

# How Smell Can Support Memory and Brain Health

At Silverado, we are always looking for safe, compassionate, and science-based ways to support people living with memory loss. One of the most promising areas of research today involves something surprisingly simple: **the sense of smell**.

Over the past several years, researchers around the world have discovered that gently stimulating the sense of smell can support memory, mood, and brain health—especially for older adults and individuals living with dementia.

Here's what families should know.

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## 1. Smell Has a Direct Pathway to Memory

Unlike sight or hearing, smell connects directly to the parts of the brain responsible for memory and emotions. These areas—especially the hippocampus and entorhinal cortex—are often affected early in Alzheimer's disease.

Because of this direct connection, stimulating the sense of smell can activate memory pathways in ways other senses cannot.

**Research Reference:**

Leon et al., *Frontiers in Molecular Neuroscience*, 2024 — Review describing the unique direct connection between the olfactory system and memory centers of the brain.

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## 2. Loss of Smell Often Happens Early in Dementia

Research shows that changes in the sense of smell frequently appear **before** noticeable memory loss. Smell loss is commonly seen in Alzheimer's disease, Parkinson's disease, Lewy body dementia, and mild cognitive impairment.

This is one reason researchers believe supporting the olfactory (smell) system may help support overall brain health.

**Research Reference:**

Leon et al., *Frontiers in Molecular Neuroscience*, 2024 — Review identifying olfactory loss as an early feature across many neurological conditions, including dementia.

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### 3. Smell Stimulation Can Improve Memory in Older Adults

In a well-designed human study, adults ages 60–85 were gently exposed to different scents while they slept. After six months, the group receiving scent exposure showed **significant improvement in memory** compared to those who did not.

Brain imaging also showed stronger connections in memory-related brain pathways.

#### **Research Reference:**

Woo et al., *Frontiers in Neuroscience*, 2023, Randomized human study showing a 226% improvement in memory performance with nightly scent exposure.

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### 4. Even People Living With Dementia May Benefit

Other studies show that individuals already living with dementia can experience improvements from structured scent exposure.

In one study, people living with dementia who were exposed to a wide variety of scents showed improvements in:

- Memory
- Attention
- Language
- Mood and emotional well-being

#### **Research Reference:**

Cha et al., *Geriatrics and Gerontology*, 2022, Clinical study in dementia patients using 40 scents daily, demonstrating improvements in cognition and mood.

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### 5. Smell Therapy Can Support Brain Plasticity

Brain plasticity is the brain's ability to adapt, strengthen connections, and form new pathways. Research shows that regular smell stimulation can increase activity and thickness in brain regions involved in memory and thinking.

In simple terms: **the brain can respond and adapt when it receives the right kind of stimulation.**

**Research Reference:**

Al Aïn et al., *Neuroimaging*, 2019 — Human study showing increased cortical thickness in brain regions involved in smell and memory after olfactory training.

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## 6. Emotional Well-Being Often Improves

Mood and emotional health are just as important as memory. Several studies found that people receiving smell-based stimulation experienced:

- Reduced symptoms of depression
- Improved emotional regulation
- Greater overall well-being

Families often notice calmer moods and improved sleep.

**Research Reference:**

Birte-Antina et al., *International Journal of Geriatric Society*, 2018 — Study showing reduced depression symptoms and improved verbal function with olfactory training in older adults.

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## 7. Smell Stimulation May Help Reduce Inflammation

Inflammation in the brain is believed to play a role in cognitive decline. Emerging research suggests that pleasant scent exposure may help calm inflammatory responses, offering another possible explanation for its benefits.

While this area continues to be studied, it adds to the growing understanding of why smell-based therapies can be helpful.

**Research Reference:**

Leon et al., *Frontiers in Molecular Neuroscience*, 2024 — Review describing inflammation as a shared mechanism linking olfactory loss and cognitive decline, and how olfactory enrichment may help.

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## Why Silverado Uses Memory Air

Memory Air is designed to deliver gentle, research-based scent stimulation automatically and effortlessly—often during sleep.

- No strong perfumes
- No lingering smells
- No effort required from the resident
- Safe, non-invasive, and drug-free

This makes it especially well-suited for people living with memory loss.

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## A Gentle, Hopeful Approach

Smell-based therapy is **not a cure for dementia**. However, research shows it may support memory pathways, emotional well-being, and overall brain health in a safe and meaningful way.

At Silverado, we believe combining love, dignity, and science gives families confidence that their loved one is receiving thoughtful, innovative care—grounded in research and delivered with compassion.