

Pickleball noise: The physical and psychological effects on nearby neighbors

Plain Language Summary

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The Research Findings

Recent research shows that pickleball noise is causing serious health concerns for residents near courts. With over 4,000 new courts built in 2024, every day more people are exposed to the noise. Decades of research have shown that noise is harmful to health, but pickleball noise may be even worse.

The researchers analyzed public comments about health concerns related to pickleball in news reports, legal filings and social media. While not definitive, this method of content analysis can help identify serious problems that need further discussion and research.

The research study found that physical and psychological health issues were self-reported by nearby neighbors at nearly equal rates. Physical and psychological health issues both affect quality of life.

Disrupted sleep, cardiac, and neurologic complaints were the most common self-reported physical symptoms from nearby neighbors. [See Figure 1.]

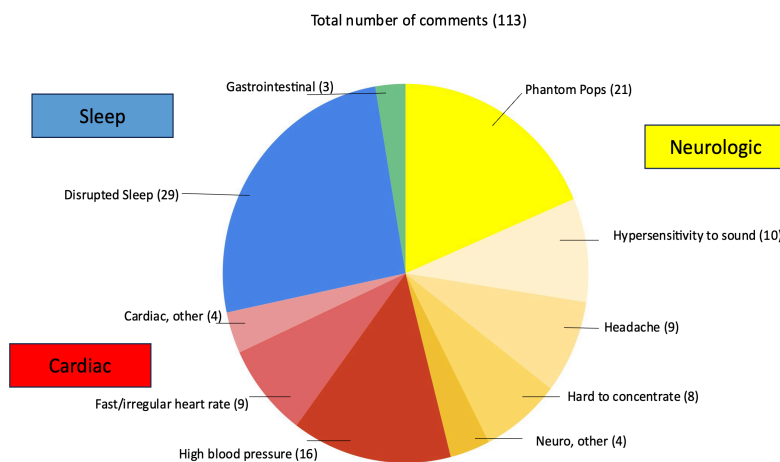


Figure 1. Self-reported physical symptoms from pickleball noise exposure

Hearing phantom pops (i.e. hearing the pops, when no play is occurring) is an unusual concern. Some report phantom pops waking them at night or persisting for months after moving away from pickleball courts. More research is needed as scientists don't completely understand how the brain is being affected by the phantom pops.

Self-reported psychological symptoms include anxiety and PTSD-like symptoms. Mentions of “torture” were more frequent than mentions of “stress”. Reports of severe distress were the most common psychological concerns noted. One example of a comment classified as “severe distress” is: “No one would choose to live this way. It is physically and emotionally debilitating”. Two reports of suicidal thoughts related to chronic pickleball noise were classified as “severe distress”.

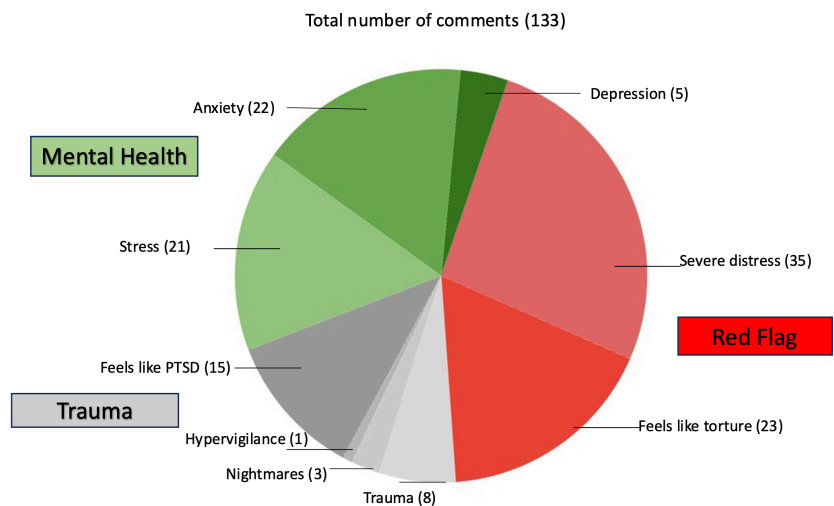


Figure 2. Self-reported psychological symptoms from pickleball noise exposure.

Noise activates an unconscious physiologic fight-or-flight stress response in our bodies. In the short term, this can lead to many of the serious health concerns noted in this study. Over the long term, it can also cause increased risks of heart disease, mental illness, and diabetes.

The physician researchers point to decades of studies showing that noise can harm health. With input from psychologists, they also stress that the intense complaints from people living near pickleball courts are serious and deserve attention.

Why do those living near pickleball courts feel this way?

Impulse: The piercing pickleball “pop” comes from a sudden, loud burst of sound called impulse noise, known to be much more bothersome than regular noise—even earning a penalty of 5-12 decibels with sound readings.

Alarming: The frequency of the pickleball pop is comparable to backup alarms on a garbage truck (1200 Hz). Our brains and auditory systems are built so that we unconsciously respond to sounds like this as “alarming”.

