

# The Curious Link Between Dementia and Sensory Impairments

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## STORY AT-A-GLANCE

- › Dementia is not a normal part of aging, yet cases are increasing today. By 2060, an estimated 14 million adults over 65 will have dementia, nearly triple the number from a decade ago
- › Sensory impairments, particularly hearing and vision loss, are associated with increased dementia risk. Addressing these issues early could help reduce your risk of cognitive decline
- › Using hearing aids decreases the risk of cognitive decline by 19% and improves cognitive test scores by 3%, according to recent studies
- › Protecting your eye health involves proper nutrition. Carotenoids like lutein and zeaxanthin, and the antioxidant astaxanthin have significant benefits for both vision and brain health
- › Modifiable risk factors for dementia include smoking, excessive alcohol consumption, physical inactivity and poor diet. Addressing these factors can prevent up to 45% of dementia cases

**Dementia is not a normal part of aging, contrary to what some people believe. In fact, many healthy individuals live their entire lives without developing any form of dementia – yet today, more and more people are gradually experiencing poor cognitive function as they age.**

According to the U.S. Centers for Disease Control and Prevention (CDC),<sup>1</sup> the number of dementia cases among adults 65 years and older is expected to balloon to 14 million by 2060 – that’s nearly a threefold increase from 10 years ago. This makes it even more important to implement strategies that may help protect against this disease.

In August 2024, The Lancet journal<sup>2</sup> released a report detailing new evidence about dementia care and prevention, identifying some modifiable risk factors. According to the report, sensory impairments, even those that are mild to moderate, are associated with developing dementia later in life.

## **Hearing Loss Identified as a Risk Factor for Dementia**

Hearing loss or "presbycusis" is one of the risk factors listed by the featured report. An estimated 20% of people worldwide suffer from this condition, and of those affected, 62% are around 50 years old or older.<sup>3</sup>

The study authors looked at five meta-analyses and determined that all found a link between hearing loss and dementia. The meta-analyses also indicate that as hearing loss progresses, the dementia risk becomes higher, saying that "the magnitude of this risk increase varied between studies, from a 4% increase to a 24% increase in dementia risk per 10 dB [decibels] decrease in hearing ability."<sup>4</sup>

A separate review published in the Neuroscientist journal<sup>5</sup> looked at the sensory impairments associated with dementia, and pinpointed several mechanisms by which hearing loss may lead to cognitive decline. These include brain changes in the hearing pathway and mental overload that occurs when a hard-of-hearing person strains to understand what’s being said. According to the researchers:

*"We have suggested that increased activity in medial temporal lobe mechanisms for auditory cognition during real-world listening, acting to compensate for peripheral hearing loss, might augment the early pathologic mechanisms for AD [Alzheimer’s disease] in the same areas.*

*Other rodent work has shown that increased external auditory stimulation improves spatial cognition and decreases amyloid deposition in the auditory cortex and hippocampus in a genetic mouse model of AD."*<sup>6</sup>

## **The Lancet Adds Vision Loss to Its List of Modifiable Risk Factors**

The Lancet report also included vision loss as a sensory impairment associated with dementia. This addition was done after they acquired "considerable new evidence" connecting these two conditions. Based on their findings, nearly 2% of dementia cases were linked to having untreated vision loss in a person's senior years.<sup>7</sup> The study authors explained:

*"This evidence includes a meta-analysis of 14 prospective cohort studies, with follow-up of 3.7 to 14.5 years, including 6,204,827 older adults who were cognitively intact at baseline, of whom 171,888 developed dementia. Vision loss was associated with a pooled RR [relative risk] for dementia of 1.47."*<sup>8</sup>

In 2023, a review published in the International Journal of Molecular Sciences noted that glaucoma,<sup>9</sup> the second-leading cause of blindness worldwide, shares some biomarkers with Alzheimer's disease.

