

WIND TURBINE SYNDROME – EXECUTIVE SUMMARY

Author: Pierpont, Nina

The core of the book [[*Wind Turbine Syndrome: A Report on a Natural Experiment*](#)] is a scientific report presenting original, primary research on symptomatic people living near large industrial wind turbines (1.5-3 MW) erected since 2004.

These are the findings:

- 1) Wind turbines cause wind turbine syndrome. We know this because people have symptoms when they are close to turbines and the symptoms go away when they are away from turbines. The study families themselves figured out that they had to move away from turbines to be rid of their symptoms, and nine out of ten have moved. Some sold and some abandoned their homes.
- 2) People do not abandon their homes out of “annoyance,” and Wind Turbine Syndrome is not a subset of annoyance.
- 3) The symptom cluster is consistent from person to person, hence the term “syndrome.”
- 4) The symptoms are sleep disturbance, headache, tinnitus (ringing in ears), ear pressure, dizziness, vertigo (spinning dizziness), nausea, visual blurring, tachycardia (fast heart rate), irritability, problems with concentration and memory, and panic episodes associated with sensations of movement or quivering inside the body that arise while awake or asleep.
- 5) Children are affected as well as adults, especially older adults.
- 6) People with pre-existing migraine disorder, motion sensitivity, or damage to inner ear structures (such as hearing loss from industrial noise exposure) are more susceptible than other people to Wind Turbine Syndrome. These results are statistically significant ($p < 0.01$).
- 7) Wind Turbine Syndrome symptoms are not statistically associated with pre-existing anxiety or other mental health disorders.
- 8) The sample size of 10 families/38 people was large enough for statistical significance with regard to susceptibility or risk factors.
- 9) The susceptibility factors are clues to the pathophysiology of Wind Turbine Syndrome. The symptom complex resembles syndromes caused by vestibular (inner ear balance organ) dysfunction. The proposed mechanism is disturbance to balance and position sense by noise and/or vibration, especially low frequency components of the noise and vibration.
- 10) An extensive review of recent medical literature reveals how balance-related neural signals affect a variety of brain areas and functions, including spatial awareness, spatial memory, spatial problem-solving, fear, anxiety, autonomic functions (like digestion and

heartbeat), and aversive learning. These known neural relationships provide a robust anatomic and physiologic framework for Wind Turbine Syndrome.

11) Medical and technical literature on resonance of sound or vibration within body cavities (chest, skull, eyes, throat, ears) is reviewed, since study subjects experienced these effects.

12) Published studies of documented low frequency noise exposure (both experimental and environmental) are reviewed. These demonstrate effects on people similar or identical to Wind Turbine Syndrome. Indeed, one published study from Germany in 1996 may indeed be Wind Turbine Syndrome.

13) Recent survey studies of people who live near wind turbines in Sweden and the Netherlands are reviewed. These show that people are severely annoyed at noise from wind turbines at much lower A-weighted noise levels than for traffic, train, or aircraft noise.

14) Recommendations from the World Health Organization on environmental noise with low frequency components are reviewed.

15) Published studies of effects of environmental noise on children's learning are reviewed.

16) With regard to Wind Turbine Syndrome, further research is needed to prove its physical causes and physiologic mechanisms, determine how many people are affected, and further explore how it affects special populations, such as children.

17) This study and other studies reviewed in the report indicate that safe setbacks will be at least 2 km (1.24 miles), and longer for larger turbines and in more varied topography.

The book further includes:

A) Full case histories—the words and experiences of all the study subjects (including children), presented in an organized tabular format.

B) The report presented again in non-scientific, layman's language, explaining the medical, technical, and statistical aspects of the study. This section is illustrated.

C) Peer reviews and commentary by scientists and university physicians.

D) Introduction, complete list of scientific and medical references, glossary, and list of abbreviations.