairment.

17



Avoid Perchlorate

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

To avoid perchlorate, check water quality reports for your area to ensure your drinking water does not contain high levels of perchlorate. Also, limit consumption of foods known to have higher perchlorate levels, such as leafy green vegetables, dairy products, and fruits, or opt for organic versions of these foods as organic farming standards restrict certain chemicals.

Description

Perchlorate is a chemical that can interfere with the thyroid gland's ability to produce thyroid hormone. This can lead to a variety of health problems, including hypothyroidism, developmental delays, and cancer. Avoiding perchlorate can help to protect your health.

How it helps

A study of 5560 participants associated high urinary perchlorate with a 27% higher risk of hearing difficulties [\[R\]](#).

Perchlorate can disrupt thyroid hormone production, which is vital for the inner ear's development and function.

18



Avoid Phthalate Exposure

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

To avoid phthalate exposure, check product labels and choose phthalate-free options for personal care items, plastics (look for recycling codes 3 and 7 or the letters 'V' or 'PVC'), and household products. Additionally, reduce the use of plastic containers for food storage, especially those not marked as 'phthalate-free', and avoid microwaving food in plastic containers. Aim to make these changes consistently in your daily life for long-term health benefits.

Description

Avoiding phthalate exposure involves choosing phthalate-free products, such as personal care items and plastics, to minimize potential endocrine-disrupting effects and protect reproductive and hormonal health.

How it helps

American adults aged 20-69 (n=5560), NHANES, Urinary heavy metals, phthalates [OR = 1.27], perchlorate, nitrate, thiocyanate, hydrocarbons, and polyfluorinated compounds were associated with the adult hearing disturbance, although the causality cannot be established [\[R\]](#).

19



Methionine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a methionine supplement in the form of SAdMe at 200-400mg daily, with water, preferably on an empty stomach to enhance absorption. It's recommended to start with a lower dose and gradually increase as needed. Consult with a healthcare provider for personalized advice, especially if you have other medical conditions or are taking medications.

TYPICAL STARTING DOSE

200 mg

Description

Methionine is an essential amino acid found in various protein-rich foods. It plays a crucial role in protein synthesis and liver function and is important for overall health.

1. A **methionine supplement** can vary depending on which source is utilized to boost methionine levels. One or more of the following options can be taken to boost methionine levels:
- a. SAdMe or S-Adenosyl-Methionine can be taken in doses starting at 200 mg/day. It is sometimes recommended to take with the other two supplements to promote absorption.

b. TMG (Betaine) or trimethylglycine supplements are made from the byproducts of sugar beet processing. Typically, it is offered in 500-1000 mg capsules.

c. Methylfolate is the biologically active form of folate (vitamin B9) and typically offered in dosages of 7.5-15 mg.

Note: excessive levels of methylfolate can cause adverse reactions like anxiety and sore joints and muscles. Speak with your doctor before using a methionine supplement.

How it helps

In a placebo-controlled trial of 27 cancer patients, supplementation with D-methionine before each cisplatin dose reduced ear toxicity, potentially helping prevent hearing loss [\[R\]](#).

20



Astragalus

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a 500 mg astragalus supplement once daily with a meal. Continue this regimen for at least 4 to 6 weeks to evaluate its effectiveness on your overall health.

TYPICAL STARTING DOSE

500 mg

Description

Astragalus is an herb used in traditional Chinese medicine. It is believed to have immune-boosting properties and may help reduce stress and support overall vitality.

[Astragalus](#) (*Astragalus membranaceus*) is an herb used in traditional Chinese medicine. It is commonly used for “tonifying Qi” or fatigue. It may help [\[R\]](#), [\[R\]](#):

- Reduce inflammation
- Fight [oxidative stress](#)

Astragalus root is a staple of traditional Chinese medicine, where it is also known as *Huang Qi*.

How it helps

Astragalus is known to have anti-inflammatory properties and antioxidants which may help protect and improve nerve function, potentially aiding against hearing loss. However, there's limited scientific research precisely connecting Astragalus supplementation to hearing loss improvement.

21



Avoid Exposure to Solvents

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Wear protective gloves and masks when using solvent-based products such as paint thinners, degreasers, or nail polish removers. Ensure adequate ventilation by working outdoors or in well-ventilated areas whenever possible. Seek solvent-free or low-VOC (Volatile Organic Compounds) alternatives for household and professional use.

Description

Avoiding exposure to organic solvents, often found in cleaning products and industrial settings, can reduce the risk of potential health issues such as respiratory problems and skin irritation. Implementing safety measures and proper ventilation helps minimize contact with these chemicals.

How it helps

Avoiding exposure to solvents can prevent further hearing loss. This is because certain chemical solvents are ototoxic, meaning they are harmful to the ear, and can cause damage to the auditory system when inhaled or absorbed through the skin.

22



Hearing Aids

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Wear your hearing aids daily, starting from the morning and remove them before bedtime to rest your ears and allow the device to dry. It's recommended to gradually increase wearing time over the first few weeks to adjust comfortably. Ensure proper maintenance by cleaning them as per the manufacturer's instructions.