According to the researchers, "[t]he pathophysiological process underlying AD is in many aspects similar to that of glaucoma. Numerous epidemiological studies using immunohistochemical and animal data support the link between the two diseases."<sup>10</sup>

## **The 'Use It or Lose It' Principle Applies to Brain Tissue**

In an article published in The New York Times,<sup>11</sup> the researchers provided a simple explanation as to why sensory impairments may be associated with dementia, and it has something to do with how you use your brain tissue.

Basically, if you have sensory loss, there's less input coming into your brain. As a result, your brain undergoes less stimulation, which can lead to more atrophy – this means you either use your brain tissue or you lose it. As reported in The New York Times:

*"The area of the brain that processes auditory information is close to the region most affected by Alzheimer's disease, suggesting there may be an anatomical connection. Visual information is fed into another part of the brain, but how we use that information activates many different regions.*

*'As you've reduced activation of certain areas of the brain, you get faster rates of atrophy there to some degree,' said Dr. Frank Lin, a professor of otolaryngology at the Johns Hopkins University School of Medicine. 'Which you can imagine has cascading effects on other areas of brain function and structure, as well.'*<sup>12</sup>

Sensory impairments during adulthood can also lead to social withdrawal, as many people who struggle with these disorders tend to stop engaging with others. This increases loneliness, which is also a risk factor for dementia.

Dr. Gill Livingston, a professor of psychiatry at University College London and the lead author of The Lancet report, shares that people who are in the early stages of dementia may also develop symptoms faster when they lose their sense of hearing or vision. This is because they typically use up more brain power when trying to recognize blurry vision or garbled sounds, leaving fewer resources for everyday memory and cognition.<sup>13</sup>

She also highlights the importance of addressing these sensory impairments early on, to reduce your dementia risk. Dementia has currently no known treatment or cure, which is why understanding the link between these two modifiable risk factors and dementia may help researchers develop new management or treatment strategies.

*"Some people will still develop dementia, but if they address these risks they should have a longer, healthier life and will not have dementia for such a long time," Livingston explains. "It's never too early or too late to take action, with opportunities to make an impact at any stage of life."*<sup>14</sup>

## Excessive Noise Can Lead to Hearing Loss

Your sense of hearing can deteriorate naturally and may even start during early adulthood. There are numerous factors that may lead to this condition, although in some people, the deterioration occurs faster, possibly due to genetics or, more commonly, constant exposure to noise and loud sounds.

"Isolation and Dementia – Why We Should Protect Our Ears," a documentary from the German broadcaster, Deutsche Welle (DW), embedded above, tackles the topic of hearing damage brought on by noise pollution. It highlights some of the day-to-day situations wherein people are inevitably exposed to excessive amounts of noise – working in nightclubs, busy kitchens and even doing landscape work, and how it has affected their health.

Thomas Sünder, a 49-year-old who worked as a full-time DJ, shares how his health gradually deteriorated after being exposed to over 100 decibels of continuous noise and music every night. He suddenly collapsed due to a severe vertigo attack in the middle of a gig. Soon after, he experienced tinnitus (a ringing sound in the ear), followed by sudden hearing loss.

"I woke up and suddenly felt like I had cotton in my ear. But there was none, and everything was muffled on one side," he said. As a result, he can no longer stand staying in places with too much noise. Even while wearing custom ear plugs for protection, he says the noise in the club is still unbearable. "It's so loud that my body is reacting and I'm nervous about my ears, because my ears are already my weak point and it makes me super uncomfortable," he shares.

Sünder's condition isn't an isolated case. In fact, more than 1 billion people worldwide are now at high risk of hearing loss due to constant exposure to noise pollution.<sup>15</sup> And when hearing loss occurs, brain deterioration follows.

