FOR PROFESSIONALS · CLINICAL REFERENCE CARD

Residential Low-Frequency Exposure

Single-page clinical reference for physicians, audiologists, ENTs, cardiologists, and mental health clinicians. Symptom cluster, differentiating questions, recommended workup, and selected peer-reviewed citations.

Symptom cluster (no single symptom is specific — diagnostic value is in the pattern)

Auditory / Vestibular	Tinnitus without hearing loss · aural fullness · ear pressure · episodic vertigo · body sway · sensation of motion when stationary
Neurological	Headaches or head pressure · difficulty concentrating · mental fog · sleep disruption (typically maintenance, not initiation) · light/sound sensitivity
Cardiovascular	Palpitations · elevated resting heart rate · BP variability · AFib exacerbation in predisposed patients
Endocrine	Salivary cortisol elevation (demonstrated in controlled exposure) · chronic HPA-axis activation downstream
Somatic / Visceral	Flank or kidney-region pain (organ resonance 4–10 Hz) · abdominal pressure · peripheral paresthesias
Psychiatric (downstream)	Anxiety · irritability · depressive symptoms · hypervigilance — frequently misdiagnosed as primary

The single most useful differentiating question:
"Do your symptoms improve when you sleep somewhere other than your home for two or three nights, and return when you come home?"

Location-dependence is the strongest clinical signal that an environmental exposure is contributing. Psychiatric and most idiopathic conditions follow the patient. Environmental exposures do not.

Recommended workup

- ☐ Audiometry, including extended high-frequency testing
- ☐ Otoacoustic emissions (DPOAE)
- ☐ Vestibular function testing if balance symptoms are present
- ☐ Salivary or serum cortisol, ideally with diurnal sampling
- ☐ Polysomnography if sleep complaints are prominent
- ☐ Cardiac evaluation including 24-hour Holter monitoring (esp. AFib, pacemakers, ICDs)
- ☐ Standard renal function panel if flank pain is reported
- ☐ Documentation of symptom-location correlation in the chart

Comorbidity considerations

Veterans with PTSD. Substantial neurobiological overlap (HPA-axis, hyperacusis, sleep disruption, hypervigilance). Screen for environmental co-contribution when PTSD is treatment-resistant or symptoms worsened after a residential change.

Pre-existing mental health diagnoses. A psychiatric history does not preclude environmental exposure. Differentiate on location-dependence, temporal correlation, and novel vestibular/visceral symptoms not characteristic of the prior diagnosis.

Cardiac conditions. Direct effects on myocardial contractility demonstrated (Chaban 2021). Low threshold for environmental investigation in AFib, pacemaker, or ICD patients whose symptoms correlate with time at home.

What you can do for the patient

Take the symptom report seriously. Order appropriate workup. Document environmental correlation in the chart. The medical record itself becomes the highest-leverage intervention — it supports habitability claims and legal action, and validates a patient who has likely been dismissed. Treatment of the exposure is environmental, not pharmacological.

Selected peer-reviewed references

Scatterty et al. (2026), *Frontiers in Behavioral Neuroscience*. 18 Hz infrasound elevates salivary cortisol at sub-perceptual exposure. DOI: 10.3389/fnbeh.2026.1729876

Ascone et al. (2021), *Scientific Reports*. 28-night residential infrasound (6 Hz, 80–90 dB) produces regional grey matter changes. DOI: 10.1038/s41598-021-82203-6

Chaban et al. (2021), *Noise & Health*. In-vitro: human atrial contractility reduced ~9% per 10 dB above 100 dBz at 16 Hz. Recommended chronic limit 80 dBz. PMID: 34213448

Baliatsas et al. (2016), *Sci. Total Environ.* Systematic review: residential LFN and neurological/psychiatric symptoms in general populations. · **ClinicalTrials.gov NCT03132961**: infrasound and endolymphatic hydrops (Univ. Minnesota).