Reteče 205, SI - 4220 Škofja Loka, Slovenija
T +386 82005358
E info@centerhocevar.com
Www.centerhocevar.com

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Why Treating an Infected Tooth Matters?

The link between oral infections and Alzheimer's disease

A growing body of scientific research suggests that infections in the mouth — especially untreated root canal infections and gum disease — may be linked to Alzheimer's disease. Here's a short summary of what the science currently shows.

What counts as an "infected tooth"?

A "nonvital" tooth is one whose nerve has died, usually from deep decay or trauma. If the resulting infection isn't treated (typically with a root canal), bacteria can persist in and around the tooth for years — often without obvious pain. Gum disease (periodontitis) is a related, chronic bacterial infection of the tissue around the teeth.

A treated root canal isn't always "clean"

Even a well-obturated root canal can leave necrotic tissue behind: instrumentation typically misses 40–50% of the canal wall, especially in isthmuses and side canals, where tissue can putrefy undetected. A normal X-ray doesn't rule this out either — periapical films miss roughly 30% of true periapical infections. So an infected or incompletely treated root canal can keep driving inflammation with no visible symptoms or lesion on film.

What the research shows

1. Amyloid-beta forms around infected, nonvital teeth

University of Central Lancashire (UCLan), led by Dr Shalini Kanagasingam, 2022

Researchers examined extracted teeth with root canal infections and gum disease. They found amyloid-beta protein — the same protein that builds up as plaques in the brains of Alzheimer's patients — forming in and around the infected tooth tissue in response to the bacterial infection.

The theory: this amyloid-beta, produced locally as an immune response, may enter the bloodstream and travel to the brain, contributing to plaque buildup there.

2. Gum disease bacteria found directly in Alzheimer's brains

Dominy et al., Science Advances, 2019

Researchers detected Porphyromonas gingivalis — the key bacterium behind chronic gum disease — along with its toxic enzymes ("gingipains") in the brain tissue of Alzheimer's patients. In mice, oral infection with this bacterium led to the bacteria colonizing the brain and increased production of amyloid-beta.

When the researchers blocked the bacteria's toxic enzymes, it reduced the bacterial load in the brain, lowered amyloid-beta production, and protected brain cells — suggesting the bacteria play an active, not just coincidental, role.

Researchers are still working out exactly how much oral bacteria contribute to Alzheimer's disease, and this is not yet proven as a direct cause. But the evidence is strong enough that treating tooth infections and gum disease promptly is one more good reason — alongside your general health — not to leave them untreated.

What you can do?

- See your dentist promptly if a tooth has been injured, deeply decayed, or has had a root canal that isn't fully healed.
- Don't ignore "silent" infections — nonvital teeth often stop hurting even while infection persists.
- Treat gum disease early: bleeding gums, persistent bad breath, and loose teeth are warning signs.
- Keep up routine dental check-ups and cleanings, even if nothing hurts.
- Maintain daily brushing and flossing to keep bacterial levels low.

Sources

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