Incessant: At 900 pops/hour, courts can quickly rack up a lot of pops in one day. The chart below is from an HOA with 4 courts, with up to 2800 pops/hour and a total of 21,208 pops in one days. That's a lot of disruptive popping noise to endure

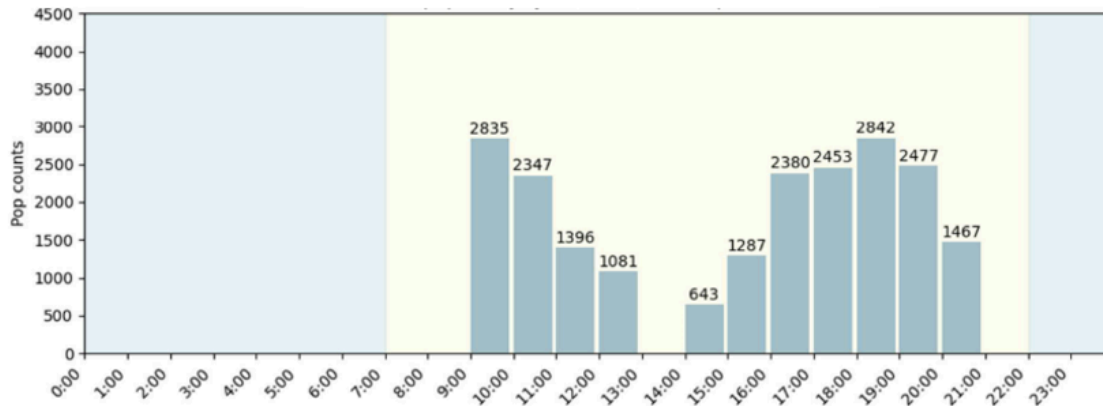


Figure 4. One day, 4 courts, hourly distribution of 21,208 total pops. Reproduced with permission from Noise Net Operations US, Inc. <https://pickleballnoiseac.com/>

Constant: Figure 5 demonstrates a day for busy courts open from 8 a.m. until 9 p.m. and shows that nearby neighbors may have as little as 3 hours awake without any noise. It's not unusual for those living near pickleball courts to be exposed to this repetitive impulse noise more than 90 hours/week.

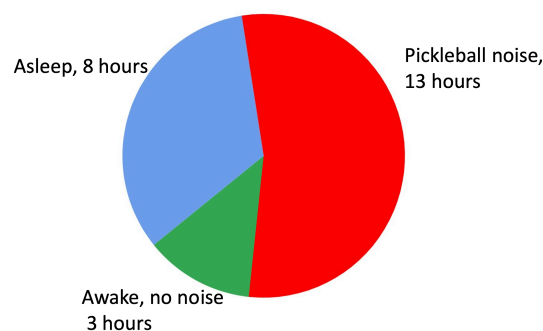


Figure 5. A typical day of pickleball noise exposure for a neighbor near busy courts.

Human Factors: Residents report feeling trapped, unable to open windows or escape the noise in their homes. Speaking out can lead to harassment, threats, and gaslighting. These contextual factors can contribute to how our brains perceive unwanted noise.

Open this [link to hear the sounds](#) generated by 4 pickleball courts. Many people can hear this inside their home, even with windows and doors closed, for hours every day.

Recommendations:

Environmental health researchers note that 30% of the human perception of sound comes from the decibel/sound level and that 70% comes from other factors. Other factors that contribute to how humans perceive unwanted pickleball noise are shown below.

Local noise ordinances and most sound studies only focus on average sound levels (decibels) and don't consider all the factors that affect how people actually perceive such noise, including the tone, the duration, and the number of pops/day. As pickleball noise expert Robert (Bob) Unetich told NPR in 2023, "You can't take pop, pop, pop for 12 hours a day every day and remain sane."

According to sound experts who've assessed 150+ pickleball sites, courts within 100 feet of homes are nearly impossible to quiet, even with good barriers. Between 100–400 feet, costly barriers, restricted hours, and quiet equipment may all be needed. All courts within 1,000 feet should undergo comprehensive sound analysis.

Combining acoustic expertise with their recent research findings, the authors recommend:

1. Setbacks are the most effective way to manage unwanted noise.
 - a. Courts < 100 feet from homes almost always should be moved or enclosed.
 - b. Courts 100-400 feet from homes need urgent sound review and likely will need mitigation with high quality sound barriers and required quiet paddles/balls and restricted hours.
 - c. Courts 400-1000 feet from homes require comprehensive sound review and may need mitigation.
2. Implementation of new courts should be done with great care...as we wait for more research to determine where and how to keep pickleball safe.
3. All sound studies evaluating pickleball court location should include not only decibel readings, but all the other factors that influence how humans perceive sound.

Pickleball is a fast-growing sport that offers great health and social benefits to players. However, the noise it creates can cause serious health concerns for people living nearby. Smart planning about where courts are located can help protect residents and also help the sport continue to grow by moving beyond conflicts and attracting more players.