Description

Hearing aids are devices designed to assist individuals with hearing loss. They can significantly improve communication, quality of life, and mental well-being for those with hearing impairments.

How it helps

Hearing aids amplify sounds, making it easier for people with hearing loss to hear the sounds around them more clearly. They can drastically improve most individuals' ability to communicate and interact with others, enhancing their overall quality of life.

23



Auditory Training

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Engage in auditory training exercises for 15-20 minutes daily. These exercises can include using computer programs or apps designed to improve listening skills, practicing listening to audiobooks with varying speeds and pitches, or working with a therapist trained in auditory processing. Continue this practice for at least 3 to 6 months to notice improvements in auditory processing skills.

TYPICAL STARTING DOSE

20 minutes

Description

Auditory training involves exercises and activities designed to improve auditory processing skills, often used in individuals with hearing difficulties or language processing disorders to enhance listening and communication abilities.

How it helps

Auditory training can help strengthen your brain's ability to process sound, which can improve your hearing abilities. Moreover, by regularly exposing yourself to various sounds and working to understand them, you may slow the progression of your hearing loss.

24



Sound Therapy

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Engage in sound therapy sessions by listening to calming and therapeutic sounds for at least 30 minutes a day. You can do this by using apps that offer sound therapy tracks, attending sound therapy workshops, or using sound therapy machines at home. Try to incorporate this practice into your daily routine for a continuous period to observe benefits.

TYPICAL STARTING DOSE

30 minutes

Description

Sound therapy involves the use of sound frequencies, music, or specific sounds to promote relaxation, reduce stress, and alter how a person experiences sound.

Sound therapy changes the way a person experiences tinnitus by exposing them to different sounds [\[R, R, R\]](#).

Sound therapy uses **hearing aids** and different **sound-masking devices** [\[R, R, R\]](#).

How it helps

Sound therapy can be used to retrain the brain to better process sounds, which might be beneficial for those with tinnitus or hearing difficulties.

25



Avoid Exposure To Organic Solvents

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Ensure to work in well-ventilated areas and wear protective gear when handling products like paints, varnishes, and adhesives. When possible, choose solvent-free or water-based products to minimize exposure. Regularly check labels for any solvents listed and strive to limit their use in both personal and professional settings.

Description

Avoiding exposure to organic solvents, commonly found in paints, adhesives, and cleaning products, can protect against the potential health risks associated with inhalation or skin contact, such as respiratory issues and skin irritation.

Organic solvents are used in various industries and workplaces for tasks like cleaning, painting, and manufacturing.

However, their use can be hazardous to workers' health. Exposure to these solvents can lead to problems such as breathing difficulties, skin irritation, and reduced fertility [\[R\]](#).

How it helps

Chronic exposure to certain chemicals, including organic solvents, can be ototoxic and worsen hearing loss. Avoiding these can help prevent further damage.

26



Methylfolate

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take an L-methyl folate supplement (400-800 micrograms daily), ideally with a meal, to improve absorption. This dosage is recommended for adults, including pregnant women, to support overall health, especially to reduce the risk of neural tube defects in developing fetuses. Continue daily use as part of your regular supplement routine.

TYPICAL STARTING DOSE

400 mcg

Description

Folate, a B-vitamin, is crucial for DNA synthesis, cell growth, and the formation of red blood cells. Adequate folate intake supports overall health and reduces the risk of neural tube defects during pregnancy.

[Vitamin B9](#) (*folate*) plays an essential role in [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Making DNA
- Metabolism
- Energy production

SelfDecode recommends L-methylfolate as the preferred folate supplement for those who need one. It is superior to folic acid because it doesn't require activation, but the research is still ongoing [\[R\]](#), [\[R\]](#).

How it helps

Folate, a type of B vitamin, helps maintain and generate new cells in the body, including those in the inner ear responsible for hearing. Deficiencies could lead to hearing loss, so supplementing may help prevent further deterioration, but it won't restore or cure existing hearing loss.

27



Avoid Lead Exposure

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Prevent lead exposure by using cold water for drinking and cooking, regularly cleaning dust from windowsills and floors, and ensuring that your home's paint is not chipping if it was built before 1978. For occupations involving potential lead exposure, use protective gear and follow safety protocols. Test your home for lead if it's old or you're concerned about contamination.

Description

Lead is a heavy metal. It is naturally found in the environment in small amounts [\[R, R\]](#).

Exposure to lead can cause it to build up in the body. A buildup of lead can contribute to oxidative stress and cell damage. This is called **lead poisoning** [\[R, R\]](#).

Lead is no longer used in the manufacturing of some products like gasoline and paint. However, it can still be found in some pipes, batteries, and the wall paint of older homes [\[R, R, R\]](#).

How it helps

Decreasing lead exposure can minimize chances of hearing loss because lead can affect the nerves in the ear responsible for sound transmission. By avoiding lead, you'll protect these nerves and possibly prevent or slow the progression of hearing loss.

Next Steps

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

