



ALIGNER CARE

# **A Happy Accident: Discovering the Connection Between Tinnitus and Aligner Care**

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Some of Dr. Elliot Davis's dental patients brought to his attention that their tinnitus unexpectedly improved while receiving Tinnisense aligner care. Dentists, physicians and audiologists may want to consider gentle and affordable tinnitus-focused aligner therapy as it may help reduce the unexplained rise in tinnitus, which may in part be due to orthodontic therapy.

# Introduction

Discovering the connection between tinnitus and aligners was a happy accident. There was no plan to help those suffering with tinnitus. My patients unexpectedly alerted me to the connection. Here's the brief story of how my multi-patented Tinnisense™ tinnitus-focused aligners happened.

## The First Step

### Patient #1

A new patient shared that his professional mouthguards hadn't provided as much relief for his temporomandibular joint (TMJ) dysfunction (TMD) as he and his dentist had hoped. During his consultation, we discussed how other patients who had similar TMJ pains experienced significant relief with my unique sequential aligner therapy. After that initial session in 2021, he started corrective aligner care. By the spring of 2022, he was reporting that his TMD and tinnitus were no longer bothering him.

In 2021, my medical history questionnaire did not specifically ask about tinnitus. The only place for a patient to mention it was in response to the question, "Do you have a disease, condition or problem not listed above?" This patient answered "No."

When he updated me, I told him that I hadn't been aware that he had tinnitus. He said that his tinnitus used to interfere with his ability to concentrate during the day, especially during meetings. At night, it would get in the way of his falling asleep and sometimes would wake him.

He was thrilled that the annoyances from his TMD and tinnitus were greatly reduced and no longer a concern.





## The Second Step

### Patient #2

I shared the young man's good news with another patient, who confided she had been having a miserable time with tinnitus for more than 30 years. She remembered the exact moment when she first realized it had been a while since she last experienced tinnitus—a reception she had attended. She looked up the date. The event had taken place in 2014, about a year into her recovery until our discussion that it had been almost 8 years since she had her last struggle with tinnitus.

She was thrilled at the thought that her freedom from tinnitus plight might already be permanent.

## The Third Step

### Patient #3

A patient complained to me that his tinnitus got worse during his aligner therapy. He asked me if anyone else had ever told me that. His tinnitus had been slight and infrequent in recent years but was suddenly pestering him a lot more frequently. During his exam, I saw that his aligners weren't fitting as well as they once had. He returned a few days later with all of his prior aligners. An older set in the sequence was a better fit so he backtracked to those. He resumed moving forward, and this time strictly adhered to the protocol.

A month later, his tooth movement therapy was back on track. That was good news but the patient was far more thrilled that within half a year, his tinnitus was no longer troublesome. In fact, it had completely stopped.

# Piecing it Together

It was after that third patient and his pleasantly surprising outcome that “a nice coincidence” was looking more like a significant medical finding. The repositioning of the teeth and reformulation of the supportive bone had diminished and sometimes fully resolved tinnitus.

The literature suggested possible causes for tinnitus and approaches that might one day lead to a cure.<sup>1, 2, 3</sup> There was no mention of a series of intraoral aligners being a potential or definitive solution.

The percentage of those seeking care for tinnitus was growing far faster (7x faster) than the rate of population growth yet the only explanations offered suggested that it was due to heightened awareness, increased healthcare coverage among adults, and better documentation/record keeping.<sup>4</sup> As with many medical conditions without a known cure, there were widespread calls for increased research funding.

The dentistry-tinnitus studies focused almost exclusively on TMD.<sup>5, 6, 7, 8, 9, 10</sup> One study pointed out that those with TMD were 8 times more likely to have tinnitus.<sup>11</sup> Another suggested that the depth of the glenoid fossa (a depression behind the anterior of the zygomatic process of the temporal bone, which receives the mandibular condyle [TMJ]) likely had an impact on TMD and possibly on TMD-tinnitus.<sup>12, 13</sup>

There was scant mention of orthodontic treatment as a potential tinnitus culprit. One exception was Kulshrestha (2019), who hinted at a tinnitus-orthodontic relationship when he recommended that “*further studies need to be done in order to establish a direct relation between orthodontic therapy and tinnitus.*”<sup>14</sup> Interestingly, only 3 references were cited. Published dental articles typically list 4 to 20 times that many citations. The very small number confirmed that over the past 50 years, few academics examined or even contemplated examining the tinnitus-orthodontic connection.

No research, for instance, pointed out that over a recent 30-plus year period, both the number of patients who had orthodontic therapy and those who sought care for tinnitus grew at a rate in excess of 7 times that of the population growth. Those statistics are more than a curious coincidence, they point to an implication of a codependent relationship.<sup>15</sup>

# Lessons from Patients:

- Tinnitus-focused tooth movement/bone modification sequential aligner therapy has provided measurable relief and alleviated a lot of suffering.
- This cost-effective, non-invasive tinnitus remedy has been shown to be a long-lasting therapeutic solution.
- Tooth movement treatment, post-treatment instability and orthodontic relapse have all caused or exacerbated tinnitus.
- The unique tinnitus-focused aligner protocol (digital programming design, care of devices, and usage instructions) needs to be faithfully followed by clinicians, laboratory technicians and patients.
- Some tinnitus issues which manifested during orthodontic therapy were successfully corrected with prudent intervention and treatment plan modification.

## Current State of the Tinnitus-Focused Aligner Therapy

It's time for the medical and dental fields to acknowledge the existence of a tinnitus-orthodontic relationship. I've only seen a handful of patients who've had indisputably positive results but, based on the data, my colleagues and I have likely treated multitudes who've undergone orthodontic therapy that either contracted or had tinnitus exacerbated.

Witnessing tinnitus both improve and worsen during and after tooth movement treatment, strongly supports the notion of an important tinnitus-orthodontic link. It's my firm belief that should the monitoring of tinnitus during dental, orthodontic and otolaryngological (ear, nose and throat) exams become the standard of care, large numbers of patients would benefit.

# Conclusion

That orthodontic therapy is at least somewhat responsible for a large spike in tinnitus is only a hypothesis. Sadly, it's received only trace mentions in the literature and anecdotally, was initially perceived to be farfetched. However, after reviewing the tinnitus data, orthodontist patient data, tooth movement treatment outcomes, and tinnitus-orthodontic research, the likelihood of a direct cause-and-effect correlation is more than plausible. It seems much more likely to be a certainty.

It would be wise for dentistry to proactively adopt the tinnitus-focused aligner approach when rendering tooth movement care. There's very little downside in embracing this economical and gentle solution that could help curb the meteoric rise in tinnitus suffering. Doing so would be worthwhile and warmly welcomed throughout the entire healthcare ecosystem.<sup>16, 17, 18</sup>

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