Dr. Bernhard Junge-Hülsing, an ear, nose, and throat specialist, explains that your brain deteriorates faster if you can't hear well. It also deteriorates when you're not interacting with others or are not participating in life. As explained in the documentary:

*"Our auditory center works like a muscle that needs to be trained. New auditory impressions cause a constant adjustment in the brain. However, this means that if the auditory system is no longer activated with new impulses, the 'muscle' becomes paralyzed. This could even lead to dementia."*

## **Using Hearing Aids May Help Protect Your Cognitive Health**

Sünder has since quit being a DJ and is now working as a hearing aid acoustician in Hamburg, helping other people who are also dealing with hearing loss. He also assists people in finding the appropriate hearing restorative devices to improve their hearing. With modern technology now coming up with better designs and more sophisticated modifications, there could soon be more efficient ways for these devices to address functional hearing loss.

In the U.S., around 38 million adults are dealing with hearing loss; 29 million of them could benefit from using hearing aids.<sup>16</sup> What's more, studies have found that using these tools may help with brain health, protecting against the onset of dementia.

A 2023 meta-analysis published in the journal JAMA Neurology found that using hearing restorative devices led to a 19% decrease in risk factors related to cognitive decline, and a 3% improvement in cognitive test scores.<sup>17</sup>

Similar findings were seen during a three-year, multicenter, randomized controlled trial, dubbed the Aging and Cognitive Health Evaluation in Elders (ACHIEVE) study.<sup>18</sup> They found that in populations who are at high risk of cognitive decline, those who wore hearing restorative devices for three years had less cognitive decline versus those who didn't use these tools. The researchers concluded:

*"Results from the ACHIEVE study add to the growing evidence base that suggests addressing modifiable risk factors for cognitive decline and dementia could be impactful in reducing the future global burden of dementia."*

*Based on evidence from the ACHIEVE study, hearing loss may be a particularly important global public health target for dementia prevention efforts given that*

*hearing loss is highly prevalent among older adults and is treatable with an established intervention (i.e., hearing aids and related support services)."*<sup>19</sup>

## **Other Strategies to Protect Your Sense of Hearing**

Prevention is always better than treatment after the fact and, in the case of hearing loss, is particularly important. This is because, as the featured documentary mentions, your sense of hearing does not regenerate, unlike your other organs. It's crucial to take the necessary measures to protect your ears, to reduce your risk of hearing loss and avoid the need for hearing aids in the first place.

Protecting your ears from loud noises is one strategy. If you're prone to unsafe listening practices, such as using earbuds or headphones at high volumes or always frequenting loud entertainment venues (like concerts), your risk for noise-induced hearing loss increases.<sup>20</sup>

Hence, a commonsense approach is to practice safe listening habits and taking the necessary precautions when going to loud environments, such as wearing protective earplugs. This is particularly important if exposure to loud noises is part of your daily routine.

It's also a good idea to take regular listening breaks from using personal audio devices to give your ears a rest. For more tips in protecting your ears from noise, read my article, "[The Damaging Impact of Noise on Your Health.](#)"

I also recommend getting proper nourishment to keep your ears healthy. A 2023 study published in PLOS Biology<sup>21</sup> found that plant-based compounds called phytosterols, which are similar in structure to cholesterol, may help improve the function of your outer hair cells in the inner ear, helping amplify sounds. According to the researchers:

*"Our findings point towards the importance of cholesterol homeostasis in the inner ear as an innovative therapeutic strategy in preventing and/or delaying hearing loss."*<sup>22</sup>

## Nutrients That Nourish Your Eyes

As for your vision, remember that the health of your eyes largely depends on your lifestyle; one important aspect that you need to take care of is your diet. Providing your eyes with the proper nourishment can go a long way toward keeping them healthy well into your senior years.

Carotenoids like lutein, zeaxanthin and meso-zeaxanthin are plant compounds with potent antioxidant qualities. They protect your macula, the part of your retina that's responsible for your vision, from blue light and harmful ultraviolet (UV) light from the sun and other light sources. Your body cannot produce these nutrients, which is why you need to get them from your diet. Some of the best sources include:

- Green leafy vegetables like spinach, kale and broccoli
- Orange- and yellow-colored fruits and vegetables like squash and bell peppers
- Eggs from free-range, pastured hens (choose those with bright orange yolks, which indicate elevated levels of lutein and zeaxanthin)

However, there's another valuable antioxidant that's far superior to these – astaxanthin. Previous studies have supported its protective effects against eye-related disorders, such as cataracts and age-related macular degeneration (ARMD),<sup>23</sup> which is why many researchers believe it to be the most powerful antioxidant ever discovered for eye health.

Astaxanthin easily crosses into the tissues of your eye and exerts its effects safely and with more potency than any of the other carotenoids, without adverse reactions. Specifically, astaxanthin has been shown to ameliorate or prevent light-induced damage, photoreceptor cell damage,<sup>24</sup> ganglion cell damage and damage to the neurons of the inner retinal layers.

Apart from its positive effects on vision health, a 2024 review published in the journal *Nutrients* also found that astaxanthin may have profound benefits for your brain and may protect against neurodegeneration:<sup>25</sup>



*"AST [astaxanthin] has the potential to improve cognitive function, facilitate neuroprotection, and slow neurodegeneration. This claim is made based on the established positive effects of AST on different branches of memory and response time, as well as the implications of work utilizing biomarkers in human populations."*

## **Avoid Linoleic Acid and Blue Light to Protect Your Vision**

Polyunsaturated fats (PUFAs) like linoleic acid (LA) can severely damage your vision – and your overall health, for that matter – which is why it's crucial to ignore the mainstream advice to consume seed oils or vegetable oils, which are loaded with these harmful fats. In fact, I believe that LA is the most destructive ingredient in your diet and is largely responsible for the epidemic of modern diseases that are rampant today.

LA is found in virtually every processed food, including fast foods, restaurant foods and even salad dressings. Seemingly healthy food like chicken and pork are also be loaded with LA, unless they've been raised on special low-PUFA diets. For more information about this topic, I recommend reading my article, "[Linoleic Acid – The Most Destructive Ingredient in Your Diet.](#)"

I also advise avoiding blue light, particularly from digital devices, as it can trigger eye strain and contribute to the development of ARMD. As explained in one recent study:<sup>26</sup>

*"High exposure to blue light triggers visual discomfort in the ocular surface of the cornea (digital eye strain), disruption of circadian rhythms, increased insulin resistance, increased affective disorders and even increased incidence of cancer pathologies.*

*Therefore, it is possible that the effects of overexposure to blue light on the retina by using these devices may contribute to a higher incidence of pathological changes in the retina, such as AMD."*

## **Sensory Impairments Are Just One Risk Factor**

The bottom line is that aging is not tantamount to developing dementia. There are ways to protect your cognitive health and keep your mind sharp even as you reach your golden years. I recommend making the necessary changes to your day-to-day habits, geared towards improving these modifiable risk factors. As mentioned by The Lancet:

*"Overall, around 45% of cases of dementia are potentially preventable by addressing the 14 modifiable risk factors at different stages during the life course."<sup>27</sup>*

For example, smoking and excessive alcohol consumption are two risk factors that can be immediately avoided. Physical inactivity can be addressed by implementing a regular exercise routine. Depression, also a risk factor, can be avoided through socialization and by implementing stress-busting techniques, such as meditation and mindfulness, and by doing the Emotional Freedom Techniques (EFT).

Lastly, make sure to consume a balanced diet composed of high-quality, whole foods, and avoid processed foods, seed oils and junk foods that contribute to diseases like diabetes and obesity.

*"Healthy lifestyles that involve regular exercise, not smoking, cognitive activity in midlife (including outside formal education) and avoiding excess alcohol can not only lower dementia risk but may also push back dementia onset,"*  
Livingston said.

*"So, if people do develop dementia, they are likely to live less years with it. This has huge quality of life implications for individuals as well as cost-saving benefits for societies."<sup>28</sup>*